ATTITUDE TOWARD OBJECT AND ATTITUDE TOWARD SITUATION AS PREDICTORS OF BEHAVIOR

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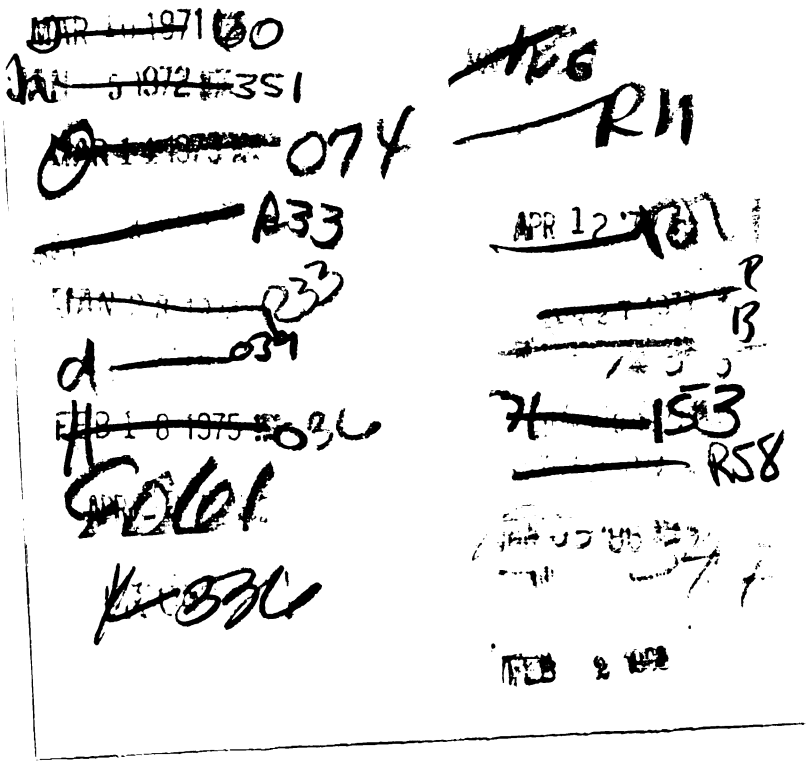

ABSTRACT

ATTITUDE TOWARD OBJECT AND ATTITUDE TOWARD SITUATION AS PREDICTORS OF BEHAVIOR

By

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The concept of attitude and the relationship between attitudes and behavior are major concerns of both social psychology and personality theory. Relatively few studies, however, have systematically examined this relationship. Those few studies which have tested the assumption that a person's behavior will be consistent with his attitudes have generally found a lack of correspondence between verbally expressed attitudes and actual behavior.

The relationship between attitudes and behavior is examined here in light of Rokeach's (1968) recent definition of the nature of attitudes. Rokeach has postulated that a person's social behavior must always be mediated by at least two types of attitude: an attitude activated by an object (A_o), and an attitude activated by the situation in which the object is encountered (A_s). Behavior (B) is a function of A_oA_s, a configuration produced by the cognitive interaction between A_o and A_s. The outcome of this interaction, and thus behavior, will depend upon the relative

importance of A_o and A_s with respect to one another in the context A_oA_s.

Eighty-one university students enrolled in an intermediate psychology course were used as subjects to determine correlations between B, reported number of cuts in psychology courses, and three attitudinal measures: (a) A_o, evaluations of course instructors, (b) A_s, evaluations of general importance of attending classes, and (c) A_oA_s, a weighted average of A_o and A_s derived from an adaptation of Rokeach and Rothman's (1965) belief congruence model of cognitive interaction.

Supporting all of the hypotheses, results show that: (a) A_oA_s is a better predictor of B ($p < .001$) than is either A_o or A_s, (b) A_o and A_s are uncorrelated, (c) A_oA_s is as good a predictor, or better, of B than is the multiple correlation using B as the criterion variable and A_o and A_s as the predictor variables, (d) A_s is generally a better predictor of B than is A_o, and (e) the mean evaluation of the situation, and of the perceived importance of the situation, is greater than the mean evaluation of, and the perceived importance of, the objects encountered in that situation.

The results suggest that: (a) attitudes, properly conceptualized and measured, can be accurate predictors of behavior, and (b) the importance of situational attitudes and their interactions with attitudes toward objects have

been generally overlooked in past research on the relationships between attitudes and behavior.

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INTRODUCTION

The concept of attitude is generally regarded as central to both social psychology and to personality theory. In spite of, or perhaps because of, its prominent position, there presently exists much confusion and vagueness regarding the definition and the referents of the concept. If there is any common core of agreement evident in the proliferous literature regarding the concept of attitude, it is that attitudes are in some way related to behavior. More often than not, this relationship is merely as assumption or an inference.

There are surprisingly few studies which have systematically examined the relationship between attitudes and behavior. Those studies which have attempted to study this relationship have generally found a lack of correspondence between overt behavior and verbally expressed attitudes. This lack of correspondence is often attributed to inadequacies of definition or of measurement or is explained away by some nebulous allusions to the influences of situational variables. It has also led to conclusions that behavior cannot be predicted on the basis of attitude test scores alone.

The purpose of the present study is to examine the relationship between attitudes and behavior in the light of Rokeach's (1968) recent definition of the concept. It will be shown that when this conceptualization of attitude is employed, and when appropriate measurements are made, a person's behavior can indeed be predicted from knowledge of his attitudes. Before turning to Rokeach's definition and to the hypotheses and procedures of the present study, it will be beneficial to discuss some previous conceptualizations of attitude and the relationships between attitudes and behavior. Some of the studies which have addressed themselves to this relationship will also be discussed.

Centrality of the Concept of Attitude

Reviewing the history of attitudes in social psychology, G. W. Allport in 1935 referred to the concept as "probably the most distinctive and indispensible concept in contemporary social psychology. No term appears more frequently in experimental and theoretical literature" (p. 798). In 1937, Murphy, Murphy, and Newcomb emphasized the same point: "Perhaps no single concept within the whole realm of social psychology occupies a more nearly central position than that of attitudes" (p. 889). Allport (1935) assigns credit for the establishment of the concept of attitude as a permanent and central feature of social psychology to Thomas and Znaniecki. The latter authors, in their study of the Polish peasant (1918),

defined social psychology as the scientific study of attitudes. Other early writers have also equated social psychology with the study of attitudes (e.g., Bogardus, 1931; Folsom, 1931).

Social psychology and sociology, however, are not the only disciplines in which the concept of attitude is central. Books such as Escape from Freedom (Fromm, 1941) and The Authoritarian Personality (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950), have established the relevance of attitudes for personality theory. The concept of attitude is also becoming increasingly popular among political scientists (see e.g., Campbell, Converse, Miller, and Stokes, 1960, and Dreyer and Rosenbaum, 1966).

The concept of attitude and its referents have been much refined and extended over the years. It is still, however, regarded as central. Fishbein, writing in 1967, states that

> . . . despite the enormous growth of social psychology, and the diversity of interest of contemporary social psychologists, Allport's words are as true today as they were in 1935. In addition, the attitude concept has come to play an increasingly important part in almost all of the behavioral sciences and many of the applied disciplines (p. v).

Attitudes and Behavior

The major reason for the prominent position of the concept of attitude, both in the past and today, seems clear. Attitudes are viewed as being related in some way to behavior. Most often, this relationship is viewed as

a causal one. An individual's behavior depends upon or is in some way influenced by his attitudes.[1] If nothing else, there should at least be consistency between an individual's attitudes and his behavior. The concern of the behavioral sciences is, by definition, behavior. If our task is to explain and/or to predict behavior, then we must study attitudes. This relationship, sometimes implied and sometimes explicit, is brought out by the following representative definitions and characterizations of attitudes.

> The attitude, or preparation in advance of the actual response, constitutes an important determinant of the ensuing social behavior (F. H. Allport, 1924, p. 320).
>
> [Attitudes are] acquired tendencies to act in specific ways toward objects (Krueger and Reckless, 1931, p. 238).
>
> An attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related (G. W. Allport, 1935, p. 810).
>
> An attitude, whatever else it may be, denotes a functional state of readiness which determines the organism to react in a characteristic way to certain stimuli or stimulus situations (Sherif and Cantril, 1946, p. 17).
>
> Attitudes are learned predispositions to respond to an object or class of objects in a favorable or unfavorable way (Fishbein, 1965, p. 107).

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[1]The direction of the relationship may, of course, be reversed. Studies by Janis and King (1954), King and Janis (1956), and by Scott (1957; 1959), among others, have shown the influence of behavior on attitudes. The theory of cognitive dissonance (Festinger, 1957; Brehm and Cohen, 1962) focuses primarily on changes in opinion and attitude induced by behavioral factors.

It is generally assumed then that knowledge of a person's attitudes should serve as an aid in the prediction of his behavior. The relatively few studies which have attempted to predict overt behavior from knowledge of verbally expressed attitudes, however, have found little or no relationship.

> After more than seventy-five years of attitude research, there is still little, if any, consistent evidence supporting the hypothesis that knowledge of an individual's attitude toward some object will allow one to predict the way he will behave with respect to the object (Fishbein, 1967, p. 477).

Because of this lack of evidence, some authors have questioned the basic assumption that there is a strong relationship between attitude and behavior (e.g., Fishbein, 1967). Others have tended to blame the measuring instruments (e.g., Cook and Sellitz, 1964), the definition of attitude (e.g., DeFleur and Westie, 1963), or both (e.g., Katz and Stotland, 1959).

The present study will attempt to show that this basic hypothesis of a strong relationship between attitudes and behavior does have validity. Before focusing on the hypothesis and the procedures of the present study, however, it is necessary to review some of the past research on this question.

Previous Studies of Attitudes and Behavior

One of the earliest studies to examine the relationship between behavior and expressed attitudes is the

classical study by LaPiere (1934). Traveling extensively throughout the United States with a young Chinese couple, LaPiere had occasion to stop at many motels, hotels, and restaurants. In ten thousand miles of motor travel and in more than 250 instances, they were refused service only once. In a follow-up study, LaPiere mailed questionnaires to the proprietors of the establishments they had visited. The questionnaires asked, among other things, "Will you accept members of the Chinese race as guests in your establishment?". Approximately 92% answered "No." There was one "Yes" reply, and the remainder answered "Uncertain; depends upon circumstances." Almost identical results were obtained from a control group of comparable proprietors of establishments which LaPiere and his companions had not visited. This early study is often cited as a striking example of the discrepancy between expressed attitudes and actual behavior. From the results of his study, LaPiere concluded that

> If social attitudes are to be conceptualized as partially integrated habit sets which will become operative under specific circumstances and lead to a particular pattern of adjustment they must, in the main, be derived from a study of humans behaving in actual social situations. They must not be imputed on the basis of questionnaire data (1934, p. 237).

Another often cited study is that of Kutner, Wilkens, and Yarrow (1952). Three young women, two white and one Negro, entered eleven different restaurants in a fashionable northeastern community. In every restaurant visited, they were served in the same way as other patrons.

Two weeks later, a letter asking for reservations was sent to the managers of these same restaurants. The letter included the sentence, "Since some of them are colored, I wondered whether you would object to their coming?". No replies to the letters were received within seventeen days. Phone calls requesting reservations for a group of persons, including some Negroes, were then made to each of the restaurants. Eight of the eleven managers said that they had not received the letters. One day later, a control phone call requesting reservations for a party of friends was made. In the control call there was no mention of race, and the reservations were accepted by ten of the eleven restaurants. As in LaPiere's (1934) study, there was apparently a large discrepancy between expressed attitudes and actual behavior.

DeFleur and Westie (1958) did find a statistically significant relationship between attitudes and behavior. A scale measuring attitudes toward Negroes was administered to a group of white college students. Those who scored in the top quartile (prejudiced) and those who scored in the bottom quartile (unprejudiced) were later asked to participate in another experiment. In this second phase of the study, the recalled subjects were given projective tests which consisted of a number of photographic slides depicting pairs of Negro and white men and women in various social situations. After the administration of the projective tests each subject was

told that another set of slides was needed for further research, and was asked whether he would pose with a Negro person of the opposite sex. The subject was then given a "standard photograph release agreement" which consisted of a graded series of situations in which the photograph might be used.

