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Group discussion versus persuasive speech in changing behavior

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GROUP DISCUSSION VERSUS PERSUASIVE SPEECH IN CHANGING BEHAVIOR

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Abstract

There has been much research concerning attitude change, but few studies examining concomitant changes in behavior. Those studies that have studied behavioral changes have produced inconsistent results. The present study was directed at exploring the relationship between different methods of changing behavior. Forty-six undergraduate students were assigned to either a control, persuasive speech, general discussion, or problem-solving discussion conditions. Experimental conditions were measured by two dependent variables: the number of volunteers (behavioral intention) and appearance at a meeting the following day (overt behavior). With regard to behavioral intentions, persuasive speech did not differ from controls; both types of discussion were equally more effective than a persuasive speech. With regard to overt behavior, no subjects, in any condition, appeared at the meeting. It was concluded that attitudes are not necessarily consistent with actions.

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It has been a prevailing view in our society that attitudes cause behavior (Bem, 1970). If one wanted to change another's behavior, then one would expect to do so by changing the other's attitude. Historically, this was the approach taken by the Yale School of Communication and Attitude Change; and it is still very much in vogue today. Zimbardo & Ebbesen (1969) see this approach as one which assumes that man is a rational, information-processing organism. Man will incorporate the content of a formal, structured communication into his repertoire of responses if he anticipates a reward for agreeing with the communication or becomes aware of the logical and rational necessity for accepting the information and position advanced. But is there a consistency between attitude change and behavior change? Greenwald (1965) felt that psychologists had ignored the problem completely and considered the assumptions underlying this approach as "too obviously true" to need testing. He found no empirical support for the proposition that inducing a change in one's belief would result in the behavior changes necessary to renew consistency between belief and behavior.

It should be mentioned at the outset that many investigators employ the concepts of "belief," "attitude," and "opinion" indiscriminately in carrying forth their discussions (Rokeach, 1968). After an extensive survey of existing definitions, Rokeach formulated the following definition of attitude:

> An attitude is a relatively enduring organization of interrelated beliefs that describe, evaluate, and advocate action with respect to an object or situation, with each belief having cognitive, affective, and behavioral components. [Rokeach, 1968, p. 132]

He further states that this organization of beliefs predisposes one to approach or avoid an object. An opinion, on the other hand, is a verbal expression which may or may not be an accurate manifestation of an attitude. Furthermore, Rokeach criticizes the many researchers who refer to attitude change without specifying the aspect of attitude (belief, feeling, or action tendency) in which change is predicted and measured.

Since an attitude and its aspects [as defined by Rokeach (1968)] can only be inferred from behavior, the use of such terms in this study is with the understanding that the individual researchers cited have made these inferences, not the present investigator. It should also be understood that the present study is primarily concerned with behavior change. References to attitudes, and their aspects, appear only as they contribute to behavioral changes. The research on this point was found to be somewhat sparse and inconsistent.

Festinger (1964), in a search of the literature, found three relevant empirical studies, each of which had, surprisingly, failed to support the proposition that belief change will lead to consistency-renewing behavior change. Cohen (1964) also found that very little work on attitude change had explicitly dealt with the behavior that may follow a change of attitude.

In a more recent review, it was found that psychologists have continued to produce an abundance of research on attitude change unaccompanied by examination of behavior change (Sears & Abels, 1969). The relatively few studies investigating behavioral concomitants of attitude change have usually dealt with fear-arousal, although behavior has been included in

research on other variables (Fendrich, 1967a; Fishbein, 1967; Greenwald, 1965, 1966; Insko & Schopler, 1967; Rokeach, 1966; and others).

In his review of the fear-arousal literature from 1953 to 1968, Higbee (1969) found considerable inconsistency among the findings regarding the relative effectiveness of high threat versus low threat in persuasive messages. He felt that although Janis & Feshbach (1953) found an inverse relationship between tooth brushing behavior and level of fear-arousal, most studies indicated a positive relationship of some sort. However, a closer look at some of these studies demonstrates the fragility of this relationship.

Kornzweig (1968) found that tetanus shots were taken more often under high rather than low levels of fear, immediate rather than delayed availability, and painless rather than painful expectations. Other studies failed to support all of these findings. For example, Leventhal, Jones, & Trembly (1966) found that even though high fear communications produced more favorable attitudes toward taking shots, subjects were more likely to take tetanus shots regardless of level of fear if the communication contained specific instructions to get the shots. Similar results were reported in an earlier study where the authors concluded that attitudes and actions appear to be affected by different factors (Leventhal, Singer, & Jones, 1965). It was a puzzle to them why more action did not occur in the condition where attitude change was greatest. Dabbs & Leventhal (1967) also added to the inconsistency between studies when they obtained an interaction effect between threat and self-esteem, but the results held only for attitudes, not for action. Further inconsistencies between studies have been cited by Miller (1963). Some recent studies, however,

seem to show behavior and beliefs to be in agreement.

Kegeles (1969) and Lehmann (1970) both studied the effects of a fear-producing communication on ghetto women. Kegeles found that more experimental subjects high in post-beliefs reported to a clinic for a cancer check-up than those low in post-beliefs or control subjects high in post-beliefs. Lehmann reported that the likelihood of women changing their opinions and returning for a post-partum check-up as a result of either a threatening or reassuring communication depended on the subject's anxiety level. There are common aspects in these two studies that are not shared by most fear-arousal studies, and these aspects may help to explain why the many investigations have shown inconsistent results. The relevant aspects of successful persuasion attempts will be discussed later (p. 11).

