PRETEST VALIDITY AND THE PREDICTION OF ATTITUDE: A FURTHER COMPARISON OF CONGRUITY AND SUMMATION THEORIES

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ABSTRACT

PRETEST VALIDITY AND THE PREDICTION OF ATTITUDE:
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By

Ralph E. Cooper

Anderson (1965) has demonstrated the importance of an initial attitude measure in the prediction of attitude from an averaging or balance model. However, an analysis of several recent studies comparing the averaging formulation of Osgood's Congruity Theory with Fishbein's Theory of Cognitive Summation revealed an apparent contradiction between the pretest used in the studies and the conception of a premeasure assumed by the Congruity model. Each of the studies examined the predictive ability of the two models in a situation in which the subject had little or no knowledge about the object being rated on the premeasure. The validity of this premeasure as a representation of a systematic cognitive state of the subject is problematic. A possible alternative explanation advanced for the superiority of the Fishbein model in the reported research is that the favored model did not use the

premeasure while the other model did; in a correlational study, the inclusion of a source of error into one model and not the other would tend to bias the results in the direction of the latter model. It is conceivable that the invalid pretest might serve such a function.

The research reported in this thesis was an attempt to evaluate the viability of the hypothesized alternative. Conditions paralleling the previous research were compared with conditions in which a communication preceded the pretest so that the subject had some informational basis for the pretest rating. Communications both before and after the pretest consisted of 1, 2, or 4 phrases per communication, presented as excerpts from letters of recommendation.

The major hypothesis was not supported in that the Fishbein model was found in all conditions to be superior to the Osgood model in predicting the obtained posttest scores. An examination of the effect of preinformation demonstrated that the pretest was a more valid indicator of attitude in the preinformation conditions, and that this effect increased with an increase in the amount of information. The hypothesized mechanism by which the error of the pretest was assumed to attenuate the performance of the Osgood model, however, was not supported; the correlation between the pretest and the Osgood model was lower than the comparable correlation for the Fishbein model which does not use the pretest in calculating

predictions. A more interesting and serendipitous result was that the pretest predicted the obtained as well or better than either of the two models.

The generality of the research in terms of the relative performance of the models was evaluated in light of the research paradigm; limitations on the range and direction of change and the involvement of the subjects were discussed as to their possible influence on the reported results. The pretest as a predictor of attitude was discussed, especially in view of the methodological and theoretical modification implied for the study of attitude change.

William W. Cravo

Approved by

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Date

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Ralph E. Cooper

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INTRODUCTION

In recent years there has been a controversy among social psychologists as to which of several representations of cognitive structure best predicts attitude following the presentation of a persuasive communication. Despite the theoretical relevance of this controversy, there have been surprisingly few experimental studies comparing two of the more important conceptualizations: balance or averaging models and additive or weighted sum models (Anderson, 1964, 1965). Fishbein and his colleagues have recently reported several studies comparing a version of a weighted sum model (Fishbein, 1961, 1963) with the balancing formulation of Osgood, et al. (Osgood and Tannenbaum, 1955; Osgood, Suci, and Tannenbaum, 1957; Osgood, 1963). This paper represents an attempt to investigate certain substantive aspects of this controversy, particularly as reflected in the methodology of the studies by Fishbein, et al.

Studies by Brewer (1968) and Anderson (1965) provide a background for the analysis to be presented in this report. In her comparison of averaging and summation models, Brewer (1968) examined the ratings of complex stimuli, composed of favorable phrases excerpted from

letters of recommendation. The usual qualitative assumption in experiments of this type has been that an averaging model predicts that the rating of the composite must be intermediate to the ratings of the descriptive components, whereas the summation model prediction is that the composite rating should be more extreme than the most extreme of the component ratings. For example, if the rating of a person described as "honest" is +3 and the rating of a person described as "intelligent" is +2, then this assumption states that the averaging prediction for the evaluation of a person described as "honest and intelligent" must be between +2 and +3 while the summation prediction is a rating greater than +3. Brewer reported that although her data did not quantitatively fit a summation model, they supported the model by the qualitative criterion; that is, the rating of the composite was greater than the rating of the most extreme component but less than the sum of the component ratings.