The subject was asked to sign his name to each use, ranging from laboratory experiments only to a nationwide publicity campaign for racial integration, that he would authorize. The relationship between the amount of prejudice expressed on the questionnaire and the level of signed agreement to be photographed with a Negro was found to be statistically significant. The relationship, however, was not linear. Moreover, nine of the unprejudiced and five of the prejudiced subjects (about 30% of the sample) showed inconsistency between their expressed attitudes and their behavior. DeFleur and Westie consider this too large a proportion to attribute to measurement error. They therefore suggest the need to study intervening variables such as the social involvement of the subjects. Their general conclusion was that a one-to-one correspondence between verbal attitudes and actual behavior should not be expected.

Other studies have also shown a discrepancy between verbal attitudes and overt behavior. Fendrich (1967) cites a study by Saegner and Gilbert (1950) who tested the hypothesis that anti-Negro prejudice in white department store customers would not lead to discrimination against

Negro sales personnel or the stores employing them. They found that there was no tendency for prejudiced individuals to avoid dealing with Negro clerks. Fishman (1961) reports that many white people with negative attitudes toward Negroes nevertheless remained in an integrated community which was becoming increasingly more Negro. Other residents, however, who had positive attitudes toward Negroes, moved away. Linn (1965), in a study similar to DeFleur and Westie's (1958), also measured the relationship between racial attitudes and overt behavior. He found discrepancies between verbal attitudes and subsequent overt behavior involving those attitudes in 59% of the cases.

Situational Variables and Behavior

In each of the investigations of the relationship between attitudes and behavior cited above, the authors mention intervening variables as possible explanations for the discrepancies which were found. Situational variables are those most often pointed to as factors other than attitudes which influence behavior. There are numerous examples of this influence.

Lohman and Reitzes (1954), for example, studied white residents of an urban neighborhood. In the neighborhood situation, the subjects all belonged to a property owners' association which was actively resisting Negro penetration. These same subjects, however, also belonged to a labor union which had a clear and well-implemented

policy of granting Negroes complete equality on the job. Biesanz and Smith (1951) report that the Canal Zone side of a street in Panama is racially segregated while the Panamanian side is racially integrated. Most Americans and Panamanians go from one side of the street to the other without any apparent difficulty. The attitudes and behavior of white coal miners toward Negroes within the same mine and outside it have been examined by Minard (1952). While racial integration and equality existed in the work situation of the mine, there was almost complete segregation above the ground. Another example is Pettigrew (1961) who emphasizes the importance of situational variables in understanding the adjustments of white Southerners to racial integration.

Numerous other writers have also emphasized the importance of situational variables in influencing behavior (e.g., Gordon, 1952; Lewin, 1951; Orne, 1962; Rotter, 1955). Because of the recognized influence of situational variables, some authors have concluded that it is characteristics of the situation, rather than attitudes, which determine behavior toward an attitude object (e.g., Blumer, 1958; DeFleur and Westie, 1963; Raab and Lipset, 1962; Rose, 1956). Weissberg, for example, states that "an attitude no matter how conceived, is simply one of the terms in the complex regression equation we use to predict behavior" (1965, p, 427). He urges the examination of sources of influence other than attitudes on overt

behavior, particularly the nature of the environment. Thus, directly or indirectly, several writers have suggested that little or no direct relationship between verbally expressed attitudes and overt behavior should be expected.

The Need for a Reconceptualization of the Relationship Between Attitudes and Behavior

Rather than abandoning the basic assumption of a strong relationship between attitudes and behavior, however, others have focused on the need to reconceptualize this relationship. Insko (1967), for example, states that although "the connection between attitudes and behavior may not be a very direct one, there certainly should be some connection and it is time to thoroughly investigate this whole problem" (p. 346). Jahoda and Warren (1966) make the same point in their discussion of the few studies which have investigated the relationship between verbally expressed attitudes and overt behavior:

> [The lack of evidence on the relationship between attitudes and behavior] does not mean, however, that social scientists should renounce the study of attitudes. What it does imply is a need for theoretical models which do justice to the complexities of the relationships between attitudes and behavior, and for theory-guided investigations of these relationships (p. 211).

Some writers have questioned the usefulness of the concept of attitude itself. It is viewed as having no systematic status as a scientific construct (Doob, 1947), or as being vague and lacking an empirical reference and thus useless in analyzing social action (Blumer, 1955).

Rokeach, however, feels that "the confused status of the concept can best be corrected not by abandoning it, but by subjecting it to continued critical analysis with the aim of giving it a more precise conceptual and operational meaning" (1968, p. 450).

In his discussion of the nature of attitudes, Rokeach (1968) rejects the idea that there is no strong relationship between attitudes and behavior. In addition, the definition of attitude which he proposes offers a possible explanation to account for the discrepancies between verbally expressed attitudes and overt behavior which have been reported in the literature. It is to this definition that we now turn.

Attitude Toward Object and Attitude Toward Situation

Rokeach's definition of attitude has five components: "An attitude is [1] a relatively enduring [2] organization of beliefs [3] around an object or situation [4] predisposing one to respond [5] in some preferential manner" (1968, p. 450).

The first component of the definition points out the difference between attitudes and such momentary predispositions as set or Einstellung. Attitudes are also conceived of as being organizations of beliefs. Following most theorists, an attitude is not viewed as a basic or an irreducible element within the personality. Rather, it "represents a cluster or syndrome of two or more

interrelated elements. In the above definition, these elements are beliefs (or cognitions, or expectancies, or hypotheses)" (1968, p. 450). Each of the beliefs within an attitude organization has a cognitive, an affective, and a behavioral component.[2]

An attitude, therefore, is a set of interrelated predispositions to respond. This aspect of the definition differs from other writers (e.g., Chein, 1948; Smith, Bruner, and White, 1956) who state that attitudes may or may not have a behavioral component. A response is understood by Rokeach to "be either a verbal expression of an opinion, or some form of non-verbal behavior" (1968, p. 453). The response itself may be affective or evaluative or may contain elements of both.

It is the third component of Rokeach's (1968) definition which is most directly relevant to a possible resolution of the discrepancies between verbally expressed attitudes and overt behavior which have been reported in the literature: an attitude is organized around an object or a situation. An attitude object may be concrete or abstract, that is, a person, a group, an institution, or an issue. An individual may also, however, have a set of interrelated beliefs about how to behave in a specific

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[2]Harding, Kutner, Proshansky, and Chein (1954) have pointed out that when ranking individuals with respect to their attitudes toward specific ethnic groups it makes little difference which of these components are used since the relationship among them is so close.

situation, that is, an ongoing activity or event. This second type of attitude is referred to as attitude toward situation.

Rokeach (1968) points out that although attitudes have typically been defined as predispositions toward situations as well as toward objects,[3] investigators have most often focused on the measurement of attitudes toward objects, across situations, rather than on attitudes toward situations, across objects. There are numerous scales which measure attitudes toward objects such as the Negro, liberalism-conservatism, and so on. Comparable scales for the measurement of attitudes toward situations such as managing a restaurant or buying or selling real estate, however, are very few.

> As a result, the study of attitudes-toward-situations has become more or less split off from the study of attitudes-toward-objects. And to account for the characteristic ways people behave with respect to specific social situations, altogether new concepts are introduced, . . . trait concepts . . . role concepts . . . group norm . . . definition-of-the-situation and social structure (Rokeach, 1968, p. 452).

This disassociation between attitudes toward objects and attitudes toward situations has, in Rokeach's view, "resulted in a failure to appreciate that an attitude object is always encountered in some situation, about which we also have an organized attitude" (1968, p. 452).

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[3]See, for example, the definitions of G. W. Allport (1935) and of Sherif and Cantril (1947) cited earlier.

A particular attitude object may be conceptualized as the figure, and the situation in which it is encountered as the ground. The behavior of a person with respect to an object within a situation will therefore depend on at least two factors: ". . . [1] on the particular beliefs or predispositions activated by the attitude object, and . . . [2] on the beliefs or predispositions activated by the situation" (1968, p. 455). Rokeach thus postulates "that a person's social behavior must always be mediated by at least two types of attitudes--one activated by the object, the other activated by the situation" (1968, p. 455).

Kurt Lewin's well-known formula (1939) states that, in general terms, behavior (B) is a function (f) of the person (P) in interaction with his environment (E),

$$B = f(P,E) \qquad [1]$$

This formulation thus takes into account both the person and his environment. It must be remembered, however, that Lewin is referring to the psychological environment, that is, the environment as perceived by the individual. His "environment" is therefore similar to the sociological "definition-of-the-situation" (Shibutani, 1961). Thus the "environment" is not conceptually distinct from the person, and P and E cannot be separately analyzed.

Many writers, however, have unwittingly moved back and forth between these two meanings of "environment." To

avoid the confusion involved, Rokeach prefers to use two admittedly psychological variables--attitude toward object (A_o) and attitude toward situation (A_s). Lewin's formula would then be restated as follows: an individual's behavior (B) is a function (f) of his attitude toward an object (A_o) and of his attitude toward the situation in which the object is encountered (A_s),

$$B = f(A_o, A_s) \qquad [2]$$

The proposition that behavior must always be mediated by at least two types of attitudes has an important implication. Whenever an attitude toward a particular object is activated, it will not necessarily be manifested or expressed in behavior to the same degree. The expression of the attitude activated by the object will vary as the attitude toward the situation in which the object is encountered varies. The reverse, of course, is also true. Expression of behavior in a particular situation will vary as the attitude toward the object(s) associated with the situation varies. Rokeach thus states that "if one focuses only on attitude-toward-object one is bound to observe some inconsistency between attitude and behavior, or, at least, a lack of dependence of behavior on attitude" (1968, p. 455).

LaPiere (1934) in the study cited earlier, for example, measured an attitude toward object (Chinese) but

did not take into account the different situations, and attitudes toward these situations, in which the object was encountered. The motel, hotel, and restaurant owners had attitudes not only toward Chinese, but also toward managing their establishment in a proper manner. In the face-to-face situation, they perhaps did not want to cause a scene, or embarrass LaPiere, or offend the Chinese couple whom LaPiere describes as "skillful smilers" and who spoke in unaccented English. In the non-face-to-face situation, however, the managers' attitudes toward Chinese may have been more influential than their attitudes toward the proper way to conduct a business. The discrepancies observed by Kutner et al. may be accounted for in an analogous manner.

The other studies cited above which have reported discrepancies between attitudes and behavior may be viewed in the same way. Investigators have generally focused only on attitudes toward objects and have generally ignored the equally relevant attitudes toward situations. In Minard's (1952) study, for example, the behavior of the white coal miners toward Negroes might have been expected to be different in the work situation of the mine where the safety of all depends upon a close working relationship, than outside the mine where the different situation activates different predispositions to respond.

When discrepancies between verbally expressed attitudes and overt behavior are found, variables other

than attitudes are invoked to explain these discrepancies. As noted above, these variables are most often some type of "situational condition" such as "social involvement" (DeFleur and Westie, 1958), "commitment" (Fendrich, 1967), "the nature of the environment" (Weissberg, 1965), or "situational thresholds" (Campbell, 1963). Rokeach, however, as mentioned earlier, feels that "a 'situational condition' can psychologically be reformulated as 'attitude-toward-situation' and assessed by methods similar to those employed in assessing attitude-toward-object" (1968, p. 455). Rokeach would thus disagree with writers such as Krech, Crutchfield, and Ballachey who have said that "attitude test scores alone are usually not enough to predict behavior" (1962, p. 163).

Rokeach recognizes that it is not sufficient to merely assert that behavior is a function of two attitudes.

