MEDIATED ATTITUDES AS INDICES OF NON-CONGRUITY FACTORS IN ATTITUDE CHANGE

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ABSTRACT

MEDIATED ATTITUDES AS INDICES
OF NON-CONGRUITY FACTORS
IN ATTITUDE CHANGE

by Ivan L. Preston

The purpose of this research was to investigate the effects of non-congruity factors in attitude change. The research centered around the use of the congruity principle to predict changes occurring in attitudes when the attitude holder acquires new relevant information. The congruity principle's predictions are based on several change factors which are called congruity factors. All other relevant change factors thus may be called non-congruity factors.

The research was concerned with reported attitude changes which differed from those predicted by the congruity principle. The hypothesis was made that non-congruity factors were determinants of change in these cases. The specific problem, then, was to test this hypothesis by obtaining an empirical demonstration of the effects of non-congruity factors.

A new attitude change predictor, called the mediated attitude principle, was developed for this purpose. This principle makes predictions based on all relevant change factors, including congruity and non-congruity factors. It was assumed that such predictions would be more accurate than the congruity principle's predictions whenever non-congruity factors were determinants of change.

To distinguish between situations in which non-congruity factors would and would not determine change, the research made use of a distinction between immediate and mediate attitude objects. These are objects of whom a person's knowledge is principally the result of his own direct personal contact with them (immediate), or someone else's personal contact with them (mediate). Results of previous research suggested that congruity predictions were accurate for changes involving mediate objects, but inaccurate for changes involving immediate objects. Accordingly, it was assumed that non-congruity factors were significant determinants of changes in attitude toward immediate objects, but were not so when mediate objects were concerned.

The hypothesis of the research was: For situations involving immediate attitude objects, predictions of change based on the mediated attitude principle will be significantly more accurate than will predictions based on the congruity principle.

A questionnaire was written and administered to 126 subjects. The first part obtained measurements of subjects' attitudes toward immediate attitude objects. The second part, issued several days later, informed subjects that one attitude object had made a positive or negative assertion about another attitude object. The questionnaire then re-measured subjects' attitudes toward the objects. It also obtained subjects' mediated attitudes toward the objects, and subjects' indications of the "real-life" situation. Measurements of subjects' openmindedness and closedmindedness were obtained with another measuring instrument.

Congruity predictions, mediated attitude predictions, and actual changes were computed for 504 change situations (four per subject).

Four statistical tests (two t tests, chi square test, and sign test) were used to determine differences in accuracy between the two predictors. Chi square tests were used to determine whether relative accuracy of the predictors was independent of nine experimental variables.

The principal conclusion was that mediated attitude predictions were significantly more accurate than congruity predictions (all tests significant). Accordingly, it was concluded that non-congruity factors were important determinants of changes in attitudes held toward immediate attitude objects.

Relative superiority of mediated attitude predictions occurred under all experimental conditions, but extent of superiority was not independent of the value of the attitude object (positive, negative, or neutral), or the type of change situation (congruent, incongruent, or other).

Subjects treated incongruity as a relevant change factor when the experimental situation seemed conceivable in real life. But they apparently discounted incongruity when the situation seemed inconceivable.

No differences between openminded and closedminded subjects were found.

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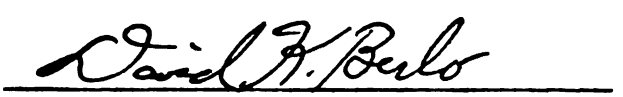

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INTRODUCTION

The purpose of this research is to investigate the effects of non-congruity factors in attitude change research. Congruity factors are those which are used by Osgood and Tannenbaum for predicting attitude change. Their method of deriving predictions from these factors is called the congruity principle. Osgood and Tannenbaum believe that it accounts for the most significant factors bearing upon attitude change. They do not state that there are no other factors relevant to attitude change, but their research suggests that no other factors have significant effects upon change.

Findings of other research imply that non-congruity factors do affect change significantly under certain conditions. Attitude changes will occur which are different from those predicted by the congruity principle. If congruity factors did not determine these attitudes, we may surmise that non-congruity factors were significant determinants. The existence of non-congruity factors, however, is not demonstrated necessarily by a negative relationship between change and congruity predictions. What is required is some direct evidence that non-congruity factors are related to change. Another requirement is some means of distinguishing between situations in which non-congruity factors are and are not important determinants of change.

The present research attempts to meet these requirements. To demonstrate that non-congruity factors are associated with attitude change, a

new change predictor is presented. This predictor, called the mediated attitude principle, is designed to make predictions on the basis of all relevant change factors. Its predictions will be compared with those of the congruity principle. The congruity principle's predictions are made on the basis of congruity factors only. Therefore, if the mediated attitude principle's predictions are different, we assume that they are made on the basis of non-congruity as well as congruity factors. Furthermore, if the mediated attitude predictions are more accurate, we will conclude that the non-congruity factors are importantly related to attitude change.

To distinguish between situations in which non-congruity factors are and are not relevant to change, we will make a distinction between two kinds of attitude objects, immediate and mediate. Immediate attitude objects are those of whom a person's knowledge is principally the result of his own direct personal contact with them. Mediate attitude objects are those of whom a person's knowledge is principally the result of someone else's personal contact. It has already been demonstrated in other research that changes in attitudes toward mediate attitude objects are highly correlated with congruity factors and not significantly associated with non-congruity factors. In contrast, we will attempt to show here that non-congruity factors are significant determinants in changing attitudes toward immediate attitude objects.

The significance of this research lies in the opportunity to increase knowledge of the behavior of the receiver in a communication situation. The receiver's attitude toward something constitutes part of his predisposition for behaving in certain ways toward it. Given additional information about an object for which he already has an attitude, the

receiver may or may not change the attitude as a result. The congruity principle's value lies in the opportunity it provides to determine in advance what changes the receiver will make as a result of receiving certain messages. Thus it is possible to increase the communicator's efficiency by enabling him to know when the congruity principle will provide accurate advance information and when it will not. In situations for which the congruity principle will not be useful, the communicator may obtain useful advance information by means of the mediated attitude principle.

The study is to be reported in four chapters. Chapter I includes a background for the research, and a rationale for the experimental hypothesis. Chapter II describes the experiment, including descriptions of the subjects, measures, design, and administration. Chapter III reports the results of the experiment, the statistical analysis used to test the hypothesis, and some additional analyses of the experimental data. Chapter IV includes the conclusions, discussion of the conclusions, and implications of the thesis for further research and for predictions of attitude change.

CHAPTER I

This chapter reports on research on consistency and attitude change as background for the present study, and presents a rationale for the experimental hypothesis.

THE CONCEPT OF CONSISTENCY IN ATTITUDE RESEARCH

In typical studies of attitude change, there is first an individual who holds a known attitude toward a known attitude object. Next, there is the occurrence of some event which the individual perceives, and which is presumably relevant to the attitude. Finally, there is the individual's post-event attitude. It is the task of theory to characterize the perceived event so as to predict post-event attitude.

Much of the recent attitude change research has involved the phenomena of consistency and inconsistency. These general concepts have been incorporated into various theoretical models of human behavior. Osgood and Tannenbaum call the phenomena "congruity" and "incongruity."[1] Heider refers to "balance" and "imbalance."[2] Festinger uses the terms "consonance" and "dissonance."[3] Newcomb's "symmetry" and "co-orientation" are

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[1] Charles E. Osgood and Percy H. Tannenbaum, "The Principle of Congruity in the Prediction of Attitude Change," Psychological Review, LXII (January, 1955), 42-55.

[2] Fritz Heider, The Psychology of Interpersonal Relations (New York: Wiley, 1958).

[3] Leon Festinger, A Theory of Cognitive Dissonance (Evanston: Row, Peterson and Company, 1957).

related concepts.[4] Hovland and his associates at Yale have instituted a program of research on attitude change in which the basic thesis is that the separate components of an attitude tend toward consistent organization with each other.[5]

Osgood and Tannenbaum, Heider, and Newcomb orient their formulations around a similar three-element attitude change model. For Heider, the elements involved include either three persons or two persons and one inanimate attitude object. Additional elements include the attitudes of one person toward the other two attitude objects, plus the attitude of one of the latter toward the other.

Newcomb's A-B-X model involves two persons, A and B, and one additional attitude object, X. Also involved are the attitudes of A and B toward each other, and the attitudes of both toward X.

A model involving similar elements, though they are labeled differently, is that of Osgood and Tannenbaum. They are interested in predicting a subject's behavior toward a communication source and a concept. Also involved are the attitudes toward the concept held both by the subject and the communication source, as well as the subject's attitude toward the source. The concept may be any kind of attitude object, but the source has been restricted to persons or human organizations.

The consistency-inconsistency characterization of the intervening event in attitude change situations has been useful in predicting

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[4] Theodore Newcomb, "An Approach to the Study of Communicative Acts," Psychological Review, LX (November, 1953), 393-404.

[5] Milton J. Rosenberg, Carl I. Hovland, William J. McGuire, Robert P. Abelson, and Jack W. Brehm, Attitude Organization and Change (New Haven: Yale University Press, 1960).

post-event attitudes. Among the various systems, Osgood and Tannenbaum's congruity principle permits the most precise predictions. Given the subject's prior attitudes toward both source and concept, and the source's own attitude toward the concept (as indexed by the source's statements about the concept), the congruity principle predicts the direction and amount of change of the subject's attitudes toward both source and concept.

Congruity Principle--Theoretic Base.--The congruity principle has been developed from a theoretical background in a theory of signs.[6] Any theory of signs must specify conditions for the use of the term "sign," i.e., a meaning for "meaning" or "significance." Osgood defines meaning as the representational mediation process which the sign evokes within the organism. When the sign is perceived, the organism produces an internal response which is some fraction of the total response elicited by the thing signified (significate). The internal response in turn produces an internal stimulus. This stimulus may produce overt instrumental responses which would not occur in the absence of the sign-significate contiguity.

Meanings, then, are internal responses which constitute predispositions toward external responses. They cannot be measured directly, but Osgood suggests that measurements of overt instrumental responses can be used as indices of internal states. Of the possible overt responses to the representational mediation process which might be measured, Osgood

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[6] Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957), chap. ii.

chose linguistic behavior as being easiest to record, to quantify, and to interpret. He decided to elicit linguistic responses chosen by subjects from a sample of alternate responses selected by the researchers as representative of the principal variations in meanings. The alternatives used were pairs of terms representing verbal opposites, the members of each pair being reciprocally antagonistic. The choice of one alternative meant rejection of the other, and thus the meaning of a sign was delimited by each response.

In order to determine the strength of the choice of one alternative, a scale was inserted between the two. The direction of the choice from the center of the scale indicated the direction of the meaning, and the distance from the center indicated the intensity of the meaning. The scale appears as follows, using various pairs of verbal opposites such as GOOD-BAD:

GOOD: ___ : ___ : ___ : ___ : ___ : ___ : ___ :BAD
+3 +2 +1 0 -1 -2 -3

The center or zero scale position indicates no choice between alternatives. A set of such scales comprises the measuring instrument, which Osgood calls the Semantic Differential.

A subject's meaning for a concept is determined by his selection from pairs of alternatives. In order to combine the pieces of meaning provided by each choice, Osgood postulates a multi-dimensional semantic space in which each scale is represented as a straight-line function passing through the point-of-origin. The center position of the measurement scale is represented in the semantic space as the point-of-origin. All other scale positions are represented in the semantic space as positions at corresponding directions and distances away from the point-of-

origin.

Each Semantic Differential scale represents a specific function passing through semantic space. Only one position may be chosen on each scale. There may be as many positions chosen as there are scales. Meaning, then, is defined as the position in the semantic space which is chosen by successive specification of positions along each individual scale.

In cases where the scale positions chosen by subjects for two or more scales are identical or highly similar, the semantic differential's developers assume that the scales are associated with the same dimension. Through factor analysis, they have compared the responses made by subjects to a large number of scales. The scales fell into at least three groups showing relatively high within-group correlation and relatively low between-group correlation. These groups were interpreted as three dimensions of meaning, which were labeled "evaluative," "activity," and "potency." The dimensionality of the semantic space is far from exhausted by these three dimensions, but the factor analysis did not provide sufficient data to justify the specification of additional dimensions.

In practice, meaning is defined by Osgood and associates as the position in the semantic space chosen by specification of positions along the evaluative, activity, and potency dimensions.

The congruity principle involves attitudes, and attitude is defined by Osgood as one dimension of meaning:

> Despite a plethora of definitions of "attitude" in contemporary social science, some consensus and agreement is evident, particularly with respect to the major properties that attitudes are assumed to possess. Most authorities are agreed that attitudes are...predispositions to respond, but are distinguished from other such states of readiness in that they predispose

> toward an evaluative response. Thus, attitudes are referred to as "tendencies of approach or avoidance," or as "favorable or unfavorable," and so on. This notion is related to another shared view---that attitudes can be ascribed to some basic bipolar continuum with a neutral or zero reference point, implying that they have both direction and intensity...[7]

Osgood thus equates attitude with evaluative meaning--that is, with the evaluative dimension of meaning which is determined through responses to evaluative scales:

> In terms of the operations of measurement with the semantic differential, we have defined the meaning of a concept as its allocation to a point in the multidimensional semantic space. We then define attitude toward a concept as the projection of this point onto the evaluative dimension of that space.[8]

The two characteristics of an attitude, direction from point-of-origin and distance from point-of-origin, are obtained by judgments made on scales representing the evaluative dimension.