Anderson (1965) examined the relative capability of the two models in a situation somewhat similar to that used by Brewer and obtained similar results. However, Anderson demonstrated that if an initial evaluation of the stimulus object is included in the calculations of the predictions for the averaging model, evaluations of composites which are more extreme than the evaluations of the components can be predicted. He would suggest that in the

example presented above, the first obtained rating (+3) must be considered the result of the modification of some initial evaluation of the person by "honest" and not merely the rating of "honest," and similarly for the second rating and the qualifier "intelligent." Thus the expected evaluation of the person described as "honest" and "intelligent" is not a function of the +3 and +2 ratings given in the example, but rather some average of the three original evaluations, none of which were obtained in the example. The importance of the concept of original evaluation of the object is demonstrated by the change in the "qualitative" predictions indicated by Anderson's report. Within the limits of the data presented in Brewer's (1968) article and given Anderson's comments, it appears that the fit of the Brewer data to an averaging model is perhaps as good as the fit to a summation model.

Congruity Theory (Osgood and Tannenbaum, 1955), which is the most popular averaging formulation and one of the models specifically considered in the studies under review, makes use of initial opinion or attitude in a manner similar to that discussed by Anderson (1965). While usually presented as formulas applying only to the modification of a noun by a single modifier, Osgood's model has also been extended to an iterative process in which the attitude object is successively modified by the assertions (Osgood, 1963). When an object is modified by

an adjective, the basic prediction of the model is that the change in the evaluation of the object will be in the direction of the adjective and will be inversely proportional to the previous evaluation of the object with respect to the evaluation of the adjective. This rule is represented in the following formula:

$$A_{n_i} = \frac{\left|A_i\right|(A_i) + \left|A_{n_{i-1}}\right|(A_{n_{i-1}})}{\left|A_i\right| + \left|A_{n_{i-1}}\right|} ,$$

where A_i is the evaluation of the adjective; $A_{n_{i-1}}$ is the evaluation of the object after modification by $\underline{i-1}$ adjectives; and A_{n_i} is the predicted evaluation after modification by $\underline{i}$ adjectives. The Osgood model clearly requires a measure of initial attitude (A_{n_o}).

The Theory of Cognitive Summation (Fishbein, 1963), the competing model considered in the studies to be reviewed, requires no initial evaluation of the object. The predicted attitude toward the object is a weighted sum of the evaluative aspect of the person's beliefs about the objects, where the weights are the strengths of the respective beliefs. The formula for Summation Theory predictions is:

$$A = \sum_{i}^{N} a_i B_i ,$$

where A is the predicted evaluation of the object; B_i is the strength of belief i about the object; a_i is the evaluative aspect of the belief i; and N is the number of beliefs which the individual holds about the object (Anderson and Fishbein, 1965).

In the first comparative study under review, Fishbein and Hunter (1964) varied both the number of adjectives associated with the object and the number of times each association was presented in a general examination of the relationship between belief strength and attitude change. The pretest task of rating the attitude objects, a Mr. A, B, C, and D, was presented with the statement that the subjects were rating these "anonymous people" so that the experimenters could "get your impressions of people you have little or no information about [1964, p. 507]." The experimenter then read a list of 16 statements either 1, 2, 4, or 8 times; of these statements the first 1, 2, 4, or 8 described Mr. A. The adjectives were arranged in descending order so that the sum of the adjective evaluations increased while the mean evaluation decreased. The subjects then rated Messrs. A, B, C, and D again. Change scores between the pre- and post-measures showed a significant increase in the evaluation of "Mr. A" with an increase in the number of adjectives attributed to him. Fishbein and Hunter interpret this result as supporting the Summation Theory and contradicting a balancing or averaging model.