It is also necessary to recognize that attitude

> . . . toward object and toward situation will cognitively interact with one another, and will have differing degrees of importance with respect to one another, thereby resulting in behavior which will be differentially influenced by the two sets of attitudes. In one case, an attitude object may activate relatively more powerful beliefs than those activated by the situation, thereby accounting for the generality of behavior with respect to an attitude object; or the situation may activate the more powerful beliefs, thereby accounting for the specificity of behavior with respect to an attitude object (1968, p. 456).

In order to accurately predict behavior, therefore, not only must the two types of attitude be taken into account, but the cognitive interaction between attitude

toward object (A_o) and attitude toward situation (A_s) must also be assessed. This requires a theory or model of cognitive interaction.

Cognitive Interaction Between A_o and A_s

Such a model has been proposed by Rokeach and Rothman (1965). Their belief congruence model has been shown to be approximately three times as accurate as Osgood and Tannenbaum's (1955) congruity model in quantitatively predicting the outcome of cognitive interaction.[4] The congruity model of Osgood and Tannenbaum is an additive one: the point of equilibrium is predicted on the basis of the evaluations of two objects of judgment considered separately. In contrast, Rokeach and Rothman's belief congruence model is a configurationist one: the unique Gestalt formed by two components cannot be predicted solely from information regarding their separate evaluations.

In the belief congruence model, two elements are combined into a unique configuration which cognitively represents a

> . . . characterized subject (CS)--a person, thing, or idea characterized in some unique way. The unique configuration consists of two components: a subject (S), capable of being characterized in many ways, and a characterization (C), capable of being applied to many subjects (Rokeach and Rothman, 1965, p. 129).

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[4]Cognitive interaction is defined by Rokeach and Rothman as "the process by means of which a single evaluative meaning emerges as a result of combining two stimuli, each having their separate meanings" (1965, p. 129).

When a person is presented with a CS, and when C and S are judged to be relevant for one another, the person will compare the two components for relative importance with respect to one another. The evaluation of the CS configuration is postulated by Rokeach and Rothman to be

> . . . a simple average of the evaluations of C and S considered separately, weighted by the perceived importance of C and S relative to one another within the context CS:
>
> $$d_{CS} = (w)d_C + (1-w)d_S \qquad [3]$$
>
> where d_{CS}, d_C, and d_S refer, respectively, to the degree of polarization (positive or negative) of the characterized subject, the characterization, and the subject, and where (w) and (1-w) refer to the perceived importance of d_C and d_S relative to one another in the context CS (1965, p. 130).

In a test of the belief congruence model of cognitive interaction, Rokeach and Rothman (1965) had subjects first rate individual concepts and then combinations on semantic differential scales representing evaluation. Examples of component concepts are A NEGRO, RUSSIA, ANTICOMMUNIST, and FREEDOM of the PRESS. Examples of combinations are A NEGRO (S) who is an ANTICOMMUNIST (C), and RUSSIA (S) extends FREEDOM of the PRESS (C). Measures of relative importance of C and S in the context of CS were also obtained in order to make specific predictions regarding the evaluation of CS.[5] As already noted,

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[5]These measures were obtained from a different sample. The samples were, however, considered comparable.

predictions made from the belief congruence model were found to be approximately three times as accurate as predictions made from Osgood and Tannenbaum's congruity model.

Applying the belief congruence model to the hypothesis that behavior is always mediated by at least two attitudes, attitude toward object (A_o) and attitude toward the situation in which the object is encountered (A_s), the following statements may be made.

When a person encounters an object in a situation, and when A_o and A_s are judged to be relevant for one another, the person will compare the two components for relative importance with respect to one another. The evaluation of the A_oA_s configuration or combination is postulated to be an average of the evaluations of A_o and A_s considered separately, weighted by the perceived importance of A_o and A_s relative to one another within the context of A_oA_s. That is,

$$A_oA_s = (w)A_o + (1-w)A_s \quad [4]$$

where A_oA_s, A_o, and A_s refer, respectively, to attitude toward object in interaction with attitude toward situation, attitude toward object, and attitude toward situation, and where (w) and (1-w) refer to the perceived importance of A_o and A_s relative to one another in the

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[6] Deviation (d) scores could, of course, also be used.

context A_oA_s. Since behavior (B) is postulated to be a function of A_o and A_s (see formula 2), formula 4 may be rewritten as

$$B = A_oA_s = (w)A_o + (1-w)A_s \qquad [5]$$

The purpose of the present study is to test the validity and the implications of the above postulate represented by the adaptation of Rokeach and Rothman's (1965) belief congruence model of cognitive interaction.

Hypotheses

This postulate was tested by applying it to the case of college students cutting class. It was felt that the most relevant attitude toward object in this case would be the student's attitude toward the instructor teaching a particular course, and that the most relevant attitude toward situation would be the student's attitude toward the importance of attending class in general.

Behavior (B), therefore, is the number of times a student cut a particular class, attitude toward object (A_o) is his evaluation of the instructor teaching that class, and attitude toward situation (A_s) is his evaluation of the importance of attending class in general. Evaluations of the perceived importance of A_o and A_s relative to one another in the context A_oA_s are also required to make specific predictions. The major hypothesis is,

then, that B will be more highly correlated with the A_oA_s configuration than with either A_o or A_s separately.

In order to adequately test this hypothesis it is necessary to show that the A_o and A_s measures employed are in fact measures of different things. That is, A_o and A_s must be uncorrelated. Moreover, the correlation between B and the A_oA_s configuration should be as high, or higher, than the multiple correlation using B as the criterion variable and A_o and A_s separately as the predictor variables.[7]

Since the sample consisted of college students, who presumably have a stake in attending classes, it was further hypothesized that the attitude toward the situation (attending class in general) would be more important than the attitude toward the particular object encountered in that situation (the instructor teaching a particular course) in determining the student's behavior (cutting a particular class). In other words, although the correlation between B and the A_oA_s combination was expected to be higher than the correlation between either B and A_o or between B and A_s, it was also expected that the correlation between B and A_s would be higher than that between B and A_o.

This further implies that the average or mean evaluation of the situation will be higher than the mean

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[7]Multiple correlation is, in effect, an additive model. The belief congruence model and its adaptation used here, however, are configurationist models.

evaluation of the objects (instructors). The mean perceived importance of A_s in the context of A_oA_s, (1-w), should also be higher than the mean perceived importance of A_o in the context of A_oA_s, (w).

In summary, the following hypotheses were tested:

1. The prediction of behavior will be more accurate when the interaction between attitude toward object and attitude toward situation is taken into account than when only attitude toward object or toward situation is considered, that is, $\underline{r}_{B,A_oA_s} > \underline{r}_{B,A_o}$ or $\underline{r}_{B,A_s}$

2. Measures of attitude toward object and of attitude toward the situation in which the object is encountered will be independent of one another, that is, $\underline{r}_{A_o,A_s} \approx 0$

3. The prediction of behavior will be as accurate, or more accurate, when the adaptation of the belief congruence configurationist model is employed than when the additive model of multiple correlation is used, that is, $\underline{r}_{B,A_oA_s} > \underline{R}_{B\cdot A_o,A_s}$

The following three hypotheses are specific to the present study. Hypotheses as to which of the two attitudes, A_o or A_s, is likely to be more important will, of

course, vary with the particular attitudes and the particular Ss employed in any particular study.

4. The prediction of behavior based on knowledge of the attitude toward situation will be more accurate than predictions based on attitude toward object, but not as accurate as predictions based on knowledge of the interaction between attitude toward object and attitude toward situation, that is,

$$\underline{r}_{B,A_oA_s} > \underline{r}_{B,A_s} > \underline{r}_{B,A_o}$$

5. The mean evaluation of the situation will be greater than the mean evaluation of the objects encountered in that situation, that is,

$$M_{A_s} > M_{A_o}$$

6. The mean perceived importance of the situation will be greater than the mean perceived importance of the objects encountered in that situation, that is, $M_{(1-w)} > M_{(w)}$

METHOD

Subjects and Procedure

Data to test these hypotheses were gathered by means of a five page questionnaire. A total of 108 students, both males and females, enrolled in an intermediate psychology course (learning and motivation) at Michigan State University served as subjects (Ss). In order to obtain an adequate sample size, the questionnaire was administered to two different groups of students. Both groups were enrolled in the same course, but during different terms.

On both occasions the questionnaire was administered by the same experimenter (E), who was familiar to the Ss, and identical procedures were followed. Responding to the questionnaire was voluntary. No extra course credit was given for participating. All instructions written on the questionnaire were read, a section at a time, to the Ss as a group. Each section of the questionnaire was completed by the entire group before going on to the next section. It was stressed by E that Ss would remain anonymous and that responses should be made with complete honesty.

Each of the two sessions lasted approximately fifteen minutes. This included the reading of instructions

and the distribution and collection of the questionnaires. Explanations of the study and results obtained were later mailed to those Ss who had indicated an interest.

The Questionnaire

The instructions of the first section of the questionnaire, and the format used were as follows.

> This research is designed to determine some of the factors which may affect the frequency of attending class in psychology courses. It is, of course, not possible to tell you the precise hypotheses being tested, for to do so would defeat our research purpose. I have, therefore, arranged for you to receive a handout later in the term which will tell you in more detail what the study is all about, and the results obtained.
>
> In answering this questionnaire, there are no right or wrong answers, the best answer is your personal opinion. It is important that you make your judgments with complete honesty. Note that you will remain anonymous; you are asked not to write your name on this questionnaire.
>
> First, we would like you to list below the following information:
>
> (1) The courses which you have taken in psychology. List no more than five psychology courses. If you have taken more than five psychology courses, list the last five which you have taken. Do not list any course you are now taking, and do not list any course in which you had more than one instructor.
>
> (2) The number of class hours per week for each course.
>
> (3) For each course that you list, estimate the total number of times during the total quarter that, to the best of your recollection, you cut class. We are not interested in class cuts caused by illness, accident, unusual weather conditions, etc.
>
> Remember that you will remain anonymous. And remember also that our sole purpose is to find out what factors may affect class attendance.

Title of Course:	The Professor in Each of These Courses Will Henceforth Be Called:	Number of Class Hours Per Week:	Total Number of Cuts Per Quarter:
Course 1._____	Professor 1	_____	_____
Course 2._____	Professor 2	_____	_____
Course 3._____	Professor 3	_____	_____
Course 4._____	Professor 4	_____	_____
Course 5._____	Professor 5	_____	_____

It should be noted that behavior was not actually observed. The Ss were asked to estimate the number of times they cut a class. There was no reason, however, to believe that the Ss would not be able to give a reliable estimate or that they would not be honest in doing so. The Ss were asked to list only psychology courses in an effort to keep the situation of attending classes as constant as possible.

The second section of the questionnaire consisted of the following instructions and scale. It was this scale which provided measures of A_s.

> We would next like to ascertain your general attitude toward attending class. We are not interested in your attitude toward a particular instructor or toward a particular course, but only in how you feel about going to class in general. Please indicate how you

feel in general about the importance or unimportance of attending class by circling one number on the following scale.

I feel that attending class is in general:

CIRCLE ONE NUMBER

1 2 3 4 5 6 7 8 9

somewhat important to me — important to me — very important to me

In a preliminary study, the first scale position was labeled "not at all important to me," and the fifth position was labeled "neither important nor unimportant." The ninth position was labeled as above. A very restricted range of responses resulted, with almost all Ss circling position 8 or 9. Given the nature of the sample, this is, in hindsight, not an unusual result. In order to increase the range of responses, the scale positions were therefore relabeled as above, with the result that the range, although still small, was increased to a degree large enough to allow meaningful calculations to be made.

Instructions for the third section of the questionnaire were as follows.

> You are now asked to indicate how you feel about each particular instructor that you had in each of the courses you listed on PAGE 1. We are interested only in how you feel about each particular instructor, PROFESSORS 1, 2, 3, 4, and 5. Once again, remember that you will remain anonymous.
>
> And remember also that we are not in the least bit interested in finding out about the popularity of different instructors. We have no intention of identifying either you, or the instructors you rate, by name.