Normally, an individual will have only one attitude toward a given object. Two or more attitudes toward the same object are mutually incompatible. There are circumstances, however, in which an individual, to be logically consistent, will invoke more than one attitude toward an object. Suppose he has attended to an object and has invoked an attitude of +3. The object, let us say, is a person whom we will call A. The individual has also invoked an attitude of -2 toward another attitude object, a person called B, and we will imagine that this implies for him a similar attitude of -2 toward anyone who is a friend of B. Sometime later, the following event occurs. Our individual hears A describing B

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[7] Ibid., 189-190.

[8] Ibid., 190.

as his close personal friend.[9] This event logically commits the individual to invoke an attitude of -2 toward A. Consequently, if the logic of consistency is tenable, he now has attitudes of both +3 and -2 toward A.

The congruity principle assumes that the individual will find it unsatisfactory to retain both attitudes toward A. Such logical "incongruity" will be uncomfortable, and the individual will experience a stress toward reducing the two attitudes to a single attitude. The congruity principle is designed to predict the value of the resulting attitude.

The congruity principle states a set of conditions under which two attitudes[10] are related congruently:

> Whenever two signs [i.e., attitude objects] are related by an assertion, they are congruent to the extent that their mediating reactions [i.e., the attitudes held toward them] are equally intense, either in the same (compatible) direction of excitation in the case of associative assertions or in opposite (reciprocally antagonistic) directions in the case of dissociative assertions.[11]

Whenever the attitudes do not meet these conditions, they are related incongruently.

Congruity, or a congruent relationship, is thus a state in which the attitudes are harmonious and do not tend toward change. Incongruity is a state in which the attitudes are not harmonious and tend toward change in the direction of congruence.

Predictions of the direction and intensity of change are determined

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[9] In other words, A makes an associative assertion toward B. A negative statement by A toward B would constitute a dissociative assertion.

[10] The congruity principle does not apply only to attitudes. However, it will be presented here with emphasis on such application.

[11] Osgood, Suci, and Tannenbaum, op. cit., 203.

in a two-step procedure. First, the locations of congruence are determined. The location of congruence of an attitude is the direction and intensity which it must have in order to be congruent with other relevant information. This information consists of (1) an attitude toward some other attitude object, and (2) an assertion which relates the two objects. The location of congruence is determined as follows:

> Whenever one object of judgment is associated with another by an assertion, its congruent position along the evaluative dimension is always equal in degree of polarization [i.e., intensity] to the other object of judgment and in either the same (positive assertion) or opposite (negative assertion) evaluative direction [as the latter].[12]

This can be expressed by the following equations:

$p_{c_1} = p_2$ and $p_{c_2} = p_1$ (for associative assertions)

$p_{c_1} = -p_2$ and $p_{c_2} = -p_1$ (for dissociative assertions)

where p_1 and p_2 refer to the direction and intensity of attitudes for objects 1 and 2, respectively, and p_{c_1} and p_{c_2} refer to the direction and intensity of the location of congruence for these attitudes. For example, if a +3 attitude is associated with object 1, and a -2 attitude with object 2, and the two objects are related by an associative assertion, then the location of congruence for the +3 attitude is -2. If the objects are related by dissociative assertion, then the location of congruence for the +3 attitude is +2. For the -2 attitude, the location of congruence would be either +3 for an associative assertion or -3 for a dissociative assertion.

When the locations of congruence are determined, the second step is to predict the magnitude of the change. The principle on which such pre-

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[12] Osgood and Tannenbaum, op. cit., 45.

dictions are based can be stated as follows:

> The original attitude shifts toward the location of congruence, the magnitude of the change (C) being a proportion of the distance from the original attitude (p_1) to the location of congruence (p_2), that proportion being the ratio of the intensity of the location of congruence to the sum of the intensities of the location of congruence and the original attitude.

This principle is expressed by Osgood and Tannenbaum through the following equation:

$$C = \frac{|p_2|}{|p_1| + |p_2|}(p_2 - p_1)$$

For example, if the original attitude is +2, and the location of congruence is -2, then the predicted change is -2.

An additional problem in making predictions is the "believability" of the message, i.e., the subject's belief in the credulity of the relationship. Osgood and Tannenbaum suggest an incredulity factor which tends to diminish the amount of change predicted. Although they do not specify a quantitative formula for incredulity, they do state a general rule:

> The amount of incredulity produced when one object of judgment is associated with another by an assertion is a positively accelerated function of the amount of incongruity which exists and operates to decrease attitude change, completely eliminating change when maximal.[13]

Figure 1 states predictions of direction and intensity of change for various combinations of original attitude and location of congruence. Corrections for credulity are included. These corrections, although following the general rule, are empirical determinations arrived at arbitrarily by Osgood and Tannenbaum.

Research on Congruity.--Experimental evidence for the congruity

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[13] Ibid., 49.

LOCATION OF CONGRUENCE	ORIGINAL ATTITUDE						
	+3	+2	+1	0	-1	-2	-3
+3	0	.6	1.5	3	2.6	1.5	0
+2	-.4	0	.7	2	1.8	1.3	.5
+1	-.5	-.3	0	1	.9	.7	.4
0	0	0	0	0	0	0	0
-1	-.4	-.7	-.9	-1	0	.3	.5
-2	-.5	-1.3	-1.8	-2	-.7	0	.4
-3	0	-1.5	-2.6	-3	-1.5	-.6	0

Fig. 1.--Predicted changes in attitude as corrected for incredulity.[14]

principle has been obtained by examination of several types of change situations. Most typical is a situation in which the source is a public news medium, or a public figure being quoted in a public news medium, and the concept is an event or concern of public interest. In an experiment by Tannenbaum,[15] subjects saw newspaper articles in which a source made either a positive or negative assertion toward a concept. The sources were "labor leaders," "Chicago Tribune," and "Senator Robert A. Taft." They made assertions about, respectively, the concepts of "legalized gambling," "abstract art," and "accelerated college programs." Subjects' attitudes toward source and concept were measured in advance, then again after exposure to the newspaper article. The resulting changes in attitudes correlated .91 with congruity principle predictions.

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[14] Ibid.

[15] Ibid., 50-54.

Tannenbaum varied all possible combinations of attitudes and assertions. Attitudes toward both source and concept could be either positive, negative, or neutral; the assertion could be positive or negative. Predictions were made for both source and concept for each of the 18 combinations. In every cell the direction of change corresponded to predictions.

Another test of the principle was made by Kerrick.[16] According to Osgood's summary of this experiment:

> Kerrick has tested the congruity hypothesis under more realistic conditions. The effects of an editorial (message) in a weekly newspaper (source) urging election of certain people to the school board were predicted from pre-exposure attitude scores in a sample of the readers of the weekly. The average effect of the editorial was nil, but when the sample was broken into two groups--those relatively favorable toward this weekly and those relatively unfavorable--it was found that attitudes toward the concept went up for the group favorably disposed toward the source and went down for the other group.[17]

In an experiment of a different sort, the congruity principle was applied not to sources, concepts, and assertions, but to adjectives, nouns, and adjective-noun combinations.[18] Subjects recorded meanings on Semantic Differential scales for two types of signs, adjectives ("sincere," "breezy," "listless," etc.) and nouns ("husband," "prostitute," "nurse," etc.). Then all possible combinations of the two ("sincere husband," etc.) were prepared and submitted to the subjects for rating on

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[16] Jean S. Kerrick, "The Weekly Newspaper as a Source: Prediction of an Editorial's Effectiveness" (unpublished research, 1959).

[17] Charles E. Osgood, "Cognitive Dynamics in the Conduct of Human Affairs," Public Opinion Quarterly, XXIV (Summer, 1960), 360.

[18] Osgood, Suci, and Tannenbaum, op. cit., 275-284.

the same scales. Before such ratings were obtained, the meanings of the combinations were predicted from the available information. The event of combining adjective and noun constituted an associative assertion. If the adjective was rated +1 and the noun +3, it was predicted that the adjective-noun combination would be rated at +2.5. In Figure 1 this prediction may be read by noting that the change predicted for the adjective is +1.5 and that for the noun is -.5. This brings the two together at +2.5. Correlations between predicted and reported meanings were found to be .86, .86, and .90 for the evaluative, activity, and potency dimensions respectively.

In another experiment, Osgood and Tannenbaum examined the effects of color on the meanings of advertised products and on the meanings of abstract three-dimensional forms.[19] The meanings for the products changed in the direction of congruity in 77% of cases. Meanings for the forms changed in the direction of congruity in 75% of cases. Both these results were significant.

In other experiments, Dodge examined the development of meanings of nonsense assigns and found that results correlated highly with congruity predictions,[20] and Kerrick examined the relevance to each other of various attitude objects and found that congruity effects occurred more strongly when relevant rather than non-relevant objects were paired.[21]

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[19] Ibid., 299-302.

[20] Joan S. Dodge, "A Quantitative Investigation of the Relation Between Meaning Development and Context" (unpublished doctoral dissertation, University of Illinois, 1955).

[21] Jean S. Kerrick (unpublished research, University of California, 1955).

In summary, then, there is considerable evidence to support the congruity principle as a predictor of attitude change.

RATIONALE FOR THE PRESENT STUDY

It is the purpose of this study to demonstrate the effects of non-congruity factors in attitude change. Osgood and associates have produced considerable evidence which supports the predictive ability of the congruity principle. From these results, we might conclude that congruity factors alone are related to attitude change. Harburg and Price,[22] however, report an experiment with differing results.

Harburg and Price asked subjects whether they would want a disliked acquaintance to like, dislike, or be neutral to their friend. The disliked acquaintance was seen by the subjects as the source of an assertion about the liked friend (who was the concept). The source was negative, the concept was positive, and the value of the assertion was to be elicited from the subject. If the assertion were positive, the situation would be incongruent according to congruity theory. If the assertion were negative, the situation would be congruent. Congruity theory states that persons will tend to eliminate incongruity, but will not tend to change congruent situations. Consequently, the congruity principle would predict that a negative assertion would be preferred by subjects in order to avoid incongruity.

Harburg and Price found that 39% of subjects wanted their friend to be liked by the disliked person. Thirty-seven per cent chose a neutral relationship. Only 24% chose the negative relationship predicted by

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[22] Ernest Harburg and Kenneth Price (unpublished research, University of Michigan, 1960).

congruity theory.

The Harburg and Price study, as a test of the congruity principle, was limited in at least three respects: (1) The study did not examine all 18 possible combinations of the three congruity factors of attitude toward source, attitude toward concept, and value of assertion. (2) The data obtained were, in effect, predictions about whether or not change would occur under given circumstances. No data were obtained to determine whether change actually occurred. Thus Harburg and Price obtained predictions concerning change, but did not test the predictions. (3) The study considered only predictions of "change" and "no change," whereas the congruity principle permits predictions of amount of change as well.

Although it was limited in these ways, the Harburg and Price study constituted an adequate test of congruity theory for the situation which it examined. Moreover, these results suggest other types of situations in which subjects might differ in their reactions. For example, suppose the source of an assertion is positive, the concept is positive, and the assertion is negative. Congruity theory would predict, on the basis of the incongruity involved, that the subject will reduce his positive attitude toward both source and concept. The important point to be noted about congruity theory is that the same prediction will be made for all possible occurrences of this situation involving positive source, positive concept, and negative assertion. The substitution of one positive source for another will not change the congruity prediction. Nor will the substitution of different subjects, different positive concepts, or different negative assertions. Congruity theory makes predictions on the basis of three factors only: (1) the attitude whose change is to be

predicted, (2) the subject's attitude toward some other object, and (3) the subject's knowledge of an assertion made by one of the objects about the other. No other factors are relevant to change according to the congruity principle. Therefore, one prediction is sufficient for each combination of congruity factors.

A possible interpretation of the Harburg and Price experiment is that congruity factors are not the only factors relevant to attitude change. Instead, the set of all relevant change factors might include non-congruity as well as congruity factors. The congruity principle does not account for these factors, and congruity predictions consequently are weakened.

It is the purpose of this study to demonstrate such non-congruity effects. One possible method of doing this would be to obtain data for which congruity predictions had a low correlation with observed change. The Harburg and Price study reports such data, but it is incomplete for reasons reported above. Alternately, we might expand the Harburg and Price design into a replication of the Tannenbaum design, using "friends" and "disliked acquaintances" as sources and concepts. If congruity predictions had a low correlation with change, we might attribute such finding to the effects of non-congruity factors.

However, a low correlation of congruity predictions with change would not necessarily permit an interpretation that non-congruity factors were related to change. The result could be attributed to error. Furthermore, the correct interpretation of "low correlation" is a problem. Non-congruity factors could affect change considerably even in cases where the correlation of congruity predictions with change is high enough

to be statistically significant.

A better method of demonstrating the effects of non-congruity factors would be to have an attitude change predictor which incorporated their effects. A suitable predictor, for example, would be one which accounted for all relevant change factors, including both congruity and non-congruity factors. If such a predictor were developed, we could compare its correlation with change to that of the congruity predictor. If we found the new predictor to be more accurate than the congruity predictor, we could confirm our assumption that non-congruity factors are present and are related to change.

In order to make such an experimental comparison, we must develop a predictor which is based on all relevant change factors. For this purpose, we will present a predictive principle called the mediated attitude principle, which is derived from the congruity principle. It is based on the mediated attitude, a concept which is derived from the congruity principle's location of congruence.

The location of congruence is a variable which the subject presumably perceives as relevant to the attitude whose change is to be predicted. In a typical congruity situation, the subject has an original attitude toward some attitude object. We want to predict the change which will occur in this attitude when the subject considers some additional information concerning the object. This additional information consists of the subject's attitude toward a second attitude object and his knowledge of an assertion relating the two objects. As a result of exposure to this new information, the subject chooses an attitude toward which he thinks his original attitude should change. Osgood and Tannenbaum call

this attitude the location of congruence. Its value is the direction and intensity which the original attitude should have in order to be congruent with the two additional pieces of information (which are called congruity factors).