Since most behavioral change situations do not readily lend themselves to a fear-arousal approach, it seems appropriate to examine other studies that have attempted to produce a behavior change through attitude change. Reviewing this literature, most studies failed to show a relationship between attitude and behavior change. In those instances where a behavior change occurred after a persuasive communication, it cannot be said with assurance that an attitude change "caused" or mediated the behavior change. For example, DeFleur & Westie (1958) found a greater tendency for the prejudiced persons than the unprejudiced to avoid being photographed with a Negro. However, there were some prejudiced persons who, without hesitation, signed the agreement to interact with Negroes as well as some unprejudiced persons who were not willing to interact with Negroes at all.

In a similar study of racial attitudes, Fendrich (1967a) found that attitudes were only partially independent determinants of overt behavior, but perceived reference group support determined both racial attitudes and overt behavior. In another study of racial behavior not involving attitude or behavioral change, Fendrich (1967b) discovered that attitudes were consistent with subsequent behavior only when subjects were asked to commit themselves to interaction with Negroes before they responded to an attitude scale. Studying behavior change, Greenwald (1966) lent support to Fendrich's conclusions when he found that subjects, who before receipt of a communication committed themselves to a position opposing it, showed effects of the communication on beliefs but not on behavior. In an earlier behavior change experiment, Greenwald (1965) demonstrated that a communication advocating the importance of an action produced a change both in the belief that the action was desirable and in the probability of choosing to perform the action.

Although Greenwald's research produced apparently unambiguous results, he was not ready to suggest that the behavior change was mediated by the belief change. He felt that the evidence supported alternative explanations equally as well. He further suggested that belief and behavior changes could be parallel products of the communication or that behavior change mediated belief change. Bem (1970) would agree with the latter interpretation. Consistent with his self-perception theory, he believes that it might be easier to change beliefs through behavior than the other way around. Fishbein (1967) would also agree. He believes that there is little consistent evidence to support the relationship between attitudes and behavior, and the evidence that does exist comes from studies showing

that a person tends to bring his attitudes in line with his behavior rather than from studies demonstrating that behavior is a function of attitudes. This view has also been supported by Elms (1969) in his review of the role playing attitude change research.

Investigations that have failed to demonstrate behavior change through a persuasive communication tend to diminish even more the credibility of the proposition that attitude changes result in behavioral changes. Since these studies are more numerous than the positive ones, they will not all be examined as completely as were the positive studies.

Although there had been a significant opinion change in supervisors who attended a two week training course, Fleishman (1953) found that there were no consistent differences in overt behavior when they returned to their work situation. In some cases, foremen exhibited more behaviors that were opposed to the principles learned in the training sessions. Behavior in the plant seemed to be more related to the practices of the foremen's supervisors. Festinger (1964) described a study that discovered that mothers who changed their attitudes on late toilet training did not behave consistently with their new attitude. More recently, Zwicker (1968) found that, although a persuasive communication was successful in creating a new, overall attitude concerning diabetes, these changes were not reflected in behavior. Chaffee & Lindner (1969) discovered that a person's evaluation of an object changed as a function of its salience to him, but these effects did not carry over to corresponding changes in his behavior directed toward the object. Arnold (1967) found a low correlation (.164) between attitude and behavior changes. He concluded that attitude change is not a prerequisite for overt behavior.

Alluding to the preponderance of studies that have failed to demonstrate behavior change through attitude change, Insko & Schopler (1967) listed four reasons why this might be so. First, the person must perceive and accept the cognitive relation between any new attitude and some behavior. A second reason why attitude change may not result in behavior change relates to the hedonistic considerations of the individual when faced with the behavioral situation. Third, the attitude object must be significant in the person's value structure. A fourth reason may be that opportunities for the behavior may not arise. Insko & Schopler do not present experimental evidence supporting these reasons; nevertheless, the four reasons may help to explain the inconsistencies of the studies at hand.

With regard to the first reason, individuals may perceive but may or may not accept the cognitive link between a new attitude and its concomitant behavior, depending on the situation (Rokeach, 1966, 1968). When the situation is similar to a psychological experiment (most of these studies are), subjects show more acquiesence to a persuasive message than when it is not (Silverman, 1968). Orne (1962) calls this the demand characteristic of the experimental situation. In other words, subjects tend to play the role of a "good subject" and attempt to validate the experimenter's experimental hypothesis as they see it. In an attempt to determine the effect of deception, Hummel (1969) found that subjects would behave according to the way demand characteristics would predict if they had no knowledge of the deception. If, on the other hand, subjects were suspicious of the experimenter's attempts, they would do the opposite of what the experimenter wanted. Adding a further dimension

to this effect, Rosnow & Suls (1970) concluded that results of a before-after attitude change experiment may be affected by willingness of subjects to participate in the research. The experimenters found that there is an increase in the probability of Type I errors when the subjects are volunteers and Type II errors when the subjects are nonvolunteers. There may be sex differences too. Hornbeck (1969) discovered that males, but not females, behaved in accord with their perceptions of the experimenter.