Five scales, one for each course, followed these instructions. The first of these scales was as follows.

1. My attitude toward the instructor that I have designated as PROFESSOR 1 (in COURSE 1):

CIRCLE ONE NUMBER

1 2 3 4 5 6 7 8 9

I disliked instructor very much — neither liked nor disliked — I liked instructor very much

The other four scales were identical, except for the substitution of the appropriate numbers for the instructors. These five scales provided measures of A_o.

The final section of the questionnaire had the following instructions.

> Finally, we would like to know to what extent your going or not going to class was jointly determined by your attitude toward each of your instructors and your general attitude toward attending class. For each course you listed on PAGE 1, you are asked to fill in a percentage following each of two simple scales. In each case, the two scales should add up to 100%. We are not interested in class cuts caused by illness, accident, unusual weather conditions, etc.

The format for each of the five pairs of scales which followed was identical, except for appropriate numbering, to the following, which was the first one.

1. You had _____ cuts (fill in from PAGE 1) in PROFESSOR 1's course. To what extent was the frequency of attendance or the frequency of cuts in this course determined by

   a. your feelings about PROFESSOR 1? WRITE PERCENTAGE HERE

   0% — 50% — 100% _____%

b. your general feeling about the importance or unimportance of attending class?

0% 50% 100% _____%

c. Total percentage (a + b) 100%

Analysis of the Data

The 108 questionnaires were checked before any analysis of the data was carried out. Eight were excluded from the analysis because directions were not followed. Of these eight, five were excluded because the percentages in the last section of the questionnaire did not add up to 100%, and three were excluded because the Ss had circled more than one number on a scale, or had omitted to circle a number. Nineteen questionnaires were excluded because S had listed less than three courses. It was felt that three courses would be the minimum number needed to provide sufficient data.

Each of the eighty-one Ss provided the following measures: (a) three to five measures of B, estimated number of class cuts, (b) an A_s, attitude toward attending class in general, (c) three to five measures of A_o, attitudes toward instructors, and (d) three to five measures of A_oA_s, attitudes toward particular instructors within the context of attitude toward attending class in general.

This last measure was derived by using the adaptation of Rokeach and Rothman's (1965) belief congruence model of cognitive interaction. Each A_o and A_s

was weighted by the importance ratings indicated by the Ss in the final section of the questionnaire (see formulas 4 and 5). For example, if a S had circled a 6 on the A_s scale, a 3 on the scale for the second instructor (A_{o2}), and indicated that A_s was 80% important in determining how many times he cut course 2, while A_{o2} was 20% important, the derived value of $A_{o2}A_s$ was 5.4. That is, $A_{o2}A_s$ = (.80)6 + (.20)3 = 5.4. The derived A_oA_s measures are thus weighted averages and are numbers from 1 to 9.

Rokeach and Rothman (1965) posit an additional comparison process, over and above the comparison of the relative importance of C and S with respect to one another in the context CS, when C reaches 100% in importance (and S 0%). This additional process is a further comparison of the relative importance of CS and C. There is the possibility that by virtue of the interaction between C and S within the framework of a person's total belief system his evaluation of CS may be even more extreme than his evaluation of C. That is, they deal with a comparison process sometimes referred to as overassimilation, a process whereby a stimulus not only takes on the valence of another stimulus with which it is associated, but in addition takes on an even stronger valence.

Although some Ss in the present study did rate either A_o or A_s as being 100% in importance, they were not asked to make further comparisons. It was felt that by doing so the questionnaire would become unduly lengthy

and complicated.[8] Further, if overassimilation does occur it will work against the hypothesis that A_oA_s is a better predictor of B than is either A_o or A_s.

The data were analyzed in terms of three different methods of subdividing the sample. The first method included the total sample of eighty-one Ss. In this method, each S could have either three, four, or five measures of B, A_o, and A_oA_s. The A_o and A_oA_s measures were averaged for each S, and mean value of each measure was used in the analysis. There was, of course, only a single A_s for each S. Since the total sample was used in this method, the B for each S is referred to as B_T. The B_T for each S is his total number of estimated cuts divided by the total number of class hours per week. This proportion, rather than the absolute number of cuts, was used so that the Bs of different Ss would be comparable.

The second method resulted in a subsample of seventy-one Ss. In this subsample, only one measure of B, A_o, A_s, and A_oA_s per S was used. The B for each S is referred to as B_1, and is simply S's estimated number of cuts, since class hours per week for each S was held constant at three. If S had listed more than one course which had three class hours per week, the first one listed

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[8] See Insko (1967, pp. 159-160) for a discussion of the conceptual and procedural problems involved in Rokeach and Rothman's (1965) approach to the treatment of overassimilation effects.

was arbitrarily chosen to be included in the analysis. Ten Ss had not listed a course with three hours per week. In this subsample, therefore, it was the number of class hours per week that was held constant for each S. Courses, however, varied across Ss.

The third method resulted in five subsamples of varying sizes. This method was like the second in that only one measure of B, A_o, A_s, and A_oA_s per S was used. The B's in these five subsamples are referred to as B_2, B_3, B_4, B_5, and B_6, and are simply the estimated number of cuts. In each of these five subsamples, there is one specific course per S (that is, either the course numbered 200, or the course numbered 225, and so on). The course, and thus the class hours per week, are held constant for each of the Ss within a subsample. But courses do, and class hours per week can, vary across subsamples.

RESULTS

Subsample B_T

Subsample B_T includes the entire sample of eighty-one Ss. B_T for each S is his total number of estimated cuts divided by his total number of class hours per week. There are from three to five courses for each S, and class hours per week vary. The results for subsample B_T are shown in Tables 1 and 2.

Table 1 shows the ranges, means, variances, and standard deviations of the obtained measures for this subsample. The range of B_T is from 0.00 to 5.17. This range corresponds to those Ss who indicated zero number of cuts (N = 8) at the lower extreme, to one S who indicated his total number of estimated cuts to be sixty-two and his total number of class hours per week to be twelve, at the upper extreme. That the obtained distribution is skewed is indicated by the mean B_T of 1.02. The variance of B_T is 1.15. There is little variability in class-cutting behavior.

The range of A_o is from 1.67 to 9.00, and the range of both A_s and A_oA_s is from 1.00 to 9.00. These distributions are also skewed, with the most skewness occurring for A_s and the least for A_o. The mean A_oA_s

TABLE 1.--Ranges, means, variances, and standard deviations of obtained measures for subsample B_T.

Statistic	Measure					
	B_T[a]	A_o[b]	A_s	A_oA_s[b]	(w)[b]	(1-w)[b]
Range	0.00-5.17	1.67-9.00	1.00-9.00	1.00-9.00	0.00-1.00	0.00-1.00
Mean	1.02	5.86	7.05	6.66	.37	.63
Variance	1.15	2.10	3.88	2.95	.05	.05
Standard Deviation	1.07	1.45	1.97	1.72	.23	.23

Note: N = 81.

[a] B_T for each S is his total number of estimated cuts divided by his total number of class hours per week. There are from three to five courses for each S, and class hours per week vary.

[b] Measures for each S are means.

(6.66) is intermediate between that of A_o (5.86) and of A_s (7.05). In other words, the mean evaluation of the situation (A_s) in this subsample is greater than the mean evaluation of the objects (A_o) in that situation ($\underline{t}^9 = 4.4$, $p < .001$), thus supporting hypothesis 4. Since the measures of A_o and A_oA_s for each $\underline{S}$ are means, the variance of the A_s distribution (3.88) is greater than that of either the A_o (2.10) or the A_oA_s (2.95) distribution.

Summary statistics of the obtained importance ratings for subsample B_T are shown in the last two columns of Table 1. The headings (w) and (1-w) refer to the importance of feelings about the instructor and the importance of feelings about attending class in general, respectively.

The range of both (w) and (1-w) is from 0.00 to 1.00. Differences between mean (w) and mean (1-w), .37 and .63 respectively, may be compared with the differences between mean A_o and mean A_s. Both differences indicate that, in this instance, the situation is considered by the $\underline{S}$s to be more important than the object. The mean perceived importance of the situation is greater than the mean perceived importance of the objects encountered in that

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[9]No tests for homogeneity of variance were carried out and thus this $\underline{t}$ value, as well as all other $\underline{t}$s reported in this study were not corrected for any heterogeneity of variance. Hays (1963, p. 322) points out that for relatively large samples of equal size conclusions derived from a $\underline{t}$ test will be little affected when variances are not homogeneous. Boneau (1960) also states that the value of $\underline{t}$ is not markedly affected, except by rather strong violations, unless sample size is very small.

situation in the determination of behavior ($\underline{t}$ = 5.1, $p < .001$). This result thus supports hypothesis 5. Since a S's indication of (w) is always perfectly correlated (-1.00) with his indication of (1-w), the variances (.05) and standard deviations (.23) of these two distributions are identical.

The relevant intercorrelations between the obtained measures for subsample B_T are shown in Table 2. All $\underline{r}$s reported in this study are Pearson product-moment correlations. The $\underline{r}$s between the behavioral and attitudinal measures are negative because of the way in which the attitude scales were numbered. This holds true for all subsamples in the study.

The obtained $\underline{r}$s between B_T and A_o, A_s, and A_oA_s are -.20, -.46, and -.61, respectively. The $\underline{r}$ of -.20 between B_T and A_o is not significant ($\underline{t}$ = 1.6). Both A_s and A_oA_s are, however, significantly correlated with B_T. The $\underline{r}$ of -.46 between B_T and A_s is significant ($\underline{t}$ = 4.6, $p < .001$), but less than the $\underline{r}$ of -.61 between B_T and the A_oA_s combination ($\underline{t}$ = 6.8, $p < .001$).

The difference between $\underline{r}_{B,A_s}$ and $\underline{r}_{B,A_o}$ is statistically significant ($\underline{t}$ = 2.00, $p < .05$, two-tailed), as is the difference between $\underline{r}_{B,A_oA_s}$ and $\underline{r}_{B,A_o}$ ($\underline{t}$ = 3.84, $p < .001$, two-tailed), and the difference between $\underline{r}_{B,A_oA_s}$ and $\underline{r}_{B,A_s}$ ($\underline{t}$ = 3.00, $p < .01$, two-tailed). These results thus support hypothesis 4 which stated that the prediction of behavior based on knowledge of the attitude toward

TABLE 2.--Intercorrelations between the obtained measures for subsample B_T.

Measure	Measure			
	B_T[a]	A_o[b]	A_s	A_oA_s[b]
B_T[a]	1.00			
A_o[b]	-.20	1.00		
A_s	-.46***	.07	1.00	
A_oA_s[b]	-.61***	.36***	.84***	1.00

Note: N = 81.

[a]B_T for each S is his total number of estimated cuts divided by his total number of class hours per week. There are from three to five courses for each S, and class hours per week vary.

[b]Measures for each S are means.

***$p < .001$

situation will be more accurate than predictions based on attitude toward object, but not as accurate as predictions based on knowledge of the interaction between attitude toward object and attitude toward situation.

The multiple correlation ($\underline{R}$), using B as the criterion variable and A_o and A_s as the predictor variables, is .49. This is lower than the $\underline{r}$ of .61 between B and A_oA_s, thus supporting hypothesis 3.

The $\underline{r}$s between A_o and A_oA_s (.36) and between A_s and A_oA_s (.84) are, of course, high and also significant ($p < .001$). The difference between $\underline{r}_{A_o,A_oA_s}$ and $\underline{r}_{A_s,A_oA_s}$ is statistically significant ($t = 6.98$, $p < .001$, two-tailed). That A_o and A_s are two different types of attitudinal measures is indicated by the obtained $\underline{r}$ between these measures of .07, which is close to zero. This supports hypothesis 2, which stated that A_o and A_s would be nonsignificantly correlated.