Osgood and Tannenbaum assume that the value of the location of congruence is fixed by these two congruity factors (according to the formulae reported earlier on page 11), and that it will vary only as they vary. Because of this, there is no need to measure the value directly.

The mediated attitude principle stems from the assumption that the correct value of the location of congruence cannot necessarily be derived from the two congruity factors, as the congruity principle assumes. Instead, we assume that the value must be derived from all factors which are relevant to the subject in making such a decision. Given the two congruity factors, we assume that the direction and intensity are not fixed precisely by these two factors but may vary in accordance with additional non-congruity factors which may occur. Therefore, Osgood and Tannenbaum's method of determining the value of the location of congruence may be inaccurate in some cases.

To correct for possible inaccuracies, we will present here an alternate method for determining the value of the location of congruence. This method involves a somewhat different conception of the location of congruence. We will give this new conception a new name: mediated attitude. Mediated attitude and location of congruence represent slightly different ways of describing the intervening variable, and involve different methods of determining its value. The distinction between the mediated attitude and the location of congruence is the basis for the

difference between the mediated attitude principle and the congruity principle. There are no other differences between these two predictive principles. The principles predict attitude change in the same manner except that the mediated attitude principle uses the value of the mediated attitude instead of the value of the location of congruence. The location of congruence has a value which is dependent upon the two congruity factors. The mediated attitude has a value which is not necessarily dependent upon them.

The mediated attitude is an attitude chain made up of two direct attitudes. A direct attitude involves an assertion such as "I like (or dislike) so-and-so." It may be illustrated in this way:

Subject ⟶ Concept

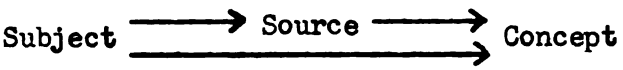
In addition to a direct attitude toward the concept, the subject may have an attitude which is mediated through another person who acts as the source of his own direct attitude toward the concept:

Subject ⟶ Source ⟶ Concept

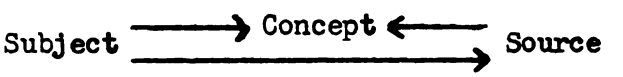
This mediated attitude toward the concept is made up of two attitudes. The first is the subject's direct attitude toward the source. The second is the source's direct attitude toward the concept. When a source's direct attitude toward a concept is part of the subject's mediated attitude toward the concept, we will call the source's direct attitude a relating attitude. This term is equivalent to the term assertion used by Osgood and Tannenbaum.

A mediated attitude toward a concept thus is an attitude chain made up of a direct attitude toward some other attitude object plus a relating attitude which associates the two objects. Whenever there is both a

mediated attitude and a direct attitude toward a concept, illustrated as follows:



there is also present a mediated attitude toward the source as well. It is made up of the direct attitude toward the concept, plus the relating attitude of the source toward the concept. It is illustrated in the way following:



The two illustrations show the same structure. They are drawn differently to emphasize, in the first drawing, the mediated attitude toward the concept, and, in the second drawing, the mediated attitude toward the source. Both are present when two direct attitudes are combined by a relating attitude.

The value of a mediated attitude is assumed to be a product of all factors which are considered relevant by the subject. It is not necessarily dependent on the values of its two component attitudes (although the location of congruence <u>is</u> dependent on these values). Nor are the two mediated attitudes in a given situation necessarily dependent upon each other---the value of one cannot be derived from knowledge of the other.

If the mediated attitude is to be used, we need a means for determining its value. There is at present no basis for deciding which are relevant factors and which are irrelevant. Accordingly, the mediated attitude's value is not computed from a postulated algebraic process but is elicited directly from the subject.

Suppose we are concerned with a mediated attitude toward a concept C. A subject's direct attitudes toward C and toward another object S are known. The subject is then confronted with the fact that S has an attitude of such-and-such toward C. The subject is asked whether or not this fact has any relevance to his own evaluation of C. The following is a way of asking this question:

> Please indicate, by making a check-mark next to one of the following statements, whether S's attitude toward C has some effect on what your own attitude toward C should be---or has no such effect. Please think very carefully about this. Try to think of any possible way in which S's attitude may have some effect on your own. Do not specify "no effect" unless you are confident that none exists:
>
> S's attitude toward C:
>
> ____ 1. Has some effect on what your own attitude toward C should be.
> ____ 2. Has no effect on what your own attitude toward C should be.

If the subject checks the second statement, we conclude that S's attitude is "irrelevant" and that no mediated attitude toward C exists. If he checks the first statement, we conclude that a mediated attitude exists, and we ask the subject what evaluation of C the situation implies. He is not asked to state what evaluation of C he would consequently make, but what evaluation of C is implied by this single fact alone. The following is a way of asking this question:

> If you checked statement 1, please record below the ratings of C which you feel would be in perfect accord with your knowledge of S's attitude. Do not state what your ratings of C actually have been in the past, or are now, or will be in the future. Instead, state the ratings of C which you would make if you were rating C on the basis of this one fact only, with all other considerations eliminated.

Following this a set of attitude measurement scales could be completed. The direction and intensity recorded by the subject on these

scales would be used as the value of the mediated attitude.

Not counting variations in intensity, the mediated attitude may occur in four states: positive, negative, neutral, and irrelevant.

The mediated attitude principle obtains a change prediction by substituting the value of the mediated attitude in place of the value of the location of congruence and then proceeding in the manner of the congruity principle. Except for this, the two principles are similar. The mediated attitude principle thus may be stated as follows:

> The direct attitude shifts toward the mediated attitude, the magnitude of the change being a proportion of the distance between the two, that proportion being the ratio of the intensity of the mediated attitude to the sum of the intensities of the mediated attitude and the direct attitude.

The congruity principle, as noted earlier, includes corrections for incredulity. The mediated attitude predictions are made without the incredulity corrections. It is assumed that if incredulity is a relevant variable to the subject, the mediated attitude will account for it and no adjustment need be made.

Figure 2 presents a set of predictions for change in attitude based on the mediated attitude principle. Other than the elimination of incredulity corrections, the values of the predictions correspond to those of the congruity principle. The independent variables of Figure 2 substitute "direct attitude" for "original attitude" and substitute "mediated attitude" for "location of congruence." If the mediated attitude is irrelevant, the prediction is for zero change.

From the above description of the mediated attitude principle, we see that mediated attitude predictions will differ from congruity predictions only when the mediated attitude and location of congruence have

MEDIATED ATTITUDE	DIRECT ATTITUDE +3	+2	+1	0	-1	-2	-3
+3	0	.6	1.5	3	3	3	3
+2	-.4	0	.7	2	2	2	2
+1	-.5	-.3	0	1	1	1	1
0	0	0	0	0	0	0	0
-1	-1	-1	-1	-1	0	.3	.5
-2	-2	-2	-2	-2	-.7	0	.4
-3	-3	-3	-3	-3	-1.5	-.6	0

Fig. 2.--Predicted changes in attitude for mediated attitude principle

different values. We assume that differences in values will occur only when the two values are obtained on the basis of two different sets of factors. We know that the value of the location of congruence is determined on the basis of two congruity factors. Therefore, whenever the mediated attitude has some different value, we will assume that it has been determined by a set of factors which include non-congruity as well as congruity factors.

Whenever the mediated attitude and the location of congruence differ in value, the two predictive principles will produce different predictions. The mediated attitude prediction will account for non-congruity factors, and the congruity prediction will not. Therefore, if the mediated attitude predictions are more accurate than congruity predictions, we will assume that the non-congruity factors were determinants of change and important in predicting change.

The present study was designed to compare the accuracies of the two principles in predicting change. To make this comparison, an experiment was designed which utilizes certain characteristics of the Tannenbaum and Harburg and Price experiments. The design used by Tannenbaum was replicated in order to include all possible combinations of congruity factors.

However, an exact replication of the Tannenbaum experimental situation was not used. Tannenbaum's reported correlation of congruity predictions with change was extremely high. There is little chance that mediated attitude predictions would be significantly higher. From this, we conclude that non-congruity factors had no relationship to change in the Tannenbaum experimental situation. However, the Harburg and Price experiment suggests that the Tannenbaum situation might be altered in a way that would make non-congruity factors become important determinants of change.

The attitude objects used by Harburg and Price were personal acquaintances of the subjects, any persons the subjects might choose as "friends" and "disliked acquaintances." The attitude objects used by Tannenbaum were known to the subject principally because they were widely known to the public. Thus the Tannenbaum and Harburg and Price attitude objects may be characterized, respectively, as mediate and immediate. An immediate attitude object is one of whom the subject's knowledge is principally the result of his own direct personal contact. A mediate attitude object is one of whom the subject's knowledge is principally the result of someone else's contact. The "someone else" may be a single individual, a group, or the entire public.

The type of attitude object appears to be the only difference between the Tannenbaum and Harburg and Price experiments which can be related to the differences in their correlations with congruity predictions. Since attitude change for immediate attitude objects was weakly related to congruity predictions, it may be that such change was significantly related to non-congruity factors. If this were the case, then we could distinguish between immediate and mediate attitude objects on the basis of their relationship to non-congruity factors. Both congruity and non-congruity factors would be determinants of attitudes toward immediate attitude objects. Determinants of attitudes toward mediate objects would be congruity factors only.

Accordingly, the experiment reported here has utilized immediate attitude objects. The design replicates that of Tannenbaum, with the substitution of immediate attitude objects.

HYPOTHESIS

The assumptions underlying the mediated attitude principle suggest the following expectation: In cases where relevant factors include a large proportion of non-congruity factors, the mediated attitude predictions of change will be significantly more accurate than will congruity predictions. It is expected that situations involving immediate attitude objects will involve a large proportion of non-congruity factors. For these reasons, given an immediate attitude object situation, it is hypothesized that:

Predictions of attitude change based on the mediated attitude principle will be significantly more accurate than will predictions based on the congruity principle.

VARIATIONS IN THE RELATIVE ACCURACY OF THE PREDICTORS

The data used to test the hypothesis will be collected under varied experimental conditions. Therefore, if a significant difference in accuracy between the two attitude change predictors is obtained we will want to ask whether or not this result may be expected to occur under all of these conditions. It is possible that the data will be independent of certain variables and not independent of others. This could mean that there are variations in the extent to which non-congruity factors are determinants of changes in attitudes toward immediate attitude objects.

Accordingly, for each of nine experimental variables the null hypothesis will be tested that the relative accuracy of the two predictors is independent of the variable. No theoretical hypotheses will be stated concerning independence or dependence. The nine variables are:

1. Value of the mediated attitude: positive, negative, neutral, or irrelevant.

2. Type of attitude object: source or concept.

3. Value of the assertion: positive or negative.

4. Attitude toward source: positive, negative, or neutral.

5. Attitude toward concept: positive, negative, or neutral.

6. Attitude toward attitude object: positive, negative, or neutral.

7. Type of situation. The 18 combinations of attitude toward source, attitude toward concept, and value of assertion (considering direction but ignoring intensity) may be described as congruent, incongruent, or "other." Four of the combinations are congruent:

   a. Source: positive; Concept: positive; Assertion: positive

b. Source: negative; Concept: negative; Assertion: positive
c. Source: positive; Concept: negative; Assertion: negative
d. Source: negative; Concept: positive; Assertion: negative

Four other combinations are incongruent:

e. Source: positive; Concept: positive; Assertion: negative
f. Source: positive; Concept: negative; Assertion: positive
g. Source: negative; Concept: positive; Assertion: positive
h. Source: negative; Concept: negative; Assertion: negative

Of the ten other combinations, those involving one neutral attitude object are partially incongruent, and those involving two neutral attitude objects are neither congruent nor incongruent. These ten combinations are included in an "other" category.

8. State of the real-life situation. When an experimental subject is asked to consider an imagined situation involving real persons, the situation may or may not be at variance with what is actually the case. There may not have been an assertion by the source about the concept in real life. If there was an assertion it may have been positive, negative, or neutral. The subject may or may not know what is the actual case. A parallel question is that of the conceivability of the suggested situation. If the experimental assertion is the same as the real-life assertion there can be no question of its conceivability. But in all other cases the subject may feel that the assertion either could or could not have happened in real life. Or, he may not know which is the case. Accordingly, subjects may be divided into four categories:

a. Those who find the situation conceivable and report that the attitude actually held by the source is the same as is suggested in the experiment.

b. Those who find the situation conceivable although they report that the attitude actually held is not the same as that suggested.

c. Those who find the situation inconceivable and report that the source's attitude is not the same as that suggested.

d. All others. This includes those who make the "don't know" responses plus any persons who may make the illogical response that the situation is inconceivable but the source's attitude nevertheless is the same as that suggested.

9. A personality characteristic of subjects: openmindedness and closedmindedness. This distinction is based on Rokeach's work with the Dogmatism Scale.[23] Persons with high and low scores on this scale are called, respectively, openminded and closedminded. The description of open and closed minds suggests the possibility that closedminded subjects will make attitude changes as predicted by the congruity principle to a significantly greater extent than will openminded subjects.

A recent study by Powell supports this implication from Rokeach's theory.[24] Powell obtained empirical data showing that open minds have a relatively higher ability than closed minds to differentiate between, and independently evaluate, a message and a message source. The results of this study, which uses mediate attitude objects, suggest that a hypothesis of greater congruity effects by closed minds would have been supported in Tannenbaum's experiment if his subjects had responded to the Dogmatism Scale.

Accordingly, confirmation of the same hypothesis might be expected

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[23] Milton Rokeach, The Open and Closed Mind (New York: Basic Books, 1960).