If volunteer subjects have been used in the few studies showing a positive relationship between attitude and behavior change, such changes may be due to the demand characteristics of experimental situation. Since Greenwald (1965) did attempt to control for this effect, it may not explain his results. That this is a real and confounding variable has been confirmed by Page (1970) in laboratory attitude change experiments.

Bem (1970), alluding to Insko & Schopler's second reason why behavior change is not often followed by attitude change, concluded that in most cases behaviors are more costly than beliefs. It seems that when the cost of behaving is too high, behavior change diminishes (Cook, Burd, & Talbert, 1970; Weiss & Steenbock, 1965). This hedonistic effect is also supported by the Kornzweig (1968) experiment mentioned earlier.

Although the research supporting hedonistic considerations seems convincing, it is not unequivocal. First, it may have been the demand characteristics of the experiment that led the researchers to believe there was a realignment of attitudes. But when the costly action implications were realized, subjects may have decided to call a halt to their role of "good subjects." Another explanation relates to Insko & Schopler's

third reason for lack of change in behavior: a low valuation of the attitude object. None of the studies had determined if the attitude object was personally relevant to the subjects. The lack of this procedure has been criticized as a serious shortcoming by several researchers (Hovland, 1959; Insko & Schopler, 1967; Rokeach, 1966; Schufletowski & Reed, 1970; Sherif, Sherif, & Nebergall, 1965).

Even some of the less ambiguous studies have failed to measure attitudes in relation to subjects' value structure. For example, Greenwald's (1965, 1966) studies demonstrated behavior change but on topics (history versus vocabulary) that have not been shown to be very involving or relevant to seventh and eighth grade subjects. Furthermore, when subjects did involve themselves (committed themselves to either topic), they showed a change in belief but not in behavior. A similar effect was demonstrated by Fendrich (1967b).

The fourth reason Insko & Schopler cited to explain the inconsistent relationship is that opportunities for the behavior may not arise. As mentioned earlier, Leventhal, et. al. (1966) discovered that specific instructions were required before subjects took tetanus shots. Similar results were obtained by Kegeles (1969) and Lehmann (1970) after they made available behavioral opportunities. It may also have been because of this very reason that Greenwald (1965, 1966) and Arnold (1967) showed a positive relationship between attitude and behavior also. In both cases, the researchers put subjects in an artificial choice confrontation where subjects could choose only between consistent and inconsistent behavior. They did not have a choice of whether or not to engage in consistent behavior or whether or not to engage in inconsistent behavior. A lack of choice con-

frontations can be a serious limitation in such studies (Insko & Schopler, 1967).

In addition to the four reasons discussed above, Ajzen & Fishbein (1970) have offered three other variables necessary to predict overt behavior. Using a linear model to predict behavior in the context of the Prisoner's Dilemma game, these researchers require that the following be ascertained: (a) attitude toward performing a given behavior in a given situation; (b) normative beliefs; and (c) motivation to comply with the norms. They concluded that for behavior change, the demonstration of attitude change as the result of a persuasive communication is insufficient.

Whether the previously listed reasons for the occurance of inconsistencies between attitude change and subsequent behavior are complete remains to be empirically determined. Nevertheless, several researchers (DeFleur & Westie, 1963; Fishbein, 1967; Kiesler, Collins, & Miller, 1969; Krech, Crutchfield, & Ballachey, 1962; Newcomb, Turner, & Converse, 1965; Rosenberg, Hovland, McGuire, & Abelson, 1960; Zwicker, 1968) have alluded to the presence of "other" variables that may have accounted for these inconsistencies. Even when attitude change is not involved, other experimenters have discovered that behaviors have not appeared to be consistent with supposed attitudes (Kutner, Wilkins, & Yarrow, 1952; LaPiere, 1934; Levie, 1969; Linn, 1965; Mann, 1959; Raab & Lipset, 1962; Tarter, 1969).

From the preceding evidence, it seems safe to conclude that attempts to change behavior by attempting to change a presumed underlying attitude have, by and large, failed. This conclusion appears to have been anticipated by Cohen (1964) when he stated:

> Until experimental research demonstrates that attitude change has consequences for subsequent behavior, we cannot be certain that our procedures for inducing change do anything more than cause cognitive realignments; perhaps we cannot even be certain that the concept of attitude has critical significance for psychology. [Cohen, 1964, p. 138]

In spite of the preponderance of evidence to the contrary, there have been some relatively unambiguous experiments that have involved behavioral changes through persuasive communications (Kegeles, 1969; Kornzweig, 1968; Lehmann, 1970). The concept of attitudes should not, therefore, be summarily abandoned. However, because of the nature of these studies, the methods used may not be readily generalized to other types of situations. For example, both the Kegeles and Lehmann experiments took place in "naturalistic" settings where the experimenter attempted to influence only one subject at a time in a face-to-face interview. The fear-arousal techniques used by Kornzweig also have limited applicability. It may very well be that the methods, which have proven themselves of limited use, are the major reasons for the studies' positive results. It should also be noted that these three studies met all four of Insko & Schopler's conditions for obtaining behavior change through a persuasive message.