Obtained coefficients of determination ($\underline{r}^2$s) indicate that the proportion of the variance in B_T accounted for by A_o, A_s, and A_oA_s is .04, .21, and .37, respectively. This is another indication that A_oA_s is a better predictor of B than is either A_o or A_s. The proportion of the variance in A_oA_s accounted for by A_o is .13, and by A_s is .71. This reflects the greater importance attributed by the $\underline{S}$s to A_s than to A_o.

Correlations involving (w) and (1-w) were calculated, but are not considered to be psychologically

relevant. The only rs involving these two measures which may be of interest are those between A_o and (w) and between A_s and (1-w). In this subsample, these rs, -.02 and .02, respectively, are close to zero and are nonsignificant, as are all other rs between these two measures and the behavioral and attitudinal measures.

Subsample B_1

The results for subsample B_1 (N = 71) are shown in Tables 3 and 4. B_1 for each S is his estimated number of cuts. Class hours per week are constant at three. There is one course per S, and different courses across Ss.

Table 3 shows the ranges, means, variances, and standard deviations of the obtained measures for this subsample. The range of B_1 is from zero to 20. The mean of 2.83 indicates that this distribution is skewed, as was the distribution of B_T. Due to the differences in range for B_1 and B_T, the variances of these two distributions differ markedly. The variance of the B_1 distribution is 13.83, while the variance of the B_T distribution is 1.15.

The range of each of the three attitudinal measures is from 1.00 to 9.00. These distributions are also skewed, with the most skewness occurring for A_s and the least for A_o. As in subsample B_T, the mean evaluation of the situation (7.06) is greater than the mean evaluation of the objects (6.11) in that situation ($t = 2.7$, $p < .01$). Note the similarity of the mean A_s for subsample B_1 (7.06) with

TABLE 3.--Ranges, means, variances, and standard deviations of obtained measures for subsample B_1.

Statistic	Measure					
	B_1[a]	A_o	A_s	A_oA_s	(w)	(1-w)
Range	0-20	1.00-9.00	1.00-9.00	1.00-9.00	0.00-1.00	0.00-1.00
Mean	2.83	6.11	7.06	6.81	.38	.62
Variance	13.83	6.38	3.74	3.88	.10	.10
Standard Deviation	3.72	2.53	1.93	1.97	.31	.31

Note: N = 71.

[a] B_1 for each S is his estimated number of cuts. Class hours per week is held constant at three. There is one course per S, and courses vary across Ss.

the mean A_s for subsample B_T (7.05). In both instances, the situation is highly evaluated, and also evaluated higher than the objects in the situation.

Since there is only one A_o measure for each $\underline{S}$ in this subsample, the variance of the A_o distribution (6.38) is larger than that of the variance of the A_o distribution for subsample B_T (2.10), where means were used. For subsample B_1 the variance of A_s is 3.74 and the variance of A_oA_s is 3.88.

Summary statistics of the obtained importance ratings for subsample B_1 are shown in the last two columns of Table 3. Both (w) and (1-w) range from 0.00 to 1.00. The means of .38 and .62 are almost identical to those of .37 and .63 obtained for subsample B_T. Again, the mean perceived importance of the situation is greater than the mean perceived importance of the objects encountered in that situation ($\underline{t}$ = 3.4, $p < .001$). The variance of both (w) and (1-w) is .10.

Relevant intercorrelations between the obtained measures for subsample B_1 are shown in Table 4. All three correlations between the behavioral measure and the three attitudinal measures are significant. The $\underline{r}$ of -.56 ($\underline{t}$ = 5.6, $p < .001$) between B_1 and A_oA_s is higher than either the $\underline{r}$ of -.38 ($\underline{t}$ = 3.4, $p < .01$) between B_1 and A_o or the $\underline{r}$ of -.35 ($\underline{t}$ = 3.1, $p < .01$) between B_1 and A_s.

The difference between $\underline{r}_{B,A_oA_s}$ and $\underline{r}_{B,A_o}$ in this subsample is statistically significant ($\underline{t}$ = 1.76, $p < .10$,

TABLE 4.--Intercorrelations between the obtained measures for subsample B_1.

Measure	Measure			
	B_1[a]	A_o	A_s	A_oA_s
B_1[a]	1.00			
A_o	-.38**	1.00		
A_s	-.35**	.00	1.00	
A_oA_s	-.56***	.50***	.66***	1.00

Note: N = 71.

[a]B_1 for each S is his estimated number of cuts. Class hours per week is held constant at three. There is one course per S, and courses vary across Ss.

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

two-tailed), as is the difference between r_{B,A_oA_s} and r_{B,A_s} (t = 2.53, $p < .02$, two-tailed). The best predictor of B is thus A_oA_s even though both A_o and A_s are significantly correlated with B. There is no statistically significant difference between r_{B,A_o} and r_{B,A_s} (t = 0.20, NS). The R value in this subsample is .52, and thus is lower than the r of .56 between B and A_oA_s.

As in subsample B_T, the rs between A_o and A_oA_s and between A_s and A_oA_s are high and statistically significant ($p < .001$). The difference between r_{A_o,A_oA_s} and r_{A_s,A_oA_s} is statistically significant (t = 1.67, $p < .10$, two-tailed). Also as in subsample B_T, there is a zero correlation between A_o and A_s.

Obtained r^2s indicate that the proportion of the variance in B_1 accounted for by A_o, A_s, and A_oA_s is .14, .12, and .31, respectively. This again indicates that A_oA_s is a better predictor of B than is either A_o or A_s. The proportion of the variance in A_oA_s accounted for by A_o is .25 and by A_s is .44, indicating the greater importance attributed to A_s than to A_o.

The obtained rs between A_o and (w) and between A_s and (1-w), .13 and .02, respectively, are statistically nonsignificant, as are all other rs between these two measures and the behavioral and attitudinal measures in this subsample.

Subsamples B_2, B_3, B_4, B_5, and B_6

Results for subsamples B_2 through B_6 are presented in Tables 5 through 14. The B in each of these subsamples is simply the estimated number of cuts. There is one course per S. The course, and thus the number of class hours per week, is the same for all Ss within a particular subsample. These subsamples are, of course, smaller than the two previously discussed subsamples, but the results obtained may be viewed as checks on the stability and reliability of those obtained in subsamples B_T and B_1. Because of the small sizes of these subsamples, only the summary statistics and the relevant correlations were calculated.

Subsample B_2.--The results for subsample B_2 (N = 35) are shown in Tables 5 and 6. Table 5 shows the ranges, means, variances, and standard deviations of the obtained measures for this subsample. The range of B_2 is from zero to 14. The mean of 1.86 reflects the skewness of this distribution. The variance of B_2 is 6.18, and the standard deviation is 2.48.

The range of A_o is from 1.00 to 9.00, while that of A_s is from 2.00 to 9.00, and that of A_oA_s is from 3.50 to 9.00. The mean evaluation of the situation (7.28) is greater than the mean evaluation of the objects (6.34) in the situation. All three of these distributions are skewed. Note that the mean of A_oA_s (7.36) is larger than that of either A_o (6.34) or A_s (7.28). This occurs

TABLE 5.--Ranges, means, variances, and standard deviations of obtained measures for subsample B_2.

Statistic	Measure					
	B_2[a]	A_o	A_s	A_oA_s	(w)	(1-w)
Range	0-14	1.00-9.00	2.00-9.00	3.50-9.00	0.00-1.00	0.00-1.00
Mean	1.86	6.34	7.28	7.36	.39	.61
Variance	6.18	5.77	2.72	1.83	.11	.11
Standard Deviation	2.48	2.40	1.65	1.35	.33	.33

Note: N = 35.

[a] B_2 for each S is his estimated number of cuts. There is one course per S. The course, and thus the number of class hours per week, is the same for all Ss.

because the derived A_oA_s measures are weighted averages, not simple means.

The variance of A_o (5.77) is larger than that of either A_s (2.72) or of A_oA_s (1.83). Again, there is more variability in evaluations of course instructors than in evaluations of the general importance of attending class.

Summary statistics of the obtained importance ratings for subsample B_2 are shown in the last two columns of Table 5. Both (w) and (1-w) range from 0.00 to 1.00. The means of .39 and .61 are quite similar to those of the two previously discussed subsamples. The mean perceived importance of the situation is greater than that of the objects in that situation. The variances of (w) and (1-w) are .11.

Relevant intercorrelations between the obtained measures of subsample B_2 are shown in Table 6. The obtained $\underline{r}$ of -.31 ($\underline{t}$ = 1.9) between B_2 and A_o is not significant. The $\underline{r}$ of -.34 ($\underline{t}$ = 2.1, $p < .05$) between B_2 and A_s is significant, but is not as high as the $\underline{r}$ of -.55 ($\underline{t}$ = 3.8, $p < .001$) between B_2 and A_oA_s. The best predictor of B is A_oA_s. The next best predictor is A_s, and the poorest predictor is A_o. In this subsample too, $\underline{R}$ (.48) is lower than the $\underline{r}$ between B and A_oA_s (.55).

The $\underline{r}$s between A_o and A_oA_s (.38) and between A_s and A_oA_s (.64) are both significant ($p < .05$, and $p < .001$), respectively). Again, the correlation between A_o and A_s (-.07) is essentially zero.

TABLE 6.--Intercorrelations between the obtained measures for subsample B_2.

Measure	Measure			
	B_2[a]	A_o	A_s	A_oA_s
B_2[a]	1.00			
A_o	-.31	1.00		
A_s	-.34*	-.07	1.00	
A_oA_s	-.55***	.38*	.64***	1.00

Note: N = 35.

[a]B_2 for each S is his estimated number of cuts. There is one course per S. The course, and thus the class hours per week, is the same for all Ss.

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

Obtained $\underline{r}^2$s indicate that the proportion of the variance in B_2 accounted for by A_o, A_s, and A_oA_s is .10, .11, and .30, respectively, reflecting the fact that A_oA_s is the best predictor of B. The proportion of the variance in A_oA_s accounted for by A_o is .15, and by A_s is .42.

Subsample B_3.--Results for subsample B_3 (N = 30) are shown in Tables 7 and 8. Table 7 shows the ranges, means, variances, and standard deviations of the obtained measures for this subsample. The range of B_3 is from zero to 25. The skewness of the distribution of B_3 is indicated by the mean of 4.13. The variance of B_3 is 25.18, and the standard deviation is 5.02.

The range of A_o is from 1.00 to 9.00, while that of A_s is from 2.00 to 9.00, and that of A_oA_s is from 3.00 to 9.00. The mean of A_o (4.97) is the lowest of the three, and is essentially at the midpoint of the nine point scale. The mean of A_s, the largest of the three, is 6.87, and the mean of A_oA_s is 6.05. Again, the mean evaluation of the situation is greater than that of the objects in the situation. The variance of A_o (6.30) is larger than that of either A_s (4.12) or A_oA_s (4.29).

The last two columns of Table 7 show the summary statistics of the obtained importance ratings for subsample B_3. Both (w) and (1-w) range from 0.00 to 1.00. The mean of (w) is .38 and the mean of (1-w) is .62, figures which are very close to those of three previously discussed subsamples. As in the other subsamples, the

TABLE 7.--Ranges, means, variances, and standard deviations of obtained measures for subsample B_3.

Statistic	Measure					
	B_3[a]	A_o	A_s	A_oA_s	(w)	(1-w)
Range	0-25	1.00-9.00	2.00-9.00	3.00-9.00	0.00-1.00	0.00-1.00
Mean	4.13	4.97	6.87	6.05	.38	.62
Variance	25.18	6.30	4.12	4.29	.08	.08
Standard Deviation	5.02	2.51	2.03	2.07	.29	.29

Note: N = 30.

[a] B_3 for each S is his estimated number of cuts. There is one course per S. The course, and thus the number of class hours per week, is the same for all Ss.

mean perceived importance of the A_s is greater than the mean perceived importance of A_o. The variances of (w) and (1-w) are .08.