[24] Frederic A. Powell, "Open- and Closedmindedness and the Ability to Differentiate Between Source and Message" (unpublished Master's thesis, Michigan State University, 1961).

in the present study. On the other hand, we have also suggested that congruity effects will be less evident in a study involving immediate attitude objects. If this expectation is confirmed, it seems less likely that a hypothesis of greater congruity effects by closed minds can be confirmed. Consequently, no theoretical hypothesis will be offered here concerning the difference between open and closed minds.

CHAPTER II

This chapter is concerned with the experiment used to test the hypothesis, including descriptions of the subjects, the experimental design, the measuring instruments, and the procedures used to obtain the data.

SUBJECTS

One hundred and twenty-six undergraduate college students were chosen as subjects. All were participating in a class in communication arts at Michigan State University during the spring quarter of 1961. They carried out their task during portions of two class meetings.

EXPERIMENTAL DESIGN

A typical pre-post design was used. In the pre-test phase, subjects rated attitude objects. In the intermediate phase, the subjects were told that one attitude object (a positive, neutral, or negative source) had expressed an attitude (a positive or negative assertion) toward another attitude object (a positive, neutral, or negative concept). In the post-test phase, subjects made final ratings of attitude objects.

For the intermediate phase, fourteen subjects were randomly assigned to each of nine groups, as seen in Figure 3. Two separate attitude change situations, each using different attitude objects, were assigned to each group. These 18 situations presented all combinations of value of attitude toward source, value of attitude toward concept, and value

	POSITIVE ASSERTION		
SOURCE	POSITIVE CONCEPT	NEUTRAL CONCEPT	NEGATIVE CONCEPT
POSITIVE	Group 1 (first)[a]	Group 5 (first)	Group 4 (first)
NEUTRAL	Group 9 (first)	Group 2 (second)	Group 8 (second)
NEGATIVE	Group 7 (first)	Group 6 (second)	Group 3 (second)

	NEGATIVE ASSERTION		
SOURCE	POSITIVE CONCEPT	NEUTRAL CONCEPT	NEGATIVE CONCEPT
POSITIVE	Group 2 (first)	Group 4 (second)	Group 5 (second)
NEUTRAL	Group 8 (first)	Group 3 (first)	Group 9 (second)
NEGATIVE	Group 6 (first)	Group 7 (second)	Group 1 (second)

[a] "(first)" and "(second)" indicate the first and second situations encountered by each group

Fig. 3.--Assignment of Eighteen Combinations of Congruity Conditions to Nine Groups of Subjects

of assertion. Since each situation included two kinds of attitude objects, a source and a concept, ratings of attitude objects were made under 36 combinations of conditions.

Each subject responded under four of the 36 possible conditions, rating both source and concept in both situations assigned to his group.

Ideally, the design would have had each subject respond under one condition only. Instead, the design permitted subjects to respond under all four conditions assigned to a given group. This could have allowed undue homogeneity of responses among conditions within groups. This was undesirable, but was permitted because of the desire to obtain as large a sample as possible. A statistical test to determine whether greater than chance dependence occurred within groups of four responses will be reported in Chapter III.

An additional independent variable in the experiment was the mediated attitude, varying in four ways: positive, negative, neutral, irrelevant. The use of this variable posed a problem for the experimenter, since it was impossible to control the assignment of its values. Ideally, the design would involve assignment of an equal number of subjects to each of the values of this variable for each of the 18 change situations. Maximum generalizability of a theoretical principle cannot be obtained unless the experimental situation exposes subjects to all possible states and combinations of states of the independent variables.

However, the values of the mediated attitude were selected by the subject, not by the experimenter. There was no means of determining a priori what they would be. The experimenter had to accept what the subject provided. For example, for the combination of positive source, positive concept, and positive assertion, the 28 obtained mediated attitudes in the experiment took only the positive and irrelevant values. They were never negative or neutral.

If every logically possible event is represented in the population of empirical events, then any set of data not covering all such events

is limited in generalizability. In the present experiment, however, those events not covered by obtained data quite possibly did not have empirical counterparts. Consequently, it is the opinion of the experimenter that the absence of data covering certain values of the mediated attitude does not unduly restrict generalizability of the data.

MEASUREMENT

The measures required were (1) pre-experimental and post-experimental attitudes toward the attitude object, (2) mediated attitude toward the attitude object, (3) an index of the "real-life" variable, and (4) openmindedness and closedmindedness of subjects.

In addition, computations were needed to determine change of attitude, the congruity predictions for change of attitude, and the mediated attitude predictions for change of attitude.

Pre-experimental and post-experimental attitudes.--These scores were obtained as responses to a set of six measurement scales chosen according to two criteria. The first and major criterion was that responses should differentiate among positive, neutral, and negative attitude objects. The second criterion was that the scales have high factor loadings on the evaluative dimension of Osgood, Suci, and Tannenbaum.[25]

Performance on these criteria was examined in a small pilot study. Twenty-four scales were tested, including 23 chosen from those most acceptably fulfilling the second criterion. An additional scale, LIKE-DISLIKE, was included on the basis of its apparent association with evaluative meaning. Although the two criteria appeared to be equivalent,

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[25] Osgood, Suci, and Tannenbaum, op. cit., chap. ii.

they were not for all scales. Because the choice of six scales out of 24 was carried out largely on the basis of the major criterion, the chosen scales did not have the highest possible association with evaluative meaning. The six scales were LIKE-DISLIKE, FAIR-UNFAIR, PLEASING-ANNOYING, GRATEFUL-UNGRATEFUL, ALTRUISTIC-EGOTISTIC, and HARMONIOUS-DISSONANT. A set of scales appeared as follows:

LIKE:___:___:___:___:___:___:___:DISLIKE

FAIR:___:___:___:___:___:___:___:UNFAIR

PLEASING:___:___:___:___:___:___:___:ANNOYING

GRATEFUL:___:___:___:___:___:___:___:UNGRATEFUL

ALTRUISTIC:___:___:___:___:___:___:___:EGOTISTIC

HARMONIOUS:___:___:___:___:___:___:___:DISSONANT

Attitudes were defined as the algebraic mean of responses to six scales. Data involving responses to individual scales (e.g., LIKE-DISLIKE) were not desired for any purpose and were not tabulated.

Mediated Attitude.--This measure was obtained by asking the subject the following question:

> Please indicate, by making a check-mark next to one of the following statements, whether A's attitude toward B has some effect on what your own attitude toward B should be---or has no such effect. Please think very carefully about this. Try to think of any possible way in which A's attitude may have some effect on your own. Do not specify "no effect" unless you are confident that none exists:
>
> A's attitude toward B:
>
> ____ 1. Has some effect on what your own attitude toward B should be.
>
> ____ 2. Has no effect on what your own attitude toward B should be.
>
> If you have checked statement 1, please record below the

> ratings of B which you feel would be in perfect accord with your knowledge of A's attitude. Do not state what your ratings of B actually have been in the past, or are now, or will be in the future. Instead, state the ratings of B which you would make if you were rating B on the basis of this one fact only, with all other considerations eliminated: (If you have checked statement 2, do not do these ratings)

This was followed by the set of six scales described in the previous section. If the subject checked statement 2, the value of the mediated attitude was taken to be "irrelevant." If he checked statement 1 and filled in the scales, the value of the mediated attitude was the algebraic mean of responses to the six scales.

The "real-life" situation.--This measure was obtained through responses to two questions:

1. Please indicate whether the situation (A's attitude toward B) that we have suggested:
   _____1. Could conceivably have happened.
   _____2. Could not conceivably have happened.
   _____3. Don't know.

2. Please indicate what attitude actually is held by A toward B:
   _____1. Positive attitude
   _____2. Neutral or indifferent attitude
   _____3. Negative attitude
   _____4. No attitude
   _____5. Don't know

According to their responses to the two questions, subjects were assigned to four categories as described earlier on pages 29-30.

Openmindedness and closedmindedness.--The subject's score on the Rokeach Dogmatism Scale[26] determined this measure. Subjects scoring 175 or higher were called openminded. Those scoring 130 or lower were called closedminded. The remaining subjects were not important to the

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[26] Rokeach, op. cit., chap. iv.

experimenter's consideration of this variable.

Computations.--Three pieces of data were derived from the basic measures.

The amount of change of attitude was computed by subtracting the pre-experimental attitude from the post-experimental attitude.

The congruity predictions were made according to the Osgood and Tannenbaum formulation presented in Chapter I.

The mediated attitude predictions were made by substituting the mediated attitude for the location of congruence and proceeding according to the congruity principle. Incredulity corrections were not used. When the mediated attitude was irrelevant, the mediated attitude prediction was for zero change.

PROCEDURES

The Dogmatism Scale had been administered to subjects earlier in the school term by the class instructor, and subjects' scores were made available. All other data were collected by questionnaire (see Appendix A).

The questionnaire was issued in two parts, both of which were administered to all subjects. Part One (pages 1-5) and Part Two (pages 6-11) obtained pre-experimental and post-experimental data, respectively.

Part One was administered during a class lecture session. The questionnaires were distributed and the experimenter made the following announcement:

> The questionnaire you are receiving is concerned with a study being done in the department which involves the way in which we maintain and form our attitudes toward other persons. It is the kind of job which requires contacting and obtaining

> data from many persons, and I hope you will be willing to give it your cooperation so that we may cover as many persons as possible in a short time.
>
> The questionnaire is not a requirement of your course. There aren't any right answers, and it has nothing to do with your grades. If you have any objections to participating, you certainly do not need to. However, it does involve certain principles of interpersonal communication which you should find to be of relevance to your work in the course.
>
> The questionnaire comes in two parts. The first part only will be issued today. The second part will be issued at a later date. Because we need to match the two parts, it is very important that you place your name on the questionnaire.
>
> Please make sure you understand all instructions. Before you ask questions, please read the entire first page and the second page as far as the statement concerning asking questions before you continue. Hold your questions at least until you reach that point. If you have no questions, keep right on going.

Following this there were no questions, and the questionnaires were completed and turned in without incident. Two students turned in blank questionnaires.

In Part One, subjects reported their original ratings of six persons of their own choice. They were requested to choose two persons for whom they had a high regard, two of low regard, and two of neutral or indifferent regard. They also provided brief descriptions of these persons according to instructions. In order that the widest possible variety of types of persons might be chosen, subjects were restricted to a single selection from any one of a number of descriptive categories listed on page 2.

After collecting Part One, the experimenter selected for each subject four of the attitude objects chosen and recorded their symbols and descriptions on page 6 of Part Two. The selection was made according to the requirements of the experimental design. The experimenter was able

to select attitude objects of positive, negative, or neutral attitude by choosing appropriately from the six attitude objects specified in Part One. The two unchosen attitude objects from Part One were subsequently eliminated from experimental considerations.

The experimenter also chose, for each subject, the values of the assertions as required by the design. This was done by entering one of two words, "high" or "low," in the four blank spaces found on pages 6, 7, and 9. The experimenter then entered the subject's name at the beginning of Part Two. With these additions, Part Two was ready for use.

Part Two was completed later in the same week during another session of the same course. It was administered during the discussion sessions, for which the class met in 14 small groups at different times and places. It was issued by the experimenter to several of the groups. Since certain of the groups met at the same hour, the questionnaire was issued in a number of cases by the regular instructor. Part Two was not accompanied by instructions. It was distributed with a statement such as "This is the second part of the questionnaire which you began last Monday. Please fill it out." There were a number of questions asked concerning the manner of responding to Part Two. Apparently, all were answered to the subjects' satisfaction. Twenty-six persons were absent from the discussion sessions and all were administered Part Two individually by the experimenter during the following week.

Part Two obtained the subject's report of his final attitudes and mediated attitudes toward the four attitude objects. Part Two also obtained written comments by the subject concerning the experimental situations, and his responses about the conceivability of the situation and

whether it was actually the case. The written comments were requested with the hope of obtaining additional non-quantitative information which might help the experimenter to analyze the attitude change process. No systematic analysis of the comments was planned or undertaken.

The requests for written comments were ignored by several subjects, but all other information in Part Two was provided by all subjects.

CHAPTER III

This chapter reports the results of the experiment, the statistical analyses used to test the hypothesis, and some data analyses in addition to those which test the hypothesis.

RESULTS

The experiment exposed each of 126 subjects to four separate attitude change situations. The experimental data consisted of five items obtained from each situation: (1) congruity prediction of change, (2) mediated attitude prediction of change, (3) observed change, (4) "real-life" data, and (5) Dogmatism Scale score.

Congruity predictions, mediated attitude predictions, and observed changes were computed for each of the 504 individual cases. In addition, mean predictions and mean changes were compiled for the group of 14 subjects in each of the 36 experimental cells (see Table 1).