With the possible exception of some of the fear-arousal studies, behavior change through attitude change is an approach that has been shown to be quite tenuous. Given that this conclusion is justified, what are the alternate approaches to behavior change? Assuming that there are alternate approaches to behavioral change, such approaches should have the benefits not readily provided by the attitude change approach. Any such approach should be flexible enough to use in a variety of situations, as well as more efficacious and economical than the attitude approach.

Several other approaches have been tried with varying degrees of success.

Although the social psychological subarea of group dynamics is replete with research on group pressure and conformity (Cartwright & Zander, 1968), such approaches to behavioral change often show results that diminish under conditions of non-surveillance (Kelman, 1958; Rokeach, 1968). Because of this limitation, group pressure will not be considered a suitable alternative to the attitude approach. Similarly, approaches based on reinforcement theories may not be suitable alternatives either. It is not expected that social behaviors will show a viable change in the absence of reinforcement. As a matter of fact, one would expect extinction of the new behavior. Supporting this position by a recent study, Williams, Cormier, Sapp, & Andrews (1971) failed to show a significant increase in biracial interaction behavior between black and white students after using behavior management techniques.

Another approach to changing behavior that has shown more positive results occurs in the process of group interaction. This has been referred to as the group dynamics approach (Zimbardo & Ebbesen, 1969). Under this approach, it assumed that man is a social being who changes his behavior because of his need to be accepted by groups. It is further assumed that one attempts to change his own behavior in order to be consistent with one's perception of the group's norms. Supporting this position, Fendrich (1967a) found that overt behavior toward Negroes was more a function of perceived reference group support than of expressed attitudes. Studies have demonstrated that individuals involved in group discussion, decision-making, or problem-solving have changed their behavior.

In their Harwood studies, Coch & French (1948) found that certain procedures could greatly reduce costly turnover and relearning rates. The procedure by which these effects were accomplished was the use of meetings where group participation was stimulated to the extent that workers helped plan changes in the plant. In another early study, Radke & Klisurich (1947) discovered that mothers of new-born infants, who engaged in a discussion among themselves under the leadership of a dietician, adopted the desired behavioral patterns much more effectively than controls who received individual instruction. More recently, Schuster (1969) related experiments where efforts were made to reduce the anxieties of employees being trained for new jobs by involving them in problem solving and goal setting issues. The results showed that both their training and adjustment to the work situation were accelerated.

From the foregoing experiments, it appears as though group discussion alone may be an alternative to attitude change for producing behavior change. This position is supported by results of Levine & Butler (1952), who found that foremen allowed to discuss and make decisions regarding employee ratings reduced "halo" errors significantly more than those in lecture groups. Further support for this position is obtained from two experiments by Lewin (1952) who found the group discussion method to be far superior to the lecture method in getting women to change strongly held, traditional food preferences. The individuals in these studies were not asked to make group decisions, however. They were to make individual decisions in a group and make a public statement about their decisions. Because he relied on self-report for the measure of subsequent behavior, Lewin's conclusions are somewhat weakened.

In an attempt to discover the relative contributions of such factors as lecture versus discussion, group decision versus no decision, degree of public commitment and degree of actual or perceived consensus in the group, Bennett (1955) conducted a study from which she concluded:

> (1) Group discussion, as an influence technique, was not found to be more effective inducement to action than a lecture or no influence attempt at all.
>
> (2) The factor of decision regarding a future action was found to be effective in raising the probability that such action would be executed.
>
> (3) A decision indicated by public commitment was not found to be more effective in assuring the execution of the decision than one indicated less publicly or anonymously.
>
> (4) A high degree of actual or perceived group consensus regarding intention to act was found to raise the probability that individual members of the group would execute the action above the probability of action by members of groups characterized by a low degree of consensus. [Bennett, 1955, p. 271]

Alluding to the Lewinian experiments, Bennett concluded that the results attributed to "Group Decision" were not necessarily due to the group discussion method. Bennett further concluded that the combination of two variables, the process of making a decision, and the degree to which group consensus is obtained and perceived, was capable of producing differences as large as those reported by Lewin.

Some subsequent studies have failed to support Bennett's conclusions, however. Reviewing these conclusions, Krech, et. al. (1962) commented, but refused to speculate, why Bennett's study was the only one they reviewed that did not find public commitment more predictive of behavior change than private commitment. Pennington, Haravey, & Bass (1958) found that under either group discussion or group decision subjects became more effective at a problem solving task. More recently, Thomas & Levin (1971) discovered

that an increase in charitable behavior occurred when individuals learned that their donations would be made public. It should be noted that in neither the Thomas & Levin nor the Pennington, et. al. studies did the researchers control for perceived group consensus. Since this variable may have confounded their results, refutation of Bennett's conclusions is attenuated.

Bennett used a behavior relatively low in involvement (volunteering to participate in psychological experiments), but results may not have been the same for a more involving (or costly) behavior. It may be, however, that volunteering for psychological experiments is a behavior that is strongly affected by perceived group consensus. Rosenbaum & Blake (1955) found that students were more likely to volunteer for such experiments if another student had done so in their presence and were not likely to do so if another student refused to volunteer. But is volunteering for psychological experiments a behavior that is affected by publicity of commitment? In a similar study, Schachter & Hall (1952) discovered that volunteering for an experiment was more likely to occur when group restraints were low. However, volunteers from conditions characterized by low restraints were less likely to keep their scheduled appointment. The social restraints employed by the researchers could also be interpreted as amount of publicity of decision to volunteer.