Two difficulties, however, exist in the study and its interpretation. First, Fishbein and Hunter state that the balance theory prediction in their study would be a decrease in change as a function of the number of adjectives presented, because of the decrease in the mean evaluation of the adjectives. However, if an initial opinion measure is included, this need not be the case (cf. Anderson, 1965). Fishbein and Hunter do not present data on the initial ratings of the object or the ratings of the adjective presented to the subjects; thus a test of this alternative is not possible. Evidence from the examples they provide, however, indicates that their hypothesis about balance theory predictions was not based on calculations in which the premeasure ratings were employed.

The second problem with the Fishbein and Hunter investigation is that the analysis was based upon change scores, one component of which was the pretest rating of Mr. A. Given the conditions under which this rating was obtained (i.e., Mr. A being a completely hypothetical entity), the possibility arises that this measure is not a valid representation of some cognitive state of the individual, but rather a random variation, introducing a large error into the analysis. What effect this invalidity may have had upon the results is not directly determinable.

In another study relevant for the purposes of this report, Anderson and Fishbein (1965) directly compared

Summation and Congruity models. As a pretest, subjects were asked to rate on "A" scales the names of three hypothetical characters.[1] They then read a four paragraph story in which the characters who had previously been rated appeared. Imbedded in the story were 0, 1, 2, 3, or 4 favorable adjectives describing "Mrs. Williams," an incidental character in the story, such that each paragraph contained at most one adjective. After reading the story, subjects again rated the characters on the "A" scales (posttest) and were asked to rate on a "B" scale statements of the form "Mrs. Williams is honest" for each of the adjectives.[2] Finally the adjectives attributed to Mrs. Williams were rated on "A" scales.[3]

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[1]The "A" scale (Fishbein and Raven, 1962) consists of five seven-point semantic differential items having the end point pairs: harmful-beneficial, wise-foolish, dirty-clean, good-bad, sick-healthy. These pairs were selected by Fishbein and Raven because of their high loadings on an evaluational factor in an analysis of semantic differential items.

[2]The "B" scale (Fishbein and Raven, 1962) consists of five seven-point semantic differential items with the end point pairs: possible-impossible, false-true, existent- non-existent, probable-improbable, unlikely-likely. These pairs were selected by Fishbein and Raven because of their high loadings on a factor apparently measuring strength of belief.

[3]The adjectives used by Anderson and Fishbein were: honest, friendly, helpful; helpful was used twice for subjects in the four adjective condition. In calculating the Osgood predictions, Anderson and Fishbein used the rating of helpful twice for subjects receiving the word twice. However, as the Fishbein model assumes that a second presentation increases the corresponding belief rating, only the three $a_i B_i$ products were summed to obtain the Fishbein prediction.

Predictions were calculated from the formulas for each model: for the Osgood predictions, only the ratings of the adjectives presented to the subject were employed; all adjective and belief ratings, however, were used in deriving the Fishbein predictions. Anderson and Fishbein reported correlations between the predicted and obtained postmanipulation evaluations of Mrs. Williams of .39 for the Osgood model and .66 for the Fishbein model, with the difference significant at the .01 level.

In this study, however, the meaningfulness of the pretest is even more crucial to the comparisons made, as this variable is used in the calculation of predictions for the Osgood model but not for the Fishbein model. If the character rated on the pretest is not cognitively the same as the character to which the subjects are later introduced, then the pretest has no validity for the Congruity model. If the pretest is not valid, then in the Anderson and Fishbein study, the Osgood predictions were based on a non-systematic variable which would tend to attenuate the correlation of those predictions with the obtained. This bias would favor the Fishbein model in the comparison.

In the final study under consideration, Anderson and Hackman (1967) extended the comparison of the two models to a "real life" situation in which the attitude object was the instructor in the subjects' introductory

social psychology course. On the first day of class before the instructor entered the classroom, the subjects rated "The Instructor" on an "A" scale (pretest). At the end of the semester, the subjects again evaluated the instructor on an "A" scale, and were asked to list adjectives describing the instructor. As the experimenters were interested in the effect of the source of the belief (subject or experimenter supplied), the subjects were given "A" and "B" scales on which to rate the adjectives they had listed. In a second session four days later, they rated a standard set of the adjectives most frequently used in the first session and two sociometric measures concerning the extent to which the subject would exert himself to associate with the instructor in an academic and in a social situation. Anderson and Hackman calculated predictions for both the subjects' own and the standard set of beliefs and report correlations with the obtained of .49 and .62 for Summation Theory and .43 and .55 for Congruity Theory. Neither of the two differences between models was significant, nor did the difference in the correlation of the two models' predictions with either of the sociometric measures reach significance.