Response Independence.--It was pointed out in Chapter II that the experimental design permitted each subject to make responses in four of the 36 cells, and that these responses might have a consequent dependence on each other. A test for independence of the responses was needed and devised as follows. Out of 504 cases, the mediated attitude prediction was closer to observed change than was the congruity prediction in 308 instances. The reverse was true in 161 instances. The predictions were tied in 35 instances. Excluding tied cases, the mediated attitude prediction was more accurate in 65.7% of cases. From this .657 probability,

TABLE 1.--Predicted and Obtained Mean Attitude Changes Within Cells

		POSITIVE ASSERTION			NEGATIVE ASSERTION		
	VALUE OF SOURCE	VALUE OF CONCEPT			VALUE OF CONCEPT		
		+	0	-	+	0	-
SOURCE CHANGES	+	-.4	-1.5	-4.6	-4.2	-2.1	-1.6
		1.1	- .1	-1.0	-4.6	- .8	-1.0
		.1	- .9	-2.1	-5.2	-2.7	.2
	0	10.2	1.3	-9.9	-11.1	-5.9	8.7
		.9	3.0	1.0	-4.7	-4.1	-1.4
		1.4	2.9	.9	-4.0	-2.1	2.4
	-	10.9	2.2	-.9	-2.0	2.1	5.6
		2.9	1.5	-.4	- .2	.2	.2
		7.0	5.6	2.2	- .6	2.7	5.0
CONCEPT CHANGES	+	.8	10.6	8.7	-4.6	-14.1	-3.1
		.5	3.4	5.0	-3.7	- 1.2	.0
		.0	3.0	7.2	-1.6	.1	3.7
	0	-1.4	-1.3	1.5	-1.7	- .5	2.1
		- .6	1.0	2.0	-1.6	-2.5	1.2
		-1.7	2.4	5.1	-4.9	2.4	4.7
	-	-4.0	-10.2	.0	-1.0	10.2	6.8
		-1.9	1.1	2.8	- .8	.7	1.5
		-1.0	2.4	6.9	-2.3	1.4	7.3

Upper value is mean congruity prediction for 14 subjects
Middle value is mean mediated attitude prediction for 14 subjects
Lower value is mean obtained change for 14 subjects

one can derive a set of expectations concerning the set of four responses made by each subject. Within each of these sets, the mediated attitude prediction could have been more accurate than the congruity prediction in either 4, 3, 2, 1, or 0 cases. Table 2 shows the expected probability of each of these outcomes. Since there were 98 sets of four responses

TABLE 2.--Expected and Observed Numbers of Sets of Four Responses Having Each of Five Outcomes as Predicted for Independent Responses

POSSIBLE OUTCOMES (NUMBER OF MEDIATED ATTITUDE PREDICTIONS OUT OF 4 WHICH WERE MORE ACCURATE)	EXPECTED PROBABILITY	EXPECTED NUMBER OF SETS (EXPECTED PROBABILITY TIMES 98)	OBSERVED NUMBER OF SETS
4	.18	17.49	16
3	.38	37.68	40
2	.31	30.43	31
1	.11	10.93	10
0	.02	1.47	1

(not counting an additional 28 sets containing ties), Table 2 also indicates the number of sets out of 98 expected to have each of the possible outcomes.

If responses within sets were made independently, then the 98 sets should reflect the expectations. If they were not independent, they should be significantly different from the expectations. In the final column of Table 2, the observed figures are reported. A chi square test of the differences between observed and expected figures was made and produced a chi square value of .5. The probability of chance occurrence of a value equal to or greater than .5 was greater than .95 (with 4 df). From these results, it seems reasonable to assume that each response was made independently of all others.

Testing the Hypothesis.--The hypothesis to be tested was:

Predictions of attitude change based on the mediated attitude principle will be significantly more accurate than will predictions based on the congruity principle.

Basic data used in testing the hypothesis were derived by performing

the following operations:

1. Pearson product-moment correlations were computed between observed change and (a) congruity predictions and (b) mediated attitude predictions. This was done twice, once using data from the 504 individual cases and once using means from the 36 cells. The experimenter chose the data involving individual cases as the most appropriate data for a statistical analysis. However, it was decided to use the cell means in the analysis, also, in order to compare the results with a similar analysis made for Tannenbaum's data.

2. Frequency of correct and incorrect predictions of direction of change were tabulated under each of the predictor systems. This was a less effective means of measurement because directional accuracy in many cases could not be computed.

3. Relative accuracy of the two systems was determined by tabulating the number of times each predictor was more accurate than the other. This measure accounted for 469 out of 504 cases, excluding 35 ties.

Table 3 presents these derived data.

STATISTICAL ANALYSIS

In order to investigate the theoretic hypothesis, three null hypotheses were tested: (1) the correlations of the two predictors with change were not significantly different; (2) the two predictors were in the right direction in the same proportion of cases; (3) each predictor was more accurate than the other in an equal number of cases. All tests assumed a probability level of .05.

The first test compared the .21 and .55 correlations for individual cases, and also compared the .55 and .77 correlations for cell means.

TABLE 3.--Comparison Among Predicted Changes and Obtained Changes

TYPE OF COMPARISON	CONGRUITY PREDICTOR	MEDIATED ATTITUDE PREDICTOR
Correlation between predictions and changes for 504 individual cases	.21	.55
Correlation between predictions and changes for 36 cell means	.55	.77
Times prediction in right direction[a]	258	179
Times prediction in wrong direction[a]	148	41
(Times directional accuracy of predictor could not be computed)[a]	98	284
Times predictor more accurate than other predictor[b]	161	308

[a]Directional accuracy of predictions was possible only when both change and prediction had values other than zero. Because of this, directional accuracy could not be computed for 98 out of 504 congruity predictions nor for 284 out of 504 mediated attitude predictions.

[b]This measure could not obtained when the two predictions had identical values. This occurred in 35 out of 504 cases.

Correlational analysis generally involves the assumptions of parametric statistics. Its use thus might be questioned here, since the values of the 504 mediated attitude predictions were not normally distributed. They included 261 values of zero, due largely to the 234 cases in which the subject specified that the mediated attitude was irrelevant.

Hotelling,[27] however, has developed a t test to compare two predic-

[27]Harold Hotelling, "The Selection of Variates for Use in Prediction, with some Comments on the General Problem of Nuisance Parameters," Annals of Mathematical Statistics, XI (Fall, 1940), 271-283.

tors. This test uses correlations but does not make assumptions about the distribution of the values of the predictors. Its use requires that the correlation between the two predictors be known. This correlation was .23 for individual cases and .56 for cell means. For individual cases, the value of $\underline{t}$ was 8.07. Thus the probability of the difference between .21 and .55 (or a greater difference) occurring by chance under the null hypothesis was less than .001 for a two-alternative test with 501 df. For cell means, the value of $\underline{t}$ was 2.11. The probability of the difference between .55 and .77 (or greater) occurring by chance under the null hypothesis was less than .05 for a two-alternative test with 33 df.[28]

The second test compared the congruity predictor's figures of 258 right (63.5%) and 148 wrong (36.5%) with the mediated attitude predictor's figures of 179 right (81.4%) and 41 wrong (18.6%). A chi square test was used to show the probability of these two pairs of results occurring by chance under the null hypothesis that the proportions of right and wrong cases would be the same for both. The value of chi square was 21.5, the probability of chance occurrence thus being less than .001

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[28]Hotelling's test involves a qualification. The test's advantages, he says in the article cited, "are attained at the expense of sacrificing the precise applicability of the results to other sets of values of the predictors." In other words, the results reported here may be generalized to subsequent samples only when the values of the predictors in those samples are the same. The values of the congruity predictions reported herein were in line with the values expected by theory, and thus reoccurrence of the same values in subsequent samples seems probable. For the values of the mediated attitude predictor there were no theoretical expectations. It cannot be asserted whether subsequent samples will or will not deviate from the present sample. The sample size suggests that some measure of confidence in the sample's reliability is justified. In any event, the Hotelling test is only one of three statistical tests used to test the hypothesis.

with 1 df.

The third test compared the number of times each predictor was closer to observed change than the other. Thirty-five tied cases were excluded from this test. Of the remaining 469 cases, the mediated attitude predictions were closer to change in 308 cases (65.7%). Congruity predictions were closer to change in 161 cases (34.3%). A sign test was used to show the probability of this result occurring by chance under the null hypothesis that each predictor will be closer to the observed change in equal numbers of cases. The probability was less than .01 for a two-tailed test.

In all tests, the experiment's hypothesis was confirmed. First, for both individual cases and cell means, it was confirmed that the mediated attitude predictions had a higher correlation with change than did the congruity predictions. Next, it was confirmed that the mediated attitude predictions were in the right direction in a greater proportion of cases. Finally, it was confirmed that the mediated attitude predictions were closer to observed change in a greater proportion of cases.

ANALYSIS OF RELATIVE ACCURACY ACROSS EXPERIMENTAL CONDITIONS

This section will examine the following question: Was the difference between the two change predictors independent of changes in experimental conditions? Chi square tests (two-alternative, .05 level) of independence will be reported for each of nine variables. The null hypothesis under test is that the data relevant to the experiment's hypothesis was independent of changing conditions.

Mediated Attitude.--Was the relative accuracy of the two predictors independent of the value of the mediated attitude? The data of Table 4

TABLE 4.--Relative Accuracy of Predictors for Values of the Mediated Attitude

VALUE OF MEDIATED ATTITUDE	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Positive	25 (27.2%)	67 (72.8%)	92
Negative	21 (32.3)	44 (67.7)	65
Neutral	28 (29.2)	68 (70.8)	96
Irrelevant	87 (40.3)	129 (59.7)	216

$\chi^2 = 6.8$, df = 3; $p > .07$

show a tendency ($p > .07$) toward rejecting a hypothesis of independence. When the mediated attitude was irrelevant, either (1) congruity predictions were relatively more accurate, or (2) mediated attitude predictions were relatively less accurate, or (3) both. The data in Table 5 were used to test whether the accuracy of the congruity predictions alone was independent of the value of the mediated attitude. The assumption of independence cannot be rejected. Accordingly, it may be tentatively

TABLE 5.--Accuracy of Congruity Predictor for Values of the Mediated Attitude

VALUE OF MEDIATED ATTITUDE	TIMES CONGRUITY RIGHT DIRECTION	TIMES CONGRUITY WRONG DIRECTION	TOTAL
Positive	52 (65.8%)	27 (34.2%)	79
Negative	36 (59.0)	25 (41.0)	61
Neutral	48 (62.3)	29 (37.7)	77
Irrelevant	122 (64.5)	67 (35.5)	189

$\chi^2 = .8$, df = 3; $p > .80$

assumed that variation in the accuracy of mediated attitude predictions must have been responsible for the variation found in Table 4. However, this cannot be tested directly by examining directional accuracy of mediated attitude predictions, because irrelevant mediated attitudes led to predictions of no change.

Type of Attitude Object.--Relative accuracy of the two predictors appears to be independent of the fact that some attitude objects were sources and others were concepts (see Table 6).

Type of Assertion.--As can be seen from Table 7, there were no differences in relative accuracy produced by positive and negative assertions.

Source.--Relative accuracy was no different for change situations in

TABLE 6.--Relative Accuracy of Predictors for Types of Attitude Object

TYPE OF OBJECT	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Source	81 (34.2%)	156 (65.8%)	237
Concept	80 (34.5)	152 (65.5)	232

$\chi^2 = .005$, $df = 1$; $p > .90$

TABLE 7.--Relative Accuracy of Predictors for Types of Assertion

TYPE OF ASSERTION	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Positive	81 (34.6%)	153 (65.4%)	234
Negative	80 (34.0)	155 (66.0)	235

$\chi^2 = .018$, $df = 1$; $p > .90$

TABLE 8.--Relative Accuracy of Predictors for Values of Source and for Values of Concept

VALUE OF SOURCE	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Positive	45 (28.8%)	111 (71.2%)	156
Negative	61 (38.4)	98 (61.6)	159
Neutral	55 (35.7)	99 (64.3)	154
$\chi^2 = 3.4$, df = 2; $p > .18$			
VALUE OF CONCEPT			
Positive	47 (30.3)	108 (69.7)	155
Negative	63 (40.1)	94 (59.9)	157
Neutral	51 (32.5)	106 (67.5)	157
$\chi^2 = 3.6$, df = 2; $p > .16$			

which the source was positive, negative, or neutral (see Table 8).

Concept.--Table 8 also indicates that relative accuracy was no different for change situations in which the concept was positive, negative, or neutral.

Attitude Object.--Though no differences were shown in Table 8, it may be noted that the pattern of differences was the same, with a relatively greater strength of congruity predictions and/or weakness of mediated attitude predictions occurring both when sources were negative and when concepts were negative. Accordingly, we may ask if it makes any difference whether attitude objects, considered individually, were positive, negative, or neutral. In each of the two parts of Table 8, the value of only one of the two objects in each change situation was

TABLE 9.--Relative Accuracy of Predictors for Values of Attitude Object

VALUE OF OBJECT	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Positive	48 (31.0%)	107 (69.0%)	155
Negative	71 (45.8)	84 (54.2)	155
Neutral	42 (26.4)	117 (73.6)	159

$\chi^2 = 14.3$, $df = 2$; $p < .001$

manipulated, but data was reported for both objects. In Table 9 each attitude object is considered individually according to value. Table 9 indicates that relative accuracies of the two predictors were not independent of this variable. Relative accuracy in the case of negative attitude objects was considerably different from that for positive and neutral objects. This rejection of independence may be examined further by asking whether it occurred because of a variation in the predictive ability of either or both predictors.