The results of Bennett's experiment, with regard to efficacy of lecture versus discussion techniques, still remains somewhat puzzling. If there is no difference between the two techniques with respect to behavior, how are the several contradictory studies explained. In human relations training, for example, Harris and Fleishman (1955) confirmed previous findings that

lecture techniques had minimal effect when evaluated back in the plant. On the other hand, laboratory training procedures and similar group interactional techniques have reported substantial successes (Argyris, 1962; Bennis, 1963; Bradford, Gibb, & Benne, 1964; Eitington, 1969; Friedlander, 1967; Marrow, Bowers, & Seashore, 1967; Miles, 1960; Morreale, 1969; Schien & Bennis, 1965; and others).

One of the distinguishing characteristics of the T-group technique vis-a-vis the lecture method is experiential learning via individual participation and relatively open discussion (Rogers, 1969). In contradistinction, the lecture technique involves a persuasive communication presented to a relatively passive audience. Persuasive communication is the technique that was frequently used in the attitude change approach to behavior change, mentioned earlier. In addition to group discussion techniques, organizational development labs, or T-groups, tend to change behaviors by focusing on goals and formulating plans of action to realize those goals (Steele, Zand, & Zalkind, 1970). In a review of the literature, House (1967) concluded that the T-group method is a powerful tool for changing behavior in a wide variety of situations with a wide variety of individuals.

The problem at once becomes clearer. Which technique is more efficacious--lecture or group discussion? Or more generally, which approach to behavior change should one take--persuasive communication or group dynamics? The bulk of the evidence presented thus far favors the latter. However, there are certain conditions that, when met, tend to maximize the effects of the attitude change approach (Insko & Schopler, 1967; Kegeles, 1969; Lehmann, 1970). Furthermore, there are conditions where group

discussions have not been shown to be more effective than lectures (Bennett, 1955; Carron, 1964). Krech, et. al. (1962) raised even more possibilities when they concluded that discussion may be more effective than the lecture method when a group consensus is sought, but no more effective when group members are asked to make individual decisions. This would suggest that a combination of the two approaches might result in even greater behavior change.

Historically, the Center of Group Dynamics at the University of Michigan and the School of Communication and Attitude Change at Yale have used divergent approaches to produce behavior change (Zimbardo & Ebbeson, 1969). These two approaches might be thought of as merely different methods for changing attitudes which, in turn, produce changes in behavior. However, the concept of attitude is not necessary to explain behavior changes that result from group interactions. On the other hand, behavior that results from a persuasive communication is usually seen as depending upon the attitude concept. If it can be demonstrated that one approach is more efficacious than the other, the necessity of the concept of attitudes in behavior change situations can be determined.

Statement of the Problem. On the basis of the foregoing information, it is suggested that the two general behavior change approaches be tested by comparing the efficacy of their concomitant techniques.

The present study represents an attempt to discover whether participation in either of two forms of group discussion will produce greater voluntary participation in a selected activity than will a persuasive communication. Since Insko & Schopler (1967) and Rokeach (1968) emphasized the necessity of choosing an activity of relatively high relevance in

behavior change attempts; and because of its topical nature and relatively high relevance to students, pollution control was selected as the activity. That this topic was highly valued by similar subjects had been previously determined in a pilot study by this researcher, where it was found that psychology students ranked participation in pollution control in the upper one-fourth of community activities. It was also thought that research volunteering for pollution control might have practical significance in itself. Voluntary participation in this activity was measured in two ways. First, behavioral intentions were determined by subjects completing a volunteer statement. The method used here was similar to the "low restraint" method cited by Schachter & Hall (1952). It was concluded by these researchers that this procedure would yield the greatest amount of volunteering. Since behavioral intentions and other measures taken in the context of an experiment could be due to demand characteristics (Orne, 1962) or other influences (Kelman, 1958), it was thought that a second measure of participation should take place outside of the experimental situation. On the basis of previous research, it was believed that actual behavior change could be assessed by counting the number of subjects showing at a meeting sometime after the experiment (Kegeles, 1969; Lehmann, 1970).

In order to minimize the "costs" of participating (Cook, et. al, 1970), subjects were to appear at a nearby meeting place any time during the day following the experiment. In order to maximize the attendance at the meeting place, subjects were given specific instructions in writing. This procedure was employed because of the findings of Leventhal, et. al. (1966) studies mentioned earlier. Since restriction of choice confrontation has been considered a serious limitation in some previous studies (Insko &

Schopler, 1967), subjects in this study were not restricted to any one of the choice confrontations mentioned earlier in this paper (p. 9).