Although in this study the pretest was made more meaningful than in the studies of Anderson and Fishbein (1965) and Fishbein and Hunter (1964), it should be noted that the subjects still had very little information upon

which to base their pretest ratings. It is possible that in addition to knowing that the person they were rating was to be their instructor, they knew his name and perhaps some rumors about his teaching and grading methods. However, with this small increment in the amount of information upon which the subjects could base their pretest evaluations, differences between the two models were not large enough to be significant.

This review of three of the major comparative studies in this area of research suggests that the pretest as used in each of the studies could have biased the obtained results. Since calculations of the Osgood predictions are based upon the pretest evaluation, it is conceivable that any unusual degree of error variance in this measure would attenuate the correlation between predicted and observed values. As a premeasure is not employed in the calculation of the Fishbein predictions, experimental conditions increasing this error would favor the Fishbein model. Therefore it was hypothesized that sufficient information about the attitude object before the premeasure would increase the relative effectiveness of the Osgood model with respect to the Fishbein model, by reducing the error of the pretest.

METHOD

Design and Procedure

The experiment was introduced to the subjects as an examination of the effects of various phrases in letters of recommendation in the forming of an impression about a person (cf. Brewer, 1968). The units of information, which were moderately to highly favorable to the object person ("James Hill"), are contained in the appendix. Booklets for each of three information levels (1, 2, or 4 phrases per communication) were prepared for each of the treatment conditions in Table 1. The notation employed in the table follows that of Campbell and Stanley (1966), with O representing an observation and X representing an experimental manipulation. In the present study, X_1 and X_2 were communications presented to the subjects, and O_0 and O_1 were "A" scale measures of the hypothetical object person. O_2 contained the same scale as O_0 and O_1 plus "A" and "B" scales for ratings of the units of information. An additional fifteen concepts were each rated on twenty semantic differential items; this provided data for a later model-building attempt. A sample booklet is included in the appendix.

Table 1. Experimental design.

Condition	Design
A	O_1 X_2 O_2
B	X_1 O_1 X_2 O_2
C	O_1 X_1 X_2 O_2
D	O_0 X_1 O_1 X_2 O_2

Condition A in Table 1 represents the design typically employed in the comparative studies discussed above: A pretest focused upon an attitude object with which the subject had no familiarity was administered; a communication was employed to modify this evaluation, and was followed by a post-manipulation attitude measurement (cf. Anderson and Fishbein, 1965; Anderson and Hackman, 1967). In the second condition, an attempt was made to lessen the potential for randomly generated error in the pretest by providing subjects with information concerning the hypothetical object person. Condition C was included as a control for the total amount of information given to the subjects, to vitiate the possible alternative explanation that differences between Conditions A and B were due to the amount of information rather than the effect of the pre-information on the pretest. Had the analysis of Conditions A, B, and C indicated the need for an

examination of the effects of tests on information interpretation, data for this analysis were provided by Condition D.

Subjects

The subjects were 240 male and female undergraduate students at Michigan State University. All subjects were randomly selected from a pool of about 600 students who were recruited by advertisements placed in various classroom and residence buildings during the summer quarter; all subjects were paid $2.00 for participating in the study.

The data were collected in 11 sessions over a three week period. Each session except the last was scheduled to include one subject in each of the Sex X Information-level X Design cells, plus replacements for any subject not having appeared at the previous session; the eleventh session was necessitated by a poor appearance rate at the tenth. Subjects at any session were randomly assigned within sex to the booklets for that session. All sessions were held in the evening in a room with a capacity of about 60 persons in an air-conditioned building centrally located on the campus.