Tables 10 and 11 were used to examine such variation. Table 10 shows that the variation shown in Table 9 is not attributable to variation in the predictive accuracy of the congruity predictor. Table 11 shows a nearly significant variation ($p < .052$) in the predictive ability of the mediated attitude predictions. However, this tendency was in the opposite direction to that shown in Table 9. In Table 9 the mediated attitude predictions were shown to have a relative weakness in handling negative attitude objects, while in Table 11 they are seen to be relatively strong for negative attitude objects. Table 11, however, did not encompass the effects of mediated attitude predictions made when the

TABLE 10.--Directional Accuracy of Congruity Predictor for Values of Attitude Object

VALUE OF OBJECT	TIMES CONGRUITY RIGHT DIRECTION	TIMES CONGRUITY WRONG DIRECTION	TOTAL
Positive	82 (67.8%)	39 (32.2%)	121
Negative	97 (66.4)	49 (33.6)	146
Neutral	79 (56.8)	60 (43.0)	139

$\chi^2 = 4.2$, df = 2; $p > .10$

TABLE 11.--Directional Accuracy of Mediated Attitude Predictor for Values of Attitude Object

VALUE OF OBJECT	TIMES MED. ATT. RIGHT DIRECTION	TIMES MED. ATT. WRONG DIRECTION	TOTAL
Positive	57 (83.8%)	11 (16.2%)	68
Negative	65 (87.8)	9 (12.2)	74
Neutral	57 (73.1)	21 (26.9)	78

$\chi^2 = 5.9$, df = 2; $p < .052$

mediated attitude was irrelevant. It is thus possible that the results of Table 9 may be attributed to the effects of irrelevant mediated attitudes. To explore this possibility, Table 12 examines the relative accuracies of the two predictors across the three values of the attitude object for cases when the mediated attitude is irrelevant. In other words, Table 12 takes those cases out of the data in Table 9 and examines them separately. By finding a significant difference, Table 12 suggests that the variation of Table 9 is attributable largely to cases in which the mediated attitude is irrelevant. To help confirm this, Table 13

TABLE 12.--Relative Accuracy of Predictors for Values of Attitude Object When Mediated Attitude is Irrelevant

VALUE OF OBJECT	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Positive	22 (31.9%)	47 (68.1%)	69
Negative	43 (57.3)	32 (42.7)	75
Neutral	22 (30.6)	50 (69.4)	72

$\chi^2 = 13.9$, df = 2; $p < .001$

TABLE 13.--Relative Accuracy of Predictors for Values of Attitude Object When Mediated Attitude has Value other than Irrelevant

VALUE OF OBJECT	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Positive	26 (30.2%)	60 (69.8%)	86
Negative	28 (35.0)	52 (65.0)	80
Neutral	20 (23.0)	67 (77.0)	87

$\chi^2 = 2.9$, df = 2; $p > .20$

presents the data remaining in Table 9---in other words, Table 13 presents the data of Table 9 minus the data examined in Table 12. The data of Tables 12 and 13 suggest that the variation found in Table 9 came largely from effects occurring when mediated attitudes were irrelevant. Table 12 also suggests that the weakness which occurred when mediated attitudes were irrelevant (see Table 4), occurred only when the attitude object was negative. In other words, the existence of cases in which mediated attitude predictions were relatively weak was confined largely to cases in which the attitude object was negative and the mediated

attitude was irrelevant. A breakdown of the mean number of scale units of change in cases having irrelevant mediated attitudes supports this statement. The mean change for all such cases was .71. This figure may be broken down by value of attitude object to a mean change of 1.00 units, .73 units, and .37 units, when the attitude object was, respectively, negative, neutral, and positive.

In summary, then, the significant difference reported in Table 9 and the near-significant difference reported in Table 4 may be attributed to the relatively higher incidence of change for negative attitude objects than for positive or neutral objects in cases where the mediated attitude was irrelevant.

Type of Situation.--Was relative accuracy of the predictors independent of whether the experimental situation was congruent, incongruent, or "other"? According to Table 14, relative accuracy was not independent of this variable. The mediated attitude predictions were relatively strongest for congruent and "other" situations, and relatively weakest for incongruent situations. These results may be pursued further by asking whether they occurred because of variations in one or the other or both predictors. Tables 15 and 16 were used to examine for such variation. Table 15 shows that the accuracy of congruity predictions was not independent of the three types of situations. Congruity predictions were extremely strong for incongruent situations, less accurate for "other" situations, and no better than chance for congruent situations. Table 16 suggests that the accuracy of mediated attitude predictions was independent of the three types of situations.

Real-life Situation.--Was the relative accuracy of predictors

TABLE 14.--Relative Accuracy of Predictors for Types of Situations

TYPE OF SITUATION	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Congruent	28 (27.7%)	73 (72.3%)	101
Incongruent	47 (44.3)	59 (55.7)	106
Other	86 (32.8)	176 (67.2)	262

$\chi^2 = 6.9$, df = 2; $p < .05$

TABLE 15.--Directional Accuracy of Congruity Predictor for Types of Situations

TYPE OF SITUATION	TIMES CONGRUITY RIGHT DIRECTION	TIMES CONGRUITY WRONG DIRECTION	TOTAL
Congruent	43 (51.2%)	41 (48.8)	84
Incongruent	73 (76.0)	23 (24.0)	96
Other	142 (62.8)	84 (37.2)	226

$\chi^2 = 12.5$, df = 2; $p < .005$

TABLE 16.--Directional Accuracy of Mediated Attitude Predictor for Types of Situations

TYPE OF SITUATION	TIMES MED. ATT. RIGHT DIRECTION	TIMES MED. ATT. WRONG DIRECTION	TOTAL
Congruent	44 (89.8%)	5 (10.2%)	49
Incongruent	49 (84.5)	9 (15.5)	58
Other	86 (76.1)	27 (23.9)	113

$\chi^2 = 4.7$, df = 2; $p > .09$

independent of whether the situation was conceivable and the same in real life, conceivable but not the same in real life, or inconceivable in real life? On the basis of Table 17, a hypothesis of independence cannot be rejected.

TABLE 17.--Relative Accuracy of Predictors for Types of Real-life Situations

REAL-LIFE SITUATION	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Conceivable--same	18 (28.6%)	45 (71.4%)	63
Conceivable--not same	54 (36.2)	95 (63.8)	149
Inconceivable	25 (32.1)	53 (67.9)	78

$\chi^2 = 1.1$, df = 2; $p > .50$

Tables 18 and 19 test whether or not the "type of situation" variable and the "attitude object" variable varied across the values of the "real-life" variable. Table 18 tests the null hypothesis that the relative accuracy of the two predictors is independent of the "type of situation" variable for, in turn, conceivable--same, conceivable--not same, and inconceivable situations. Table 18 shows that the dependence found in Table 14 may be confirmed for both types of conceivable situations, but not for inconceivable situations. Table 19 tests the null hypothesis that relative accuracy of the predictors is independent of the "attitude object" variable for, in turn, conceivable--same, conceivable--not same, and inconceivable situations. Table 19 shows that the dependence found in Table 9 may not be confirmed on an individual basis for

TABLE 18.--Relative Accuracy of Predictors for Types of Situation for Conceivable--same Situations, for Conceivable--not same Situations, and for Inconceivable Situations

	TYPE OF SITUATION	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
CONCEIVABLE --SAME SITUATIONS	Congruent	9 (37.5%)	15 (62.5%)	24
	Incongruent	6 (50.0)	6 (50.0)	12
	Other	3 (11.1)	24 (88.9)	27
	$\chi^2 = 7.7$, df = 2; $p < .05$			
CONCEIVABLE --NOT SAME SITUATIONS	Congruent	4 (17.4)	19 (82.6)	23
	Incongruent	19 (51.4)	18 (48.6)	37
	Other	31 (34.8)	58 (65.2)	89
	$\chi^2 = 7.2$, df = 2; $p < .05$			
INCONCEIVABLE SITUATIONS	Congruent	6 (33.3)	12 (66.7)	18
	Incongruent	3 (21.4)	11 (78.6)	14
	Other	16 (34.8)	30 (65.2)	46
	$\chi^2 = .9$, df = 2; $p > .50$			

conceivable--same, conceivable--not same, and inconceivable situations.

Open and Closed Minds.--Table 20 shows that relative accuracy of predictors was independent of openmindedness and closedmindedness.

TABLE 19.--Relative Accuracy of Predictors for Values of Attitude Object for Conceivable--same Situations, for Conceivable--not same Situations, and for Inconceivable Situations

	VALUE OF OBJECT	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
CONCEIVABLE --SAME SITUATIONS	Positive	5 (26.3%)	14 (73.7%)	19
	Negative	9 (33.3)	18 (66.7)	27
	Neutral	4 (23.5)	13 (76.5)	17
	$\chi^2 = .6$, df = 2; $p > .70$			
CONCEIVABLE --NOT SAME SITUATIONS	Positive	20 (37.0)	34 (63.0)	54
	Negative	20 (47.6)	22 (52.4)	42
	Neutral	14 (26.4)	39 (73.6)	53
	$\chi^2 = 4.6$, df = 2; $p > .09$			
INCONCEIVABLE SITUATIONS	Positive	7 (28.0)	18 (72.0)	25
	Negative	10 (38.5)	16 (61.5)	26
	Neutral	8 (29.6)	19 (70.4)	27
	$\chi^2 = 1.2$, df = 2; $p > .50$			

TABLE 20.--Relative Accuracy of Predictors for Open and Closed Subjects

TYPE OF SUBJECT	TIMES CONGRUITY MORE ACCURATE	TIMES MED. ATT. MORE ACCURATE	TOTAL
Open	30 (41.7%)	42 (58.3%)	72
Closed	25 (31.6)	54 (68.4)	79

$\chi^2 = 1.7$, df = 1; $p > .15$

	TIMES CONGRUITY RIGHT DIRECTION	TIMES CONGRUITY WRONG DIRECTION	TOTAL
Open	44 (69.8)	19 (30.2)	63
Closed	45 (63.4)	26 (36.6)	71

$\chi^2 = .6$, df = 1; $p > .40$

	TIMES MED. ATT. RIGHT DIRECTION	TIMES MED. ATT. WRONG DIRECTION	TOTAL
Open	26 (72.2)	10 (27.8)	36
Closed	25 (86.2)	4 (13.8)	29

$\chi^2 = 1.9$, df = 1; $p > .10$

CHAPTER IV

This chapter includes the conclusions of the research, discussion, and implications for further research.

CONCLUSIONS

Mediated attitude predictions of change were significantly more accurate than congruity predictions in situations involving immediate attitude objects.

Mediated attitude predictions were more accurate under all experimental conditions. However, the extent of their superiority was related to the operation of certain situational variables.

In situations described by subjects as conceivable in real life, the relative superiority of mediated attitude predictions was greatest under congruent experimental conditions, less so for "other" conditions, and least under incongruent conditions. In situations described as inconceivable in real life, the relative superiority of mediated attitude predictions did not vary under congruent, incongruent, and "other" conditions.

The relative superiority of mediated attitude predictions was greatest when attitude objects were positive and neutral, and least when attitude objects were negative.

DISCUSSION

We have examined the notion that non-congruity factors are relevant

to change under certain conditions. The present research was designed to test this hypothesis empirically and to specify a type of condition under which non-congruity factors may be expected to affect change.

The comparison of mediated attitude predictions and congruity predictions was intended to demonstrate the existence of non-congruity factors among those factors relevant to attitude change. Differences between the two predictions occurred only when the location of congruence and the mediated attitude had different values. Location of congruence and mediated attitude are names for alternate conceptions of an intervening variable which mediates attitude change. The value of this variable is the direction and intensity which the subject believes his attitude should have in order that it may be congruent with certain new (or newly-relevant) information. The congruity principle calls the variable the location of congruence, and states that its value is established by the values of two congruity factors. The mediated attitude principle calls the variable the mediated attitude, and states that its value is not necessarily dependent on the two congruity factors and should be measured by asking the subject what it is.

If the obtained value of the mediated attitude was no different than that of the location of congruence, then we would conclude that the subject determined the mediated attitude on the basis of the two congruity factors only. If the mediated attitude and location of congruence varied in value, we would conclude that the mediated attitude was determined on the basis of non-congruity as well as congruity factors. Furthermore, if mediated attitude predictions were more accurate than congruity predictions, then we would conclude that the non-congruity factors were

relevant to determining attitude change.

Finally, if non-congruity factors were relevant to attitude change, then we would conclude that the distinction between immediate and mediate attitude objects is significant in attitude research. In the Tannenbaum experiment, involving mediate attitude objects, the accuracy of congruity predictions was extremely high. It is unlikely that mediated attitude predictions could have been more accurate. From this, we conclude that changes in mediate attitude objects were independent of non-congruity factors. In the present study, however, if mediated attitude predictions were more accurate than congruity predictions, we would conclude that immediate attitude objects were related to non-congruity factors. Immediate and mediate objects would then be contrasted in terms of their association or non-association with non-congruity factors.

The experimental data in the present study show that the values of the mediated attitude and location of congruence differed in 469 out of 504 cases. They also show that the mediated attitude principle was significantly more accurate in predicting change than was the congruity principle.

From these results, we conclude that non-congruity factors were relevant to attitude change in situations involving immediate attitude objects. We also conclude that situations using immediate attitude objects may be contrasted with situations using mediate attitude objects because non-congruity factors apparently were not relevant to change for the latter.

Although the mediated attitude predictions were more accurate than congruity predictions under all experimental conditions, the extent of

this superiority appeared to be related to the operation of certain variables. This meant that in situations involving immediate attitude objects, knowledge of non-congruity factors was more important to predictive accuracy under certain conditions than under others.

Non-congruity factors were more important under congruent than under incongruent conditions. The relative superiority of mediated attitude predictions was greatest under congruent conditions, less so for "other" conditions, and least under incongruent conditions. This happened because congruity predictions were most accurate under incongruent conditions, were less so for "other" conditions, and were not more accurate than chance under congruent conditions. The greater the incongruity, the stronger the congruity predictions. This effect seems reasonable under the assumption that what is commonly called the "congruity" phenomenon is actually a characteristic of incongruity. An incongruent situation is one in which the characteristic is present; a congruent situation is one in which it is absent. In a congruent situation, any non-congruity factors which are present may dominate as change agents; in incongruent situations this is less likely to happen. The congruity predictor thus operated variably for the different kinds of situations.[29]

The mediated attitude predictor, intended to account for all relevant variables, operated at the same strength in congruent, incongruent, and "other" situations. This indicated that the presence or absence of

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[29]It might be asked how the congruity principle predicted accurately for congruent situations in the Tannenbaum experiment. The answer probably involves the fact that most so-called congruent situations have a small amount of incongruity due to differences in intensities. This, plus the absence of any other relevant factors, would enable the congruity principle to predict accurately.

incongruity did not affect predictions based on all relevant change factors.