Relevant intercorrelations between the obtained measures of subsample B_3 are shown in Table 8. Neither the obtained $\underline{r}$ of -.16 ($\underline{t}$ = 0.9) between B_3 and A_o nor the $\underline{r}$ of -.29 ($\underline{t}$ = 1.6) between B_3 and A_s is significant, although A_s is a better predictor than is A_o. The $\underline{r}$ of -.39 ($\underline{t}$ = 2.3, $p < .05$) between B_3 and A_oA_s is significant. It is not as high as those in the three previously discussed subsamples, but is nevertheless the best predictor of B. It is also higher than the obtained $\underline{R}$ of .33.

The $\underline{r}$s between A_o and A_oA_s (.56) and between A_s and A_oA_s (.57) are both significant at the .01 level. As in the previous subsamples, the correlation between A_o and A_s (.04) is essentially zero.

Obtained $\underline{r}^2$s indicate that the proportion of the variance in B_3 accounted for by A_o, A_s, and A_oA_s is .02, .09, and .15, respectively, reflecting the fact that A_oA_s is the best predictor of B. The proportion of the variance in A_oA_s accounted for by A_o is .31, and by A_s is .33.

Subsample B_4.--Tables 9 and 10 show the results for subsample B_4 (N = 29). The ranges, means, variances, and standard deviations of the obtained measures for this subsample are shown in Table 9. The range of B_4 is from zero to 15. The mean of 2.72 again indicates the skewness

TABLE 8.--Intercorrelations between the obtained measures for subsample B_3.

Measure	Measure			
	B_3[a]	A_o	A_s	A_oA_s
B_3[a]	1.00			
A_o	-.16	1.00		
A_s	-.29	.04	1.00	
A_oA_s	-.39*	.56**	.57**	1.00

Note: N = 30.

[a]B_3 for each S is his estimated number of cuts. There is one course per S. The course, and thus the class hours per week, is the same for all Ss.

*p < .05 **p < .01

TABLE 9.--Ranges, means, variances, and standard deviations of obtained measures for subsample B_4.

Statistic	Measure					
	B_4[a]	A_o	A_s	A_oA_s	(w)	(1-w)
Range	0-15	1.00-9.00	2.00-9.00	2.00-9.00	0.00-1.00	0.00-1.00
Mean	2.72	6.28	7.52	7.30	.35	.65
Variance	17.44	6.13	3.49	2.93	.08	.08
Standard Deviation	4.18	2.48	1.87	1.71	.28	.28

Note: N = 29.

[a] B_4 for each S is his estimated number of cuts. There is one course per S. The course, and thus the number of class hours per week, is the same for all Ss.

of the behavioral measure. The variance of B_4 is 17.44, and the standard deviation is 4.18.

The range of A_o is from 1.00 to 9.00, while the range of both A_s and A_oA_s is from 2.00 to 9.00. The mean of A_o (6.28) is lower than that of either A_s (7.52) or of A_oA_s (7.30). Mean evaluations of the situation are again higher than mean evaluations of the objects. The variance of A_o (6.13), however, is greater than that of either A_s (3.49) or A_oA_s (2.93).

Summary statistics of the obtained importance ratings for subsample B_4 are shown in the last two columns of Table 9. Both (w) and (1-w) range from 0.00 to 1.00. The mean of (w) is .35, and .65 is the mean of (1-w). That is, the mean perceived importance of the situation is greater than that of the objects. The variances of (w) and (1-w) are .08.

Table 10 shows the relevant intercorrelations between the obtained measures of subsample B_4. The obtained $\underline{r}$ of -.24 ($\underline{t}$ = 1.3) between B_4 and A_o is not significant. The $\underline{r}$ of -.45 ($\underline{t}$ = 2.7, $p < .05$) between B_4 and A_s is significant, but not as large as the $\underline{r}$ of -.57 ($\underline{t}$ = 3.7, $p < .01$) between B_4 and A_oA_s. Once again, A_oA_s is the best predictor of B. The next best predictor is A_s, and the poorest predictor is A_o. The obtained $\underline{R}$ (.51) is lower than the $\underline{r}$ of .57 between B and A_oA_s.

The correlations between A_oA_s and its two components are both significant, but the $\underline{r}$ of .36 ($p < .05$)

TABLE 10.--Intercorrelations between the obtained measures for subsample B_4.

Measure	Measure			
	B_4[a]	A_o	A_s	A_oA_s
B_4[a]	1.00			
A_o	-.24	1.00		
A_s	-.45*	-.01	1.00	
A_oA_s	-.57**	.36*	.81***	1.00

Note: N = 29.

[a]B_4 for each S is his estimated number of cuts. There is one course per S. The course, and thus the class hours per week, is the same for all Ss.

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

between A_o and A_oA_s is not as large as the $\underline{r}$ of .81 ($p < .001$) between A_s and A_oA_s. The correlation between A_o and A_s (-.01) is essentially zero.

Another indication that A_oA_s is the best predictor of B is shown by the fact that the proportion of the variance in B_4 accounted for by A_o, A_s, and A_oA_s is .06, .20, and .32, respectively. The proportion of the variance in A_oA_s accounted for by A_o is .13, and by A_s is .65, reflecting the greater evaluation of A_s than of A_o.

Subsample B_5.--The results for subsample B_5 (N = 25) are shown in Tables 11 and 12. Table 11 shows the ranges, means, variances, and standard deviations of the obtained measures for this subsample. The range of B_5 is from zero to 25. This distribution of behavioral measures is skewed, as indicated by the mean of 4.56. The variance of B_5 (38.01) is the largest of all the subsamples, and is due in part to the small N.

The range of both A_o and A_s is from 2.00 to 9.00, while A_oA_s has a range of from 3.20 to 9.00. Of the three attitudinal measures, A_s has the highest mean (6.64), and A_o has the lowest mean (5.60). The mean evaluation of the situation is again greater than the mean evaluation of the objects in that situation. The mean of A_oA_s is 6.49. The variance of A_o is 5.36, while the variance of A_s is 3.99, and that of A_oA_s is 3.77.

The last two columns of Table 11 show summary statistics for the obtained importance ratings in subsample

TABLE 11.--Ranges, means, variances, and standard deviations of obtained measures for subsample B_5.

Statistic	Measure					
	B_5[a]	A_o	A_s	A_oA_s	(w)	(1-w)
Range	0-25	2.00-9.00	2.00-9.00	3.20-9.00	0.00-0.75	0.25-1.00
Mean	4.56	5.60	6.64	6.49	.30	.70
Variance	38.01	5.36	3.99	3.77	.04	.04
Standard Deviation	6.16	2.32	1.99	1.94	.21	.21

Note: N = 25.

[a] B_5 for each S is his estimated number of cuts. There is one course per S. The course, and thus the number of class hours per week is the same for all Ss.

B_5. The range of (w) is from 0.00 to 0.75, and the range of (1-w) is from 0.25 to 1.00. The means of (w) and (1-w), .30 and .70, respectively, are the most extreme of all the subsamples, and show the greater perceived importance of the situation. The variance of (w) and (1-w) is .04.

Relevant intercorrelations between the obtained measures of subsample B_5 are shown in Table 12. None of the correlations between B_5 and the attitudinal measures is significant. The $\underline{r}$ of -.38 between B_5 and A_oA_s ($\underline{t}$ = 2.0), however, is larger than that of -.25 between B_5 and A_o ($\underline{t}$ = 1.3) or that of -.27 between B_5 and A_s ($\underline{t}$ = 1.4). Thus, even though A_oA_s is not significantly correlated with B, it is nevertheless a better predictor than either A_o or A_s. The $\underline{r}$ between B and A_oA_s (.38) is also higher than the obtained $\underline{R}$ of .33.

Both the $\underline{r}$ of .58 ($p < .01$) between A_o and A_oA_s and the $\underline{r}$ of .84 ($p < .001$) between A_s and A_oA_s are significant. The $\underline{r}$ of .20 between A_o and A_s is large as compared with those of the other subsamples, but is not significant.

The proportion of the variance in B_5 accounted for by A_o, A_s, and A_oA_s is .06, .07, and .14, respectively. The proportion of the variance in A_oA_s accounted for by A_o is .34, and by A_s is .71.

Subsample B_6.--Tables 13 and 14 show the results for subsample B_6 (N = 20). Ranges, means, variances, and standard deviations of the obtained measures for subsample B_6 are shown in Table 13. The range of B_6 is from zero

TABLE 12.--Intercorrelations between the obtained measures for subsample B_5.

Measure	Measure			
	B_5[a]	A_o	A_s	A_oA_s
B_5[a]	1.00			
A_o	-.25	1.00		
A_s	-.27	.20	1.00	
A_oA_s	-.38	.58**	.84***	1.00

Note: N = 25.

[a]B_5 for each S is his estimated number of cuts. There is one course per S. The course, and thus the class hours per week, is the same for all Ss.

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

TABLE 13.--Ranges, means, variances, and standard deviations of obtained measures for subsample B_6.

Statistic	Measure					
	B_6[a]	A_o	A_s	A_oA_s	(w)	(1-w)
Range	0-12	2.00-9.00	3.00-9.00	3.40-9.00	0.00-0.90	0.10-1.00
Mean	3.40	6.25	7.15	6.96	.43	.57
Variance	8.94	6.89	2.73	2.62	.11	.11
Standard Deviation	2.99	2.62	1.65	1.62	.33	.33

Note: N = 20.

[a] B_6 for each S is his estimated number of cuts. There is one course per S. The course, and thus the number of class hours per week, is the same for all Ss.

to 12, and the skewness of the distribution is indicated by the mean of 3.40. The variance of B_6 is 8.94.

The range of A_o is from 2.00 to 9.00. A_s has a range of from 3.00 to 9.00, and A_oA_s has a range of from 3.40 to 9.00. The means of A_o, A_s, and A_oA_s are 6.25, 7.15, and 6.96, respectively, indicating that the mean evaluation of the situation is once again greater than the mean evaluation of the objects. A_o has the largest variance (6.89), while the variance of A_s is 2.73 and that of A_oA_s is 2.62.

Summary statistics of the obtained importance ratings for subsample B_6 are shown in the last two columns of Table 13. The mean of (w) is .43, and (1-w) has a mean of .57. As in the other subsamples, the mean perceived importance of the situation is greater than that for the objects in the situation. The variance of (w) and (1-w) is .11.

Table 14 shows the relevant intercorrelation between the obtained measures for subsample B_6. The $\underline{r}$ of -.68 between B_6 and A_o is significant ($\underline{t} = 4.0$, $p < .001$). The $\underline{r}$ of .13 between B_6 and A_s, however, is not significant ($\underline{t} = 0.5$). This is the only subsample in which A_o is a better predictor of B than is A_s. In part, this may be attributed to the small sample size. It may also, however, be due to the known extreme popularity of the professor who generally teaches this particular course. This result indicates that A_o may be a better predictor of B in

TABLE 14.--Intercorrelations between the obtained measures for subsample B_6.

Measure	Measure			
	B_6[a]	A_o	A_s	A_oA_s
B_6[a]	1.00			
A_o	-.68***	1.00		
A_s	.13	-.26	1.00	
A_oA_s	-.78***	.79***	.08	1.00

Note: N = 20.

[a]B_6 for each S is his estimated number of cuts. There is one course per S. The course, and thus the class hours per week, is the same for all Ss.

***p < .001

spite of the fact that the mean evaluation of the situation and the mean perceived importance of the situation are both greater than for the objects in the situation.

Note that the correlation between B_6 and A_s (.13) is positive. That is, it is in the opposite direction of what would be expected. The $\underline{r}$ between B_6 and A_oA_s is -.78, and is significant ($\underline{t}$ = 5.5, $p < .001$). It is also higher than the $\underline{r}$ of -.68 between B_6 and A_o. Thus, although A_o is a good predictor of B in this subsample, A_oA_s is better. The obtained $\underline{R}$ in this subsample is .68, and thus lower than the $\underline{r}$ between B and A_oA_s (.78).