The dependent measures, mentioned above, were used to determine the effects of general discussion (GD), problem solving discussion (PSD), and persuasive speech (PS). General discussion of the enlightenment type (Brilhart, 1967) was patterned after previous research of this type (Bennett, 1955; Lewin, 1952). The problem solving discussion was somewhat different, however. Focusing on a plan of action, PSD requires a group decision. In the process of reaching that decision, one would expect greater perceived group consensus. In addition, since the PSD groups are not much larger than six or so (Brilhart, 1967), one would also expect a greater amount of interaction and personal commitment than in GD. Interaction of the PSD type was found to be successful in several of the organizational studies mentioned earlier (Coch & French, 1947; House, 1967; Levine & Butler, 1952). On the basis of Larson's (1969) findings, the problem solving method employed here followed the format of the "ideal solution" type. Since credibility affects the persuasibility of a speaker (Arnold, 1967), it was thought that the chairman of a local ecology organization, who is also a Biology professor, would offer considerable credibility. It was for this reason that he was selected to give the persuasive speech and lead the general discussion. Since it would have been impossible to give a "live" speech and at the same time lead a discussion, it was decided that the speech be presented by video tape. Because persuasive communications over television have been known to produce some behavioral changes (Kraus, El-Assal, & DeFleur, 1966), it was thought that video tape would provide a standard and realistic method of persuasion. In

addition, persuasive messages of this type often appear on local television stations. From this standpoint, it would seem reasonable to present a message of this type by video tape. The procedure also allowed standardization of the PS condition. A control group (C) did not receive any induction treatment but was used for base-line information on the dependent measures.

Hypotheses. The dependent measures of volunteering to participate in pollution control and appearing at a meeting sometime after the experiment were taken on each of the four treatment conditions: C, PS, GD, and PSD. From these treatment conditions the following hypotheses were formulated with $\alpha \leq .05$:

Hypothesis I. The PS condition will yield a greater amount of volunteering to participate in pollution control than will the C condition.

Hypothesis II. The GD condition will yield a greater amount of volunteering to participate in pollution control than will the C condition.

Hypothesis III. The PSD condition will yield a greater amount of volunteering to participate in pollution control than will the C condition.

Hypothesis IV. The GD condition will yield a greater amount of volunteering to participate in pollution control than will the PS condition.

Hypothesis V. The PSD condition will yield a greater amount of volunteering to participate in pollution control than will the PS condition.

Hypothesis VI. The PSD condition will yield a greater amount of volunteering to participate in pollution control than will the GD condition.

Hypothesis VII. The PS condition will yield a greater number showing up at a subsequent meeting than will the C condition.

Hypothesis VIII. The GD condition will yield a greater number showing up at a subsequent meeting than will the C condition.

Hypothesis IX. The PSD condition will yield a greater number showing up at a subsequent meeting than will the C condition.

Hypothesis X. The GD condition will yield a greater number showing up at a subsequent meeting than will the PS condition.

Hypothesis XI. The PSD condition will yield a greater number showing up at a subsequent meeting than will the PS condition.

Hypothesis XII. The PSD condition will yield a greater number showing up at a subsequent meeting than will the GD condition.

Method

Subjects. Forty-seven students enrolled in an introductory psychology course responded to a request for volunteers for social psychological research. Subjects from the class were randomly assigned to one of the four treatment conditions. Although subjects could have refused, they were urged to participate in this experiment. Subjects were asked to participate during the last half of their scheduled class time.

Instruments. Self-adhering paper labels printed with each subject's name were used for identification purposes. Before starting the treatment conditions, subjects were asked to complete a biographical questionnaire (Appendix A). In conditions requiring general discussion, the leader followed a standard outline (Appendix B). The persuasive speech was recorded and shown on a Sony 3600 video tape recorder. After the completion of the induction techniques, individual sign-up sheets were given to all subjects (Appendix C). Only those who wished to volunteer were required to complete this form. Scratch paper, pencils, and an instruction sheet (Appendix D) were given to each of the problem-solving groups. At the end of each treatment, all subjects were given written instructions

on how they could further participate (Appendix E).

Procedure. Subjects completed the biographical questionnaires in their classroom. After filling out the questionnaire, subjects were told that they would be assigned to one of four groups, based on the last digit on their questionnaires and might have to move to another room. Subjects were further told that it did not make any difference which group went to which room so a toss of a die would determine room assignment. Since experimental conditions had been previously assigned to specific rooms and numbering the questionnaires had been random, it was thought that tossing a die would constitute random assignment of individuals to treatment groups. Thus, the experimental conditions occurred simultaneously in four separate rooms.

In the control condition, a person identifying himself as a representative of the Quality Environment Council (Q.E.C.) told the group that he was looking for volunteers to participate in pollution control activities. He then distributed the volunteer statements. After collecting these statements, he told the group that they were free to leave. As they left the room, subjects were individually given the written instructions on how they could participate in pollution control activities.

In the PS condition, subjects received a 20 minute video taped speech by the director of Q. E. C. The thesis of the speech was: volunteers are needed for pollution control activities. At the end of the speech, volunteer statements were distributed and collected by a Q. E. C. representative. The written instructions for participation were distributed in the same manner as in the control condition.

In the GD condition, the director of Q. E. C. appeared as the group was being handed name tags and started a group discussion based on the following question: are volunteers needed for pollution control activities? Leading this discussion, he encouraged active participation from all subjects and a free flow of relevant ideas. Discussion was limited to the points covered in the persuasive speech. When the discussion ended after 20 minutes, the discussion leader distributed and collected the volunteer statements. The instructions for participation were distributed in the same manner as in the other conditions. Three subjects stayed for an additional 25 minutes with the discussion leader.