The variable operation of the congruity predictor across congruent, incongruent, and "other" situations applied only for situations which subjects reported as conceivable in real life. Apparently subjects went through a process of discounting the factor of incongruity when the situation was inconceivable. They convinced themselves that the incongruity was too unimaginable to be considered as a relevant factor. Consequently, under "inconceivable" conditions the Osgood and Tannenbaum predictions were no stronger when incongruity was present than when it was not.

Mediated attitude predictions showed considerably less superiority when attitude objects were negative. This result is attributed to an effect which occurred only when the attitude object was negative and the mediated attitude was "irrelevant" (the effect may be called the "irrelevant effect"). This effect was produced by subjects who failed to reflect their evaluation of a situation as "irrelevant." If a mediated attitude was irrelevant, then no change should have occurred in the original attitude. Instead, considerable change occurred, amounting to a mean of 1.00 scale units (absolute change) per case. When mediated attitudes toward positive and neutral objects were called "irrelevant," the change was only .37 and .73 units, respectively.

The "irrelevant effect" occurred only for mediated attitude predictions for negative objects when the mediated attitude was "irrelevant." It did not occur for mediated attitude predictions for negative objects when the mediated attitude held any other value, and it did not occur for congruity predictions for negative objects.

The cause of the "irrelevant effect" may not be traced to relevant change factors, at least not those of which subjects were conscious. A check of written comments by subjects shows that they had no idea that the effect was occurring. For example, a subject who recorded 1.7 mean units of attitude change per scale indicated that the new information introduced in the experiment was "irrelevant," and wrote that it "...would make very little difference..." to his attitude.

The "irrelevant effect" may be traced to two characteristics in subjects' handling of attitude objects:

1. They responded unconsciously to relevant factors. Many subjects, upon recording mediated attitudes, probably did not bring to consciousness (either through laziness or through some more profound inability) all of the factors affecting their post-experimental attitude toward the subject. Consequently, some subjects probably stated that the mediated attitude was "irrelevant" when it was not. If, however, a subject recorded a not-"irrelevant" mediated attitude, then the unconscious factors probably affected both the mediated attitude and the final attitude in parallel fashion. Because of this, the mediated attitude predictions were weakened if the subject recorded an "irrelevant" mediated attitude, but not if he recorded a positive, negative, or neutral mediated attitude.

2. They made deliberately erroneous responses. The questionnaire instructed the subject who recorded an "irrelevant" mediated attitude to skip the additional task of responding to six semantic differential scales. Probably some deliberately inaccurate responses of "irrelevant" were made for this purpose.

Both these kinds of mishandling produced erroneous responses of "irrelevant." We have seen, however, that these errors weakened mediated attitude predictions only when the attitude object was negative. The reason for this is that these errors were more crucial to predictive accuracy when they occurred for negative attitude objects because the negative objects underwent greater change than other objects, as reported above.

The extreme amounts of change by negative objects were accounted for by congruity predictions. The negative objects in the present experiment had lower average intensities than the positive objects. When they were matched with the positive objects congruity theory predicted more pressure for the negative objects to change because magnitude of change is inversely proportional to intensities. Thus the greater changes by negative objects were paralleled by congruity predictions for greater change.

In summary, then, the "irrelevant effect" was produced by subjects' errors. These errors did not affect congruity predictions. Nor did they affect mediated attitude predictions except when the mediated attitude was "irrelevant." In the latter case, they affected predictive accuracy to an observable extent only for negative attitude objects because of the considerably higher average change of negative objects.

Errors in mediated attitude predictions did not occur only in the case of "irrelevant" mediated attitudes. In the cases of positive, negative, and neutral mediated attitudes, the resulting predictions were in the wrong direction in 41 out of 220 cases. Written comments by the subjects involved suggest that:

1. At least ten subjects read the instructions for the mediated attitude incorrectly. The use of the instrument, or else the instrument itself, was faulty. These errors were relevant to the data collection process rather than to the change situation. A check of written comments of all subjects suggests that such errors were not numerous in comparison with those cases in which the instrument was handled acceptably.

2. At least 21 subjects showed faulty recall of the original attitude. While handling Part Two they were making incorrect assumptions about the attitude which they had recorded in Part One. Consequently, the responses they made in Part Two did not accurately reflect their intended treatment of the attitude object. Again, written comments of all subjects indicated that in most cases the responses in Part Two were made on the basis of adequate recall of the original attitude, and were in accord with subjects' intentions.

As a result of the various factors discussed above, mediated attitude predictions were limited in their predictive ability. Confirmation of the hypothesis in spite of these limitations, however, stresses more strongly the greater predictive ability of all relevant factors as compared to congruity factors only.

Relative accuracy of the predictors apparently was independent of differences between openminded and closedminded persons. Directional accuracy of each predictor, taken individually, also was independent of these differences. The failure to reject these hypotheses of independence is attributed to the fact that congruity effects are less evident in situations involving immediate rather than mediate attitude objects. It was suggested earlier that the two types of persons should be expected to react

differently to congruity factors. Greater reduction of inconsistency was predicted for closedminded than openminded persons. This would mean that the mediated attitude predictor would have a greater relative superiority for openminded than for closedminded subjects. However, it was also predicted that congruity effects would be less evident in a study which replaced mediated attitude objects with immediate objects. With congruity effects less evident, the predicted difference between openminded and closedminded persons would be less likely to occur.

IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The findings suggest the congruity predictions must be supplemented by information concerning non-congruity factors for at least one important kind of attitude change situation.

The laboratory situation produced by Tannenbaum has significant parallels in everyday attempts to communicate, influence, and change attitudes. This is also the case for the situation produced in the present study. The two are complementary. The Tannenbaum experiment suggests the indirect public approach of the public news media. The present experiment suggests the kind of direct interpersonal contacts which Katz and Lazarsfeld have designated as the second step of the "two-step flow" of communication.[30] Perhaps the distinction already established between these two steps can be enriched by an understanding of the relative dominance of congruity effects within each. It might be suggested, for example, that a certain congruity

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[30]Elihu Katz and Paul F. Lazarsfled, Personal Influence (Glencoe, Illinois: Free Press, 1956).

effect may be expected to "flow" with great effectiveness through the public media portion of a communication network, but will get less effective dissemination through the lines of personal communication.

Problems of "source credibility" may be subject to interpretation, also, in terms of the relative dominance of congruity factors. In a typical study,[31] speakers presenting identical messages to each of three experimental groups were introduced in three different ways which identified them as respected, neutral, and disrespected sources. The three groups altered their attitudes differentially toward the object of the message, the "positive introduction" group making the greatest change in the direction advocated by the message. This result is easily interpretable as a congruity effect. If the congruity effect was less dominant, however, the significant differences among the groups may not have occurred. The mediate-immediate distinction may provide an opportunity for re-interpretation of source credibility studies in which the hypothesized differences in attitude change did not occur.

The problem of identifying the non-congruity factors which affected the present experiment has not been pursued here, but the experiment has obtained some data which are relevant to the isolation of such factors. Subjects' written comments suggest specific factors as the cause of observed changes. Two of the comments will be cited here. The first one stated:

> I gain a certain admiration of B and pride because she has been recognized by A who is a highly respected and well known individual even though I don't care for him.

The questionnaire had suggested, in this case, that A, originally rated negatively, had a high regard for B, originally rated positively. The sub-

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[31] Herbert C. Kelman and Carl I. Hovland, "'Reinstatement' of the communicator in delayed measurement of opinion change," Journal of Abnormal and Social Psychology, XLVIII (February, 1953), 327-335.

ject indicated that A was "teacher" and B was "closest friend--same sex." Congruity theory would predict a lowering of attitude toward B due to the incongruity involved. Actual change was in a favorable direction.

A second comment was:

> Both people are so close that I know there was probably just some small understanding that could be ironed out easily.

In this case, the attitude objects were both positive and the suggested assertion was negative. The subject indicated that the persons were "Mother" and "Father." Congruity theory would predict a lowering of attitude toward both due to the incongruity involved. Actual change was a mean of zero for both.

In the first case, the non-congruity factor involved was that of partitioning an attitude into categories of "respect" and "personal liking." In the second case, the factor was rationalization of the assertion into an event of low and insignificant intensity.

A follow-up to the present study, then, would be the isolation of factors such as these. Also, since all such factors might conceivably occur in both the Tannenbaum context and the context of the present research, it would be meaningful to study the extent to which given factors will occur in each context, and to specify reasons for differences in likelihood of occurrence.

The present research has produced unfortunate consequences insofar as it implies that attitude researchers need more complex models. If congruity factors were dominant under all types of situations, explanation and prediction could maintain the relative simplicity of the Osgood and Tannenbaum model. If they are not dominant, the researcher must take one of two steps: (1) incorporate other factors into the model; (2) retain the model by re-evaluating the factors on which congruity predictions are based.

The mediated attitude principle has been based on the first step. It is a suggested method for incorporating non-congruity factors. However, the writer would like to conclude this report with an argument implying that the second step is also promising. The following remarks are made in support of the conclusion that congruity predictions could be improved, not by altering the congruity principle, but by altering the means of obtaining the basic information from which congruity predictions are derived.

Suppose that a subject's attitude toward person A is +3, generally, and that his attitude toward B is also +3. However, when it comes to considering remarks by A about B, then his attitude toward A is -3. In other words, he likes A very much, generally, but when A talks about B, the subject feels that A doesn't know what he's talking about. Consequently, when the subject sees A deriding B he finds it perfectly congruent.

In the light of this situation, the following question becomes pertinent: Which of the subject's two attitudes toward A would the research instrument be likely to measure? In the present experiment, the instrument measured the general attitude. However, the other attitude, the one specific to the cases of A's interaction with B, would have been the proper one to measure, since it would have led to a congruity prediction which assumed a congruent situation.

The problem facing the researcher, then, is that of determining the correct item to measure.

Another unfortunate aspect of the present research is that the mediated attitude, as presented herein, involves a method unavailable for prediction when the researcher needs it. The mediated attitude was obtained no earlier

than the time at which the post-experimental attitude was available. It was thus obtained only when it was no longer needed for prediction. However, this does not preclude the possibility of obtaining a mediated attitude measurement before the fact. The subject could have been asked the following:

> Please indicate, by making a check-mark next to one of the following statements, whether an expression of a positive attitude toward B by A would have any effect on what your own attitude toward B should be:
>
> A positive attitude toward B by A would:
>
> ____ 1. Have some effect on what your own attitude toward B should be.
> ____ 2. Have no effect on what your own attitude toward B should be.

The prospect of obtaining a mediated attitude in advance, and the prospect of measuring an original attitude which is specific rather than general, have parallel consequences. In both cases the researcher would be asking the subject to consider the attitude object within a specific rather than a general context. This would mean that the researcher, in order to make a prediction within a specific context, is obtaining information drawn from that same context. This seems to be a better method than one which employs only general information to predict within specific contexts. If congruity research has made habitual use of the latter method, then the implication is clear:

Attitude change research must be designed in such a way that assures that information upon which predictions are based is no less specific than are the required predictions.

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APPENDIX

QUESTIONNAIRE ON ATTITUDES

NAME _____

Please write your name in the space above. The questionnaire comes in two portions, to be issued separately, and your name is needed in order to match them.

Shirley

This questionnaire will ask you to make ratings of people on sets of scales such as the one shown below. Here is how you are to use the scales. Suppose the person in question is PRESIDENT KENNEDY, and the scale is:

FAIR:__:__:__:__:__:__:__:UNFAIR
3 2 1 0 -1 -2 -3

The spaces between FAIR and UNFAIR have the following meanings:

VERY FAIR	QUITE FAIR	SLIGHTLY FAIR	NEITHER FAIR NOR UNFAIR--OR SCALE DOES NOT APPLY	SLIGHTLY UNFAIR	QUITE UNFAIR	VERY UNFAIR
3	2	1	0	-1	-2	-3

Therefore, if you feel that the person (PRESIDENT KENNEDY) is very closely related to one end of the scale, you should place your check-mark as follows:

FAIR: X :__:__:__:__:__:__:UNFAIR

or

FAIR:__:__:__:__:__:__: X :UNFAIR

If you feel the concept is quite closely related to one or the other end of the scale, you should place your check-mark as follows:

FAIR:__: X :__:__:__:__:__:UNFAIR

or

FAIR:__:__:__:__:__: X :__:UNFAIR

If the concept seems only slightly related to one side or the other:

FAIR:__:__: X :__:__:__:__:UNFAIR

or

FAIR:__:__:__:__: X :__:__:UNFAIR

Finally, if you consider the concept to be neutral on the scales, or if the scale is completely irrelevant, then place your check-mark in the middle space.

IMPORTANT: Place check-marks in the middle of the space, not on the lines.
Place one (and only one) check-mark on each scale.

* * * * *

The first step of the questionnaire is to choose the names of some persons. We are going to ask you to rate these persons on scales such as those described above.

We will use the ratings in our research, but the actual names of the persons are not important to us. You may disguise the persons by using only their initials to refer to them. If you like, you may reverse the initials or use other code symbols in order to maintain complete secrecy. However, please be careful to choose symbols which you will be able to identify at a later time.

The persons you choose must be real persons and you must know quite a lot about them. You must know enough about them to have definite attitudes or feelings toward them.

It is necessary that you know them through your own personal contact with them. Your knowledge of them should be based principally upon your personal observations.