The correlation of .79 between A_o and A_oA_s is significant ($p < .001$), while the $\underline{r}$ of .08 between A_s and A_oA_s is close to zero. A second reversal of expected direction in the correlations for this subsample is the $\underline{r}$ of -.26 between A_o and A_s. Although relatively high, this $\underline{r}$ is not significant.

Obtained $\underline{r}^2$s indicate that the proportion of the variance in B_6 accounted for by A_o, A_s, and A_oA_s is .46, .02, and .61, respectively, reflecting the fact that A_oA_s is the best predictor of B. The proportion of the variance in A_oA_s accounted for by A_o is .63, while that accounted for by A_s is only .01.

Summary of Results in Relation to the Hypotheses

Summary of results pertaining to A_o, A_s, and A_oA_s as predictors of B.--The first four hypotheses were concerned with the accuracy with which B could be predicted. The main results concerning these four hypotheses are summarized in Table 15 for each of the subsamples. Although subsamples B_1 through B_6 may be viewed as replications, in a sense, of subsample B_T, it should be kept in mind that an unknown degree of dependency may exist among the correlational values presented in Table 15. The obtained values for a member of subsample B_5, for example, might also be included in subsample B_2, and so on. Caution must therefore be exercised when interpreting the results, taken as a whole, that are presented in Table 15.

Hypothesis 1 stated that the prediction of behavior will be more accurate when the interaction between attitude toward object and attitude toward situation is taken into account than when only attitude toward object or toward situation is considered, that is, $\underline{r}_{B,A_oA_s} > \underline{r}_{B,A_o}$ or r_{B,A_s}. Columns four, five and six of Table 15 show that: (a) The $\underline{r}$s between B and A_oA_s are significant in six out of seven subsamples. The $\underline{r}$s between B and A_o, however, are significant in only two of seven cases, and the $\underline{r}$s between B and A_s are significant in three of seven cases. (b) In each of those subsamples where the correlation between B and A_o (B_6) or between B and A_s (B_T, B_2), or both (B_1)

TABLE 15.--Summary of results pertaining to A_o, A_s, and A_oA_s as predictors of B.

Subsample	N	Coefficient of Correlation				
		r_{A_o,A_s}	r_{B,A_o}	r_{B,A_s}	r_{B,A_oA_s}	$R_{B\cdot A_o,A_s}$
B_T[a]	81	.07	-.20	-.46***	-.61***	.49
B_1[b]	71	.00	-.38**	-.35**	-.56***	.52
B_2[c]	35	-.07	-.31	-.34*	-.55***	.48
B_3[c]	30	.04	-.16	-.29	-.39*	.33
B_4[c]	29	-.01	-.24	-.45	-.57**	.51
B_5[c]	25	.20	-.25	-.27	-.38	.33
B_6[c]	20	-.26	-.68***	.13	-.78***	.68

Note: N refers to sample size.

[a] B_T for each S is his total number of estimated cuts divided by his total number of class hours per week. There are from three to five courses for each S, and class hours per week vary.

[b] B_1 for each S is his estimated number of cuts. Class hours per week are constant at three. There is one course per S, and different courses across Ss.

[c] B for each S is his estimated number of cuts. There is one course per S. The course, and thus the number of class hours per week, is the same for all Ss within a particular subsample.

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

are significant, the correlation between B and A_oA_s is larger. (c) Even in the subsample (B_5) where none of the correlations between B and the attitudinal measures is significant, the $\underline{r}$ between B and A_o or between B and A_s. Thus hypothesis 1 is supported in every one of the seven subsamples in the study.

Hypothesis 2 stated that measures of attitude toward object and of attitude toward the situation in which the object is encountered will be independent of one another, that is, $\underline{r}_{A_o,A_s} \approx 0$. The third column of Table 15 shows that A_o and A_s are nonsignificantly correlated in each of the seven subsamples, and that in most instances the $\underline{r}$ is essentially zero.

Hypothesis 3 stated that the prediction of behavior will be as accurate, or more accurate, when the adaptation of the belief congruence configurationist model is employed than when the additive model of multiple correlation is used, that is, $\underline{r}_{B,A_oA_s} > \underline{R}_{B\cdot A_o,A_s}$. Results pertaining to this hypothesis are shown in the last two columns of Table 15. Hypothesis 3 is supported in all of the seven subsamples.

Hypothesis 4 stated that the prediction of behavior based on knowledge of the attitude toward situation will be more accurate than predictions based on attitude toward object, but not as accurate as predictions based on knowledge of the interaction between attitude toward object and attitude toward situation, that is, $\underline{r}_{B,A_oA_s} > \underline{r}_{B,A_s} > \underline{r}_{B,A_o}$.

Columns four, five, and six of Table 15 show that the rank order of the correlations between B and the three attitudinal measures, from highest to lowest, is A_oA_s, A_s, A_o in five of the seven subsamples (B_T, B_2, B_3, B_4, and B_5), and A_oA_s, A_o, A_s in two of the five subsamples (B_1 and B_6). Thus hypothesis 4 is supported in five of the seven subsamples.

Summary of results pertaining to mean evaluation and mean perceived importance of situation and objects.-- Hypotheses 5 and 6 were concerned with the mean evaluation of the situation and the objects in that situation, and with the mean perceived importance of the situation and objects. The main results concerning these two hypotheses are summarized in Table 16 for each of the subsamples. Just as for the results presented in Table 15, the possibility of dependencies among the values in Table 16 must be kept in mind when interpreting the results taken as a whole.

Hypothesis 5 stated that the mean evaluation of the situation will be greater than the mean evaluation of the objects encountered in that situation, that is, $M_{A_s} > M_{A_o}$. The third and fourth columns of Table 16 show that this hypothesis is supported in every one of the seven subsamples. For subsample B_T, the difference between mean A_s and mean A_o is significant ($t = 4.4$, $p < .001$). There is also a significant difference between mean A_s and mean A_o in subsample B_1 ($t = 2.7$, $p < .01$). Significance tests

TABLE 16.--Summary of results pertaining to mean evaluation and mean perceived importance of situation and objects.

Subsample	N	Mean			
		A_s	A_o	(1-w)	(w)
B_T[a]	81	7.05	5.86	.63	.37
B_1[b]	71	7.06	6.11	.62	.38
B_2[c]	35	7.28	5.77	.61	.39
B_3[c]	30	6.87	4.97	.62	.38
B_4[c]	29	7.52	6.28	.65	.35
B_5[c]	25	6.64	5.60	.70	.30
B_6[c]	20	7.15	6.25	.57	.43

Note: N refers to sample size.

[a]The difference between mean A_s and mean A_o is significant at the .001 level (t = 4.4, two-tailed, with 80 degrees of freedom). The difference between mean (1-w) and mean (w) is also significant at the .001 level (t = 5.1, two-tailed, with 80 degrees of freedom).

[b]The difference between mean A_s and mean A_o is significant at the .01 level (t = 2.7, two-tailed, with 70 degrees of freedom). The difference between mean (1-w) and mean (w) is also significant at the .01 level (t = 3.4, two-tailed, with 70 degrees of freedom).

[c]t tests were not carried out on these subsamples because of the small N.

were not carried out on the other means in columns three and four because of the small N.

Hypothesis 6 stated that the mean perceived importance of the situation will be greater than the mean perceived importance of the objects encountered in that situation, that is, $M_{(1-w)} > M_{(w)}$. This hypothesis is supported by results for all seven subsamples, as shown in the last two columns of Table 16. The difference between mean (1-w) and mean (w) is significant for both subsample B_T ($\underline{t} = 5.1$, $p < .001$) and for subsample B_1 ($\underline{t} = 3.4$, $p < .01$).

DISCUSSION

The basic or underlying question in studies of the relationships between attitudes and behavior is whether or not knowledge of an individual's expressed attitudes will aid in the prediction of his overt behavior. There are at least three conditions which must be met when attempting to answer this question. Investigators must first of all derive their experimental hypotheses from some prior conception of the attitude construct. The clearer the conceptualization, the more meaningful are the results of the study likely to be. A second condition is to adequately assess the attitudes under investigation. The type of measurements made will depend both upon the particular conceptualization of attitude which is employed and upon the use to which this information is to be put when making predictions about behavior. A third condition is to adequately assess the interrelationships between attitudes and behavior. The form of this latter measure will depend to a large extent upon the manner in which the first two conditions are met, but will also depend upon other factors such as the type of behavior under study, time relationships involved, and so on.

The purpose of this section is to discuss these conditions in relation to Rokeach's (1968) definition of attitude and in relation to the hypotheses, design, and results of the present study. What are some of the implications of the conceptual definition from which the hypotheses were derived? What are some of the implications of the results of the present study for both previous research and for future research on the relationships between attitudes and behavior? Limitations in methodology must also be kept in mind when attempting to generalize from the results of the present study. Some of these limitations, and suggestions for their resolution, will also be discussed.

The Conceptualization of Attitude

Two major components of Rokeach's (1968) definition of attitude were tested in the present study. The first is that an attitude is a predisposition to respond in a preferential manner. This aspect of the definition is, of course, fundamental to the hypothesis that an individual's behavior can be predicted from knowledge of his attitudes. The other component of the definition which was tested is that attitudes may be toward situations as well as toward objects. From this second aspect of the definition is derived the hypothesis that whenever an attitude object is encountered in some situation, at least two attitudes, A_o and A_s, will be activated. Behavior can

thus be predicted on the basis of knowledge of the outcome of the cognitive interaction between A_o and A_s.

Rokeach's conceptualization of attitude as a set of interrelated predispositions to respond in a preferential manner differs from that of some other theorists. Horowitz (1944), for example, views an attitude not as a predisposition to respond but as a response. An attitude is conceptualized by Doob (1947) as an implicit response. Although not expressly excluding predispositional aspects of an attitude, Campbell (1950) and Green (1954) both employ the attitude construct to refer to consistency among a set of responses. As Rokeach points out, however, most writers

> . . . seem to agree that an attitude is a predisposition of some sort, although there seems to be some difference of opinion about what kind of predisposition it is: . . . to respond; . . . to evaluate; . . . to experience; . . . to be motivated, . . . to act. In the present formulation we prefer simply 'predisposition to respond' with the understanding that a response may be either a verbal expression of an opinion, or some form of non-verbal behavior (1968, p. 453).

By emphasizing that an attitude is a "predisposition to respond," Rokeach's (1968) definition avoids the implication that the response itself is either affective or evaluative. It may be either, or it may be a combination of both. The main point, however, is that the use of this conceptualization of attitude leads to the hypothesis that a person's behavior toward an object can be predicted from knowledge of his attitudes about the object.

In this respect, Rokeach's (1968) conceptualization does not differ greatly from that of many other theorists. The problem with these dispositional formulations is that rarely has it been possible to predict, with any substantial degree of accuracy, actual behavior in real-life situations solely on the basis of attitude test scores.

Although agreeing with many other theorists in emphasizing that an attitude leads to a preferential (or discriminatory) response, there is an important difference between Rokeach's (1968) dispositional formulation and others. Since an attitude is conceptualized as an organization of beliefs, it "is not a single predisposition but a set of interrelated predispositions focused on an attitude object or situation" (1968, p. 453). Each of the beliefs comprising an attitude represent predispositions which lead to a preferential response when activated, and all attitudes are thus assumed to have a behavioral component. All of these predispositions, however, will not necessarily be activated by a particular attitude object or situation. "Which ones are activated depends on the particular situation within which a particular attitude object is encountered" (1968, p. 453).

Rokeach's (1968) conceptualization of attitude leads, then, not only to the hypothesis that behavior can be predicted from attitudes, but to the additional hypothesis that in order to predict accurately, at least two attitudes, A_o and A_s, as well as their cognitive

interaction, must be considered. Results of the present study support both of these hypotheses. The finding that the correlations between A_o and B are statistically significant in only two of seven instances and that the correlations between A_s and B are statistically significant in only three of seven instances are not atypical of results from studies in which only one class or type of attitude is utilized to make predictions about behavior. Use of Rokeach's conceptualization, however, implies that at least two attitudes and their cognitive interaction are required to predict accurately. In the present study, the correlations between the A_oA_s configurations and B are statistically significant in six of the seven subsamples.