Subjects in the PSD were randomly assigned to two groups of five or six, each as soon as they were seated in the room. They were given writing materials, name tags; and the written instructions on how to conduct this discussion. Although 20 minutes was only suggested for discussion, both groups were finished by that time. Subjects were encouraged to formulate a plan that would put the thesis of the persuasive speech into action. Action plans were collected after both groups finished, and subjects were given volunteer statements by a representative of Q. E. C. Similar to the other conditions, participation instructions were distributed.

Actual participation was determined if subjects appeared at a particular room in the Student Union any time (7:30 a.m. to 7:30 p.m.) the following day. Subjects who subsequently showed up were given Q. E. C. material for on-going programs and lists of people they could contact for even further participation. Thus, the number of subjects who actually showed up comprised the second dependent variable. Those subjects who could not show up for some reason but called and made another appointment

instead were considered to be actual participants.

Results

In order to determine the merits of general discussion versus persuasive speech, the GD and PS groups were compared on the two dependent variables, completing a volunteer statement, and showing up at a meeting. In order to determine whether problem solving discussion would yield more volunteering and actual participation than general discussion or a persuasive speech, PSD was compared with GD and PS. To ascertain the effects of the experimental conditions versus no treatment, PS, GD, and PSD groups were compared with the control group on both volunteering to participate and appearing at a meeting.

Subjects were eliminated from the data analysis if their biographical questionnaire indicated that: (a) they were presently a member of an ecology group, or (b) they had participated in pollution control activities within the past year. Based on this criterion, one subject was eliminated from the GD group data, reducing the total number of subjects to 46.

With respect to the first dependent measure, volunteering to participate (behavioral intention), comparisons between conditions were made using a one-tailed Fisher test (Siegel, 1956). As summarized in Table 1, the data show that there was no difference between the C and PS conditions. Thus, the hypotheses that the PS condition would yield a greater amount of volunteering to participate was not supported. Comparisons using the Fisher test supported the hypotheses that the GD condition would yield a greater amount of volunteering than either the PS or C conditions ($p < .025$). Comparing PSD with the PS and C conditions,

the hypotheses that PSD would produce more volunteering than either of the latter was supported ($p < .01$). Since the Fisher test failed to show any significant difference between the GD and PSD conditions ($p > .24$), the hypothesis that PSD would yield a greater amount of volunteering was not supported.

With respect to the second dependent measure, attending a meeting (actual behavior), statistical comparisons between conditions were not conducted since none of the subjects appeared. Thus, the hypotheses predicting that some conditions would produce more individuals appearing at the meeting were not supported.

Table 1

Number of Subjects in Each Condition Volunteering to Participate in Pollution Control Activities

Condition	N	No. of Volunteers
Control	12	1
Persuasive Speech	12	1
General Discussion	11	5
Problem Solving Discussion	11	7
Total	46	14

Discussion

First Dependent Variable: Volunteering

The hypotheses predicting that discussion techniques would yield a greater amount of volunteering than a persuasive speech or a control condition were supported. This contrasts with Bennett's (1955) findings but is consistent with Lewin's (1952) studies.

Although problem solving discussion did not prove to be statistically more effective than general discussion, there were more volunteers in the PSD condition than in the GD condition. With a larger sample, this difference could, perhaps, have been significant. Also, the fact that the director of Q.E.C. was physically present at the GD, but not at the PSD, might have attenuated any difference between the two treatments.

Second Dependent Variable: Attending a Meeting

There are several possible explanations as to why there were no appearances at the meeting. First, since subjects consisted of an entire class, during class time, they may have been less willing to cooperate than solicited volunteers from several sources. This explanation would be consistent with the conclusions of Hummel (1969) and Rosnow & Suls (1970), who noted that such experiments may be affected by the willingness of subjects to participate in research.

A second reason for the lack of attendance might have been due to the meeting times. Although subjects could have come to the appointed place during a 12 hour period, the day of the meeting was only two days before final exams; thus, it may have been too costly for the volunteers to

appear at the meeting (Cook, et. al., 1970; Weiss & Steenbock, 1965).

A third explanation concerns itself with the demand characteristic of the experimental situation. As discussed earlier, Orne (1962), Silverman (1968), and others have shown that subjects often acquiesce to what they perceive as the experimenter's desires in an experimental situation. Since subjects had been previously told by their instructor that they were going to be asked to participate in a social-psychological experiment, they may have merely acquiesced by volunteering in the experimental setting, not realizing that behavioral manifestations were also involved.

Fourthly, those subjects who wanted to participate in pollution control may have seen the meeting as another experimental condition and not related to meaningful participation in pollution control. Related to this latter explanation, a fifth reason might have been due to subjects not perceiving the meeting with a Q.E.C. representative as the type of participation that they had hoped to find. A sixth reason might be that volunteering was not done publicly. This explanation would be consistent with the previously mentioned findings of Schachter & Hall (1952) and Thomas & Levin (1971), who found that public commitment was more effective than private commitment. It should be noted, however, that this finding has not been universally supported (Bennett, 1955).

A final explanation as to why none of the volunteers appeared at the meeting is because volunteering, a behavioral intention, may not be a reliable predictor of actual behavior. Inasmuch as behavioral intentions are thought to be an aspect of attitude, results of the present study show that attitudes are not necessarily consistent with actions. This point was discussed earlier and was supported by several researchers

(Arnold, 1967; Chaffee & Lindner, 1969; Festinger, 1964; Fleishman, 1953; Zwicker, 1970; and others). There is also the possibility that subjects were affected by a combination of some of these possible influences.