The persons you choose must be selected from the following descriptions:

Father or mother
Brother or sister
Spouse or closest friend of opposite sex
Closest friend of same sex
Roommate or neighbor
Employer
Co-worker
Teacher
Doctor
Clergyman
Administrator (indicate which kind)
Coach
Officer of organization to which you belong
Attendant or clerk with whom you come in frequent contact
Authority on some subject in which you are interested (indicate the subject)

.....or any other descriptions which in a similar way show the relationship the other personshas toward you.

You will be asked to choose six persons. We will call them Persons 1, 2, 3, 4, 5, and 6. Fill in the blanks with the symbols you choose to represent them. Also fill in their descriptions. For example:

		Description
Person 1	A.B.C.	Roommate

No individual may be chosen more than once, and none of the above descriptions may be used more than once.

If you have any questions about making your choices, please ask the instructor before you continue.

Your first two choices will be called Person 1 and Person 2. They should be persons for whom you have a high regard. The nature of your regard need not be of any specific kind. It may be "liking" or "respect" or "admiration" or "enjoyment" or any other kind of positive attitude, depending on the way in which you happen to know the persons.

Please designate Persons 1 and 2 by filling in the blanks below with symbols which you choose to represent them. Also fill in their descriptions:

		Description
Person 1	_____	_____

Now indicate how you feel about these two persons by rating them on the following scales according to instructions.

Rate Person 1 on the following set of scales. Work rapidly. Record your first impressions only:

LIKE:__:__:__:__:__:__:__:DISLIKE

PLEASING:__:__:__:__:__:__:__:ANNOYING

FAIR:__:__:__:__:__:__:__:UNFAIR

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

Now rate Person 2 on the following set of scales;

LIKE:__:__:__:__:__:__:__:DISLIKE

PLEASING:__:__:__:__:__:__:__:ANNOYING

FAIR:__:__:__:__:__:__:__:UNFAIR

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

Persons 3 and 4 should be persons for whom you have a low regard. Again, the nature of your regard need not be of a specific kind. It may, for instance, be "disliking" or "disrespect" or "disapproval" or "displeasure" or any other kind of negative attitude.

Persons 3 and 4 must be chosen with reference to the descriptions listed above. No individual nor-description may be used more than one time.

Please designate Persons 3 and 4 by filling in the blanks with the symbols you choose to represent them. Also fill in their descriptions:

	Description
Person 3 _____	_____
Person 4 _____	_____

Rate Person 3 on the following set of scales. Work rapidly. Record your first impressions only:

LIKE:__:__:__:__:__:__:__:DISLIKE

PLEASING:__:__:__:__:__:__:__:ANNOYING

FAIR:__:__:__:__:__:__:__:UNFAIR

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

Now rate Person 4 on the following set of scales:

LIKE:__:__:__:__:__:__:__:DISLIKE

PLEASING:__:__:__:__:__:__:__:ANNOYING

FAIR:__:__:__:__:__:__:__:UNFAIR

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

Persons 5 and 6 should be persons for whom you have a neutral regard. This, too, may be defined in several ways. It may be someone toward whom you are almost completely indifferent, even though you know a good bit about them. It may be someone toward whom you have both high and low regard at the same time. It may be someone who has very little importance for you. It may be someone toward whom you don't really know how you feel, or else toward whom you don't care how you feel.

Persons 5 and 6 must be chosen with reference to the descriptions listed above. No individual nor description may be used more than one time.

Please designate Persons 5 and 6 by filling in the blanks with the symbols you choose to represent them. Also fill in their descriptions:

		Description
Person 5	_____	_____
Person 6	_____	_____

Rate Person 5 on the following set of scales. Work rapidly. Record your first impressions only:

LIKE:__:__:__:__:__:__:__:DISLIKE

PLEASING:__:__:__:__:__:__:__:ANNOYING

FAIR:__:__:__:__:__:__:__:UNFAIR

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

Now rate Person 6 on the following set of scales:

LIKE:__:__:__:__:__:__:__:DISLIKE

PLEASING:__:__:__:__:__:__:__:ANNOYING

FAIR:__:__:__:__:__:__:__:UNFAIR

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

You are now finished with the first part of the questionnaire. The second part will be issued to you at a later time.

Before you turn in this part, please look carefully at the initials and descriptions of the six persons you have chosen. Make sure you will remember correctly the persons referred to when you see their initials and descriptions again. If you think you will have trouble remembering, record the information in your class notes.

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QUESTIONNAIRE ON ATTITUDES

PART TWO

NAME _____

In the second part of the questionnaire, you will consider four of the persons chosen in the first part. The symbols and descriptions for these persons are recorded below. In the material that follows, these persons will be referred to as Persons A, B, C, and D. Whenever you see "Person A" being discussed, think of the real person whose symbol and description are listed after "Person A" in the following list:

	Symbol	Description
Person A	_____	_____
Person B	_____	_____
Person C	_____	_____
Person D	_____	_____

In the following, we are going to talk about Persons A and B. We are going to suggest to you a situation which involves them. Please think of it as a real situation, because we are going to ask you to consider the way in which it would affect your feelings if it actually happened.

We want you to imagine that Person A has expressed a regard for Person B. You are very certain that A has this feeling toward B. You have been present when he has personally expressed this feeling, and you have seen him showing it in the way he acts toward B.

We are studying the problem of whether or not one person's feelings about another have anything to do with what your own feelings toward both should be. There have been some suggestions that people differ in the way they react to such information.

Some people would say that one person's feelings about another should influence the way in which they themselves should feel toward both persons.

Other people would say that such feelings should not matter as far as their own feelings are concerned.

Still others would say it works differently in different cases, depending on the individuals being considered.

In order to help us study this problem, please make ratings of A and B based on all possible considerations that have any reference to them. Use all your old information about them plus the new information we have given you.

Please treat the new information as fact even though it may conflict with what you believe is actually the case.

Rate Person A on the following scales: Work rapidly. Record first impressions only:

PLEASING:___:___:___:___:___:___:___:ANNOYING

ALTRUISTIC:___:___:___:___:___:___:___:EGOTISTIC

GRATEFUL:___:___:___:___:___:___:___:UNGRATEFUL

LIKE:__:__:__:__:__:__:__:DISLIKE

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

FAIR:__:__:__:__:__:__:__:UNFAIR

Rate Person B on the following scales:

PLEASING:__:__:__:__:__:__:__:ANNOYING

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

LIKE:__:__:__:__:__:__:__:DISLIKE

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

FAIR:__:__:__:__:__:__:__:UNFAIR

Now we want to ask you something more about the event we have suggested: the regard of A toward B. Remember that we want you to treat this as a real event:

Please indicate, by making a check-mark next to one of the following statements, whether A's attitude toward B has some effect on what your own attitude toward B should be---or has no such effect. Please think very carefully about this. Try to think of any possible way in which A's attitude may have some effect on your own. Do not specify "no effect" unless you are confident that none exists:

A's attitude toward B:

_____ 1. Has some effect on what your own attitude toward B should be.
_____ 2. Has no effect on what your own attitude toward B should be.

If you have checked statement 1, please record below the ratings of B which you feel would be in perfect accord with your knowledge of A's attitude. Do not state what your ratings of B actually have been in the past, or are now, or will be in the future. Instead, state the ratings of B which you would make if you were rating B on the basis of this one fact only, with all other considerations eliminated: (If you have checked statement 2, do not do these ratings)

PLEASING:__:__:__:__:__:__:__:ANNOYING

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

LIKE:__:__:__:__:__:__:__:DISLIKE

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

FAIR:__:__:__:__:__:__:__:UNFAIR

Regardless of which statement you checked, please write a sentence or two explaining why the attitude in question had the effect it did concerning B:

_____

_____

In reference now to Person A, please indicate, by making a check-mark next to one of the following statements, whether A's attitude toward B has some effect on what your own attitude toward A should be---or has no such effect. Please think very carefully about this. Try to think of any possible way in which A's attitude may have some effect on your own. Do not specify "no effect" unless you are confident that none exists:

A's attitude toward B:

_____ 1. Has some effect on what your own attitude toward A should be.
_____ 2. Has no effect on what your own attitude toward A should be.

If you have checked statement 1, please record below the ratings of A which you feel would be in perfect accord with your knowledge of A's attitude. Do not state what your ratings of A actually have been in the past, or are now, or will be in the future. Instead, state the ratings of A which you would make if you were rating A on the basis of this one fact only, with all other considerations eliminated: (If you have checked statement 2, do not do these ratings)

PLEASING:__:__:__:__:__:__:__:ANNOYING

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

LIKE:__:__:__:__:__:__:__:DISLIKE

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

FAIR:__:__:__:__:__:__:__:UNFAIR

Regardless of which statement you checked, please write a sentence or two explaining why the attitude in question had the effect it did concerning A:

_____

_____

_____

Please indicate whether the situation (A's attitude toward B) that we have suggested:

_____ 1. Could conceivably have happened
_____ 2. Could not conceivably have happened
_____ 3. Don't know

Please indicate what attitude actually is held by A toward B:

_____ 1. Positive attitude
_____ 2. Neutral or indifferent attitude
_____ 3. Negative attitude
_____ 4. No attitude
_____ 5. Don't know

We have now finished with our consideration of Persons A and B. We are now going to discuss Persons C and D in the same manner, suggesting a situation involving them and asking you the same kinds of questions about that situation. Please think of it as a real situation, because we are going to ask you to consider the way in which it would affect your feelings if it actually happened.

We want you to imagine that Person C has expressed a regard for Person D. You are very certain that C has this feeling toward D. You have been present when he has personally expressed this feeling, and you have seen him showing it in the way he acts toward D.

We are studying the problem of whether or not one person's feelings about another have anything to do with what your own feelings toward both should be. There have been some suggestions that people differ in the way they react to such information.

Some people would say that one person's feelings about another should influence the way in which they themselves should feel toward both persons.

Other people would say that such feelings should not matter as far as their own feelings are concerned.

Still others would say that it works differently in different cases, depending on the individuals being considered.

In order to help us study this problem, please make ratings of C and D based on all possible considerations that have any reference to them. Use all your old information about them plus the new information we have given you. Please treat the new information as fact even though it may conflict with what you believe is actually the case.

Rate Person C on the following scales. Work rapidly. Record first impressions only:

PLEASING:__:__:__:__:__:__:__:ANNOYING

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

LIKE:__:__:__:__:__:__:__:DISLIKE

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

FAIR:__:__:__:__:__:__:__:UNFAIR

Rate Person D on the following scales:

PLEASING:__:__:__:__:__:__:__:ANNOYING

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

LIKE:__:__:__:__:__:__:__:DISLIKE

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

FAIR:__:__:__:__:__:__:__:UNFAIR

Now we want to ask you something more about the event we have suggested: the regard of C toward D. Remember that we want you to treat this as a real event:

Please indicate, by making a check-mark next to one of the following statements, whether C's attitude toward D has some effect on what your own attitude toward D should be---or has no such effect. Please think very carefully about this. Try to think of any possible way in which C's attitude may have some effect on your own. Do not specify "no effect" unless you are confident that none exists:

C's attitude toward D:

_____ 1. Has some effect on what your own attitude toward D should be.
_____ 2. Has no effect on what your own attitude toward D should be.

If you have checked statement 1, please record below the ratings of D which you feel would be in perfect accord with your knowledge of C's attitude. Do not state what your ratings of D actually have been in the past, or are now, or will be in the future. Instead, state the ratings of D which you would make if you were rating D on the basis of this one fact only, with all other considerations eliminated: (If you have checked statement 2, do not do these ratings)

PLEASING:___:___:___:___:___:___:___:ANNOYING

ALTRUISTIC:___:___:___:___:___:___:___:EGOTISTIC

GRATEFUL:___:___:___:___:___:___:___:UNGRATEFUL

LIKE:___:___:___:___:___:___:___:DISLIKE

HARMONICUS:___:___:___:___:___:___:___:DISSONANT

FAIR:___:___:___:___:___:___:___:UNFAIR

Regardless of which statement you checked, please write a sentence or two explaining why the attitude in question had the effect it did concerning D:

_____

_____

_____

In reference now to Person C, please indicate, by making a check-mark next to one of the following statements, whether C's attitude toward D has some effect on what your own attitude toward C should be---or has no such effect. Please think very carefully about this. Try to think of any possible way in which C's attitude may have some effect on your own. Do not specify "no effect" unless you are confident that none exists:

C's attitude toward D:

_____ 1. Has some effect on what your own attitude toward C should be.
_____ 2. Has no effect on what your own attitude toward C should be.

If you have checked statement 1, please record below the ratings of C which you feel would be in perfect accord with your knowledge of C's attitude. Do not state what your ratings of C actually have been in the past, or are now, or will be in the future. Instead, state the ratings of C which you would make if you were rating C on the basis of this one fact only, with all other considerations eliminated: (If you have checked statement 2, do not do these ratings)

(over)

PLEASING:__:__:__:__:__:__:__:ANNOYING

ALTRUISTIC:__:__:__:__:__:__:__:EGOTISTIC

GRATEFUL:__:__:__:__:__:__:__:UNGRATEFUL

LIKE:__:__:__:__:__:__:__:DISLIKE

HARMONIOUS:__:__:__:__:__:__:__:DISSONANT

FAIR:__:__:__:__:__:__:__:UNFAIR

Regardless of which statement you checked, please write a sentence or two explaining why the attitude in question had the effect it did concerning C:

_____

_____

_____

Please indicate whether the situation (C's attitude toward D) that we have suggested:

_____ 1. Could conceivably have happened
_____ 2. Could not conceivably have happened
_____ 3. Don't know

Please indicate what attitude actually is held by C toward D:

_____ 1. Positive attitude
_____ 2. Neutral or indifferent attitude
_____ 3. Negative attitude
_____ 4. No attitude
_____ 5. Don't know

Thank you for your help. Your assistance is much appreciated.