The conceptualization of attitude from which the hypotheses of the present study were derived, and the results of the present study, have some important implications for both previous and for future research on the relationships between attitudes and behavior.

Some Implications for Previous and for Future Research

Some of the implications of Rokeach's (1968) conceptualization of attitude for the interpretation of the results of previous studies of the relationships between attitudes and behavior have been pointed out in a previous section. The studies by LaPiere (1934) and by Kutner *et al.* (1952) are those most often cited as examples of the inconsistency which is often found between expressed

attitudes and overt behavior. The results of these two studies, and others of a similar nature, have led some investigators to minimize the efficacy of verbal attitudes as accurate predictors of behavior.

Recognizing the importance of the situation within which an attitude object is encountered, some theorists have suggested that assessment of the situational variables will lead to more accurate prediction than will assessment of attitudinal variables. This view has resulted in the proposal of constructs such as "situational thresholds" (Campbell, 1963), "social involvement" (DeFleur and Westie, 1958), and "commitment" (Fendrich, 1967), to explain away the inconsistencies which are found between expressed attitudes and overt behavior.

Rokeach's (1968) discussion of the nature of attitudes, however, proposes that these theorists have failed to appreciate that attitudes may be toward situations as well as toward objects, and may be assessed by similar means. Since an attitude object is always encountered within some situation about which an individual also has an organization of beliefs, prediction of behavior must be based upon consideration of both kinds of attitudes. Knowledge of these two types of attitudes alone, however, is not sufficient. The two kinds of attitudes will cognitively interact with one another. Behavior thus depends upon the outcome of this cognitive interaction. The same object may be encountered in two differently evaluated

situations, the relative importance of the situation being greater in one instance than the other, thus resulting in different behavior with respect to the object.

In the present study, the cognitive interaction between A_o and A_s was assessed by means of an adaptation of the Rokeach and Rothman (1965) belief congruence model. The correlations between the A_oA_s configuration and B are statistically significant in six of seven instances, and are higher than the correlations between either A_o and B or A_s and B in every one of the seven subsamples. These results therefore support the proposition that assessment of the two types of attitudes and their cognitive interaction leads to more accurate prediction of behavior than does assessment of only one type of attitude. This suggests that LaPiere (1934) and Kutner et al. (1952) may have found different results if evaluations of the relative importance of the two situations (face-to-face and non-face-to-face) had been assessed in addition to evaluations of the attitude objects. Analogous suggestions may be offered in regard to studies of a similar nature.

It should be noted at this point that Rokeach (1968) is by no means minimizing the importance of the situation within which an attitude object is encountered. Rather than hypothesizing about situational constructs, however, it is proposed that these situational constructs be psychologically reformulated as "attitude toward situation." Attitude toward situation may be, and, it is

implied, often is relatively more important than attitude toward object. In the present study, for example, the mean evaluation and the mean perceived relative importance of the situation is greater than that of the attitude objects in all seven of the subsamples.

The major implication of Rokeach's conceptualization of attitude, and of the results of the present study, for future investigations of the relationships between attitudes and behavior, then, is that both A_o and A_s, as well as their cognitive interaction, must be assessed in order to make accurate predictions about behavior. The investigators' task is to identify the relevant A_o and A_s when making predictions about a specific behavior. This identification of the relevant attitudes will often be a matter of intuition or of educated guesses based upon previous research. In the present study, for instance, it was assumed that in predicting class cutting behavior the most relevant attitudes would be those toward the instructor of a particular course (A_o) and toward the general importance of attending class (A_s).

In addition to identifying the relevant attitudes, it is also necessary to assess the absolute and the relative importance of these two attitudes in order to predict the behavioral outcome of their cognitive interaction. The question may be raised as how to assess the relative importance of the two attitudes. One way is exemplified by the present study in which Ss provided measures of (w)

and (1-w) by rating the relative importance of A_o and A_s in the context of A_oA_s. It is also possible, however, to assess the relative importance of the two attitudes by theoretical rather than empirical means.

Rokeach (1966-67) has suggested that the comparison of the relative importance of the two attitudes will take place within the general framework of one's total belief system. According to some tentative conceptualizations of the structure of belief systems (Rokeach, 1960, 1963, 1964), all beliefs and thus all attitudes, which are organization of beliefs, are arranged along a central-peripheral dimension of importance. Rokeach's conceptualizations of the types of beliefs and attitudes which may be found along this dimension of importance allow at least some educated guesses to be made about which of the two attitudes, A_o or A_s, is likely to be more important. Because of the composition of the sample in the present study, for example, it was hypothesized that A_s would be relatively more important than A_o. The empirical rating of (w) and (1-w) support this hypothesis.

In regard to the relative importance of A_o and A_s, it might be suggested that A_s will often be the more important of the two. Findings discussed in previous sections, those of Biesanz and Smith (1951), LaPiere (1934), Lohman and Reitzes (1954), Minard (1952), and Kutner et al. (1952), for example, all emphasize the importance of the situation within which an attitude object

is encountered. Findings of the present study also show the greater relative importance of A_s than of A_o. The implication for future studies of the relationships between attitudes and behavior is clear. The importance of situational attitudes and their interactions with attitudes toward objects have been too often overlooked in the past.

Limitations of Present Study

The proposition that behavior is a result of at least two cognitively interacting attitudes implies that exact prediction of behavior is possible, provided that the proper measurements are made and that these measurements have a high degree of reliability and validity. In the present study, the range of correlations between the A_oA_s configuration and B is from -.38 (subsample B_5) to -.78 (subsample B_6). The amount of variability in B accounted for by knowledge of the cognitive interaction between A_o and A_s thus ranges from 14 to 61%. Some of the limitations of the present study suggest that more accurate prediction is possible in future studies which attempt to overcome these limitations.

Perhaps the most obvious limitation is that behavior was not actually observed. The Ss were asked to estimate the number of class cuts for each course. As previously noted, however, there was no reason to assume that these estimates would not be reasonably accurate or that the Ss would be dishonest in making them. It would

seem desirable, though, to have actual observations of behavior in future research, when time and conditions permit, or at least to have checks on the reliability of Ss' reports of behavior. Such checks need not necessarily be made on the entire sample. A properly selected subsample could conceivably provide estimates of any discrepancies between actual behavior and verbal reports of such behavior.

Related to the measurement of responses is the possibility that in the present study a S's report of his behavior and his evaluations of the objects and situation may not have been entirely independent of one another. It is conceivable, for instance, that if a S had indicated a large number of cuts in a particular course, he would, for reasons of consistency or rationalization alone, indicate a low evaluation of the instructor of that course. If such an effect does exist, it might be minimized by randomization of questionnaire items or by obtaining the different measurements at diverse and unrelated points in time.

Two additional aspects of the behavioral measures should be noted. Although the Ss were instructed to disregard factors such as illness, accident, and unusual weather conditions when estimating the number of times they cut a particular course, there is no way of knowing to what extent these instructions were followed. The correlations between the attitudinal and behavioral

measures, as well as the reliability and validity of the behavioral measures, would be attenuated to the extent that these instructions were not kept in mind when estimating B. One way of discovering if instructions were followed would have been by interviewing the Ss. Another aspect of the behavioral measure worth consideration is the question of the linearity of class cutting behavior. That is, the question may be raised as to whether, say, two cuts are psychologically twice as many as one cut, and whether the difference between one cut and two cuts has the same meaning as that between three cuts and two. This latter question requires further investigation and should be kept in mind in future studies.

Implicit in the formulation that behavior is a function of at least two cognitively interacting attitudes is the proposition that the prediction of future behavior is based upon prior knowledge of A_o and A_s and of their relative importance with respect to one another. In the present study, Ss were asked for their evaluations of the objects and of the situation after the actual behavior had taken place. No measures of possible attitude change over time were obtained. It does not seem unreasonable that such changes in evaluation, especially of the course instructors, would occur.

Ideally, a test of the formulation represented by $B = f(A_o, A_s)$ requires that the two attitudes by relatively stable, or at least that they be assessed as close in time

as possible to the occurrence of the behavior. Since it will not always be possible to meet these ideal conditions, investigators must be aware of what the A_o and A_s measures actually represent. In the present study, for example, the A_o and A_s measures may be viewed as mean or average evaluations of the objects and the situation over the period of time in which the Ss encountered the particular objects within the particular situation.

The possibility of a difference among Ss in the meaning of the A_o and A_s measures should also be noted. In evaluating the course instructors, Ss were asked to what extent they "liked" each particular instructor. "Liking" can be interpreted in a number of different ways. To some Ss it may have meant "good lecturer," to others "a nice person," and so on. Differences in interpretation of "the general importance of attending class" are also possible. These considerations illustrate the importance of clear and explicit instructions and the desirability of interviewing Ss in order to increase the reliability and validity of obtained measurements.

The small variability and the skewness exhibited by some of the obtained distributions must also be kept in mind when attempting to interpret the results of the present study. The distributions of B and of A_s in particular, are limited in range and show considerable skewness. How does this affect the interpretation of the obtained r values?

In regard to the small ranges, it will be recalled that the general effect of increasing the variability of a distribution of measurements is to increase the values of the correlations. Decreasing the range of measurements, conversely, tends to decrease the size of the correlations. It should be expected, then, that the r values obtained in the present study would be even larger if the distributions had shown more variability. Since extremely skewed distributions exhibit less variability than unskewed distributions, the same reasoning applies; the obtained rs would be expected to be larger if the distributions had been less skewed.

Another factor which may have attenuated the values of the obtained correlations is that no corrections for possible overassimilation effects were made. Reasons for not making corrections for possible overassimilation effects are discussed above, where it is pointed out that is overassimilation does occur it will work against the hypothesis that A_oA_s is a better predictor of B than is either A_o or A_s alone. The possibility of such overassimilation effects, however, must be kept in mind in future investigations.

Transformations of the data might have been performed before analyzing the results of the present study. The distributions showing considerable skewness and little variability, for example, might have been transformed into a normal form. The effect of doing so would probably have

been to increase the correlational values and the level of their significance. Such transformations were not performed for two reasons. One justification for transforming obtained distributions into a normal form is an assumption that the variables are in fact normally distributed in a population, even though those of a particular sample are not. Since the population of interest in this study is that of college students, there seems to be little justification for the assumption that the obtained measures, A_s and B in particular, are normally distributed. A second reason for not performing transformations on the data is that when transformations are made, any discussions of, or generalizations from, the analyses can, strictly speaking, be only about the transformed measures and not about the variables which they represent.

Other aspects of the present study, such as the homogeneity of the sample, the sample size, and the particular attitudes and behavior studied, must also be kept in mind when attempting to generalize from the results. Even though results of this study support the proposition that behavior depends upon at least two cognitively interacting attitudes, further investigations need to be carried out on samples from diverse types of populations and with various types of attitudes and behaviors.

To summarize this section on limitations of the present study, it should be noted that some aspects of the study may have affected the reliability and validity

of the measurements. These include the following facts: (a) the behavioral measures represent estimates provided by the Ss after the occurrence of the actual behavior, (b) attitude change may have occurred, (c) factors other than A_o and A_s may have affected class cutting behavior, and (d) the meaning of the behavioral and attitudinal measures may have differed among the Ss. Some factors which may have tended to limit the values of the obtained correlations include the facts that: (a) the obtained distributions show considerable skewness and little variability, and (b) no corrections for possible overassimilation effects were made.

In conclusion, then, results of the present study lend support to the general hypothesis that behavior can be predicted from knowledge of verbally expressed attitudes. The more specific hypothesis that prediction of behavior with respect to an object within a situation will be more accurate when based upon knowledge of the cognitive interaction between A_o and A_s than when based upon knowledge of either attitude alone is also supported by the results. Evidence for the greater relative importance of A_s than of A_o was also found, although this result would be expected to vary with the particular objects and situations chosen for study.

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