Conclusions and Further Research

With respect to influencing behavioral intentions, a persuasive speech was not found to be any more effective than no persuasion attempt at all, problem solving discussion was found to be equally as effective as general discussion, and both discussion conditions were found to be more efficacious than a persuasive speech. With respect to later behavior, prediction was not possible on the basis of treatment conditions since no subjects appeared at the meeting.

The hypotheses presented earlier might be better tested in a future study if certain limitations were overcome. First, a larger sample size might better reflect any real differences between GD and PSD. Second, the physical presence of the GD leader in all conditions might help to control any possible effects due to him. In addition to his physical presence, each experimental situation must be controlled so that consistent style is produced by the leader. Third, the purpose of the experiment should be masked to negate any possible effects of demand characteristics, experimental resistance, or perceived instrumentality of actions. Fourth, the behavioral measure should be within the times indicated by the subjects and should not coincide with other major interests (such as final exams). Finally, it should be conveyed to the volunteers that there are activities which would probably coincide with their interests. This would eliminate the possibility of subjects not perceiving

the behavioral possibilities as meeting their need to participate.

These findings support the idea that studies of the effects of various treatments on attitudes should also have a behavioral measure. These results are also consistent with the assumption that additional research relating attitudes and behavior should precede studies of attitudes per se.

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APPENDIX A

Biographical Questionnaire

Questionnaire

Age _____ Name _____

Sex _____ Phone _____

Length of Time in City _____

Father's Occupation _____

Father's Education (in years) _____

College Year ____ Fr. ____ So. ____ Jr. ____ Sr. ____

College Major _____

College Minor _____

Hobbies _____

_____

_____

I am a member of the following voluntary organizations:

None _____

1. _____

2. _____

3. _____

4. _____

5. _____

I have actively participated in the following community activities in the past year?

None _____ 3. _____

1. _____ 4. _____

2. _____ 5. _____

APPENDIX B

General Discussion Leader's Outline

General Discussion Leader's Outline

Guiding

A. Initiate the discussion.

1. Keep opening remarks as brief as possible.
2. See that all members are acquainted with each other and put at ease.
3. Announce the topic or purpose of the discussion and its importance.
4. Suggest an outline for group thinking and get the group to accept or modify it.
5. Have an assistant act as recorder.

B. Keep the discussion orderly and organized.

1. Keep the group oriented toward its goal.
2. Watch for any extended disgressions.
3. Summarize. Be sure that a summary is complete and acceptable to the entire group.
4. Make a clear transition to each new question or step.

C. Encourage participation by all members.

1. See that all members have an equal chance to participate.
2. Address your comments and questions to the group not to individuals, unless you want to get a specific bit of information.
3. Make a visual survey of the members every so often, looking for any indication that a member may want to say something.
4. Try to control the compulsive talkers.
5. Rebound questions to the group unless you are the only one that can answer.
6. Speak only when necessary.
7. React with acceptance and without evaluation showing only that you understand or need clarification.
8. React silently. Nod or gesture to show that you heard and understood.

General Discussion Leaders Outline

A. Introduce yourself.

B. Let them know that you are interested in their ideas and would like to ask them some questions.

C. Guide the discussion around these questions.

1. What are the two basic problems that relate to pollution?
2. What are the effects of population?
3. What are the effects of energy consumption?
4. What are the pollution problems in Omaha?
5. What are the costs of this pollution?
6. What are the effects of this pollution?
7. What can be done about the pollution problem?
8. Who can help to control pollution?
9. What can students do to help?

APPENDIX C

Volunteer Sign-up Sheet

Name _____ Phone _____

☐ I am interested in participating in pollution control activities.

Mark the appropriate boxes for the times that you would be available for participation in pollution control activities.

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
8							
9							
10							
11							
noon							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

☐ I am interested in participating in pollution control activites, but I just don't have the time in my schedule to participate.

☐ I am not interested in participating in pollution control.

APPENDIX D

Problem Solving Discussion Instructions

Your group is faced with the following problem:

> How can ecology groups get a greater number of students to participate in anti-pollution activities?

A. You will have 20 minutes to think of several possible plans, discuss them, and pick the one that your group could put into action.

B. Designate one of your members as a group recorder. Have the recorder write down all ideas and evaluations.

C. The following outline is presented in order to help you guide your discussion more effectively:

   1. Are we all agreed on the nature of the problem?

   2. What would be the ideal solution from the point of view of all parties involved in the problem?

   3. What conditions within the problem could be changed so that the ideal solution might be achieved?

   4. Of the solutions available to us, which one best approximates the ideal solution?

APPENDIX E

Participation Instructions

For those who wish to participate in pollution control activities, you are cordially requested to meet with a representative of Q. E. C. On-going programs, as well as future programs, will be discussed. You will also have the opportunity to discuss any ideas of your own. This meeting will not take much time from your busy schedule; however, the meeting times are limited.

Time	Place	Phone
Wednesday, August 18 (all day) 7:30 a.m. to 7:30 p.m.	Milo Bail Student Center Room 307	551-2699 *

* If you can't possibly make these times, please call sometime before Wednesday evening for other arrangements.