Predicted Evaluations

Each of the "A" and "B" scales were scored by summing over the five seven-point semantic differential items, producing values with a range of -15 to +15. These scores were combined according to the formulae presented above to obtain postmanipulation predictions for the two models. For the Osgood model, only the evaluations of phrases received by the subject in the communications between O_1 and O_2 were used. Following the procedure used by Fishbein and his colleagues, predictions for the Fishbein model were based upon all eight phrases in all conditions and at all information levels without regard as to whether the subject had received that phrase in a communication (cf. Anderson and Fishbein, 1965, and Kaplan and Fishbein, 1969, for a discussion of this point).[4]

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[4]Predictions based only upon the four phrases possible in X_2 were also calculated and corresponding correlations were obtained. These correlations were, in all cases, approximately the same as the correlations based on predictions using eight phrases. Significance levels of tests using the four-based correlations were the same as those reported in this paper for those based on eight.

RESULTS

Correlations of the Models and the Obtained

Correlations between predicted and obtained evaluations were calculated for each model and are presented in Table 2; also presented are the results of t-tests for non-independent correlations (Edwards, 1960) comparing the two models within each of the design conditions. From the table it may be seen that although the performance of the Osgood model was somewhat improved in the preinformation conditions (B and D vs. A and C), so too were the predictions for the Fishbein model. Thus the relative performance of the Osgood model with respect to the Fishbein model was not improved. In all conditions the performance of the Fishbein model as a predictor of the obtained evaluations was significantly better than the performance of the Osgood model.

Also presented in Table 2 are correlations between the pretest and the obtained posttest evaluations. In all conditions this correlation is of at least the same order of magnitude as that of the two models. This result prompted an examination of change scores to test the alternative hypothesis that the X_2 manipulation had no

effect upon attitude. That is, the high correlation between the pretest and the posttest could have been the result of a negligible amount of change due to X_2. The means of change scores are presented in Table 3 with the results of t-tests for the size of the mean in each of the experimental conditions. In all conditions the change was significantly greater than zero ($p<.025$ to $p<.0005$).

Table 2. Correlations with the posttest (1) for Fishbein prediction (2), Osgood prediction (3), and the pretest (4) and the significance of the differences.

Condition	r_{12}	r_{13}	t_{12-13}	P_t	r_{14}	t_{14-12}	P_t
A	.56	.41	2.13	<.025	.50	--	--
B	.63	.46	2.44	<.01	.72	1.17	>.10
C	.62	.42	2.76	<.005	.56	--	--
D	.65	.47	2.74	<.005	.75	1.57	<.10

57 degrees of freedom each

Table 3. Mean and significance of attitude change in conditions.

Condition	Mean change	t	p
A	2.33	5.50	<.0005
B	.72	2.12	<.025
C	1.65	4.05	<.0005
D	1.15	5.10	<.0005

59 degrees of freedom

Error of the Pretest

If the assertion that O_1 is a systematic measure of attitude is true, then O_1 and O_2 should share a large common variance, observable in the covariance or correlation between O_1 and O_2. (In testing terminology, the correlation serves as a check on the reliability of the pretest.) According to the hypothesis that the pretest is less valid in the non-preinformation conditions than in preinformation conditions, the correlation between the pretest and posttest should be larger in Conditions B and D than in Conditions A and C. Comparison of the correlations by means of r to z transformations (Edwards, 1960) showed the correlation between O_1 and O_2 to be significantly greater in the preinformation conditions than in the non-preinformation conditions ($z=2.64$, $p<.005$). Thus the limit on the error of the pretest was lower in the preinformation conditions than in the non-preinformation conditions.

A further comparison of this relationship was performed by calculating the correlations between O_1 and O_2 for each level of information by combining the two preinformation conditions (B and D) and the two non-preinformation conditions (A and C). The resulting correlations are presented in Figure 1 and in Table 4. A chi-square test for homogeneity of correlations (Edwards, 1960) was performed on the entries in Table 4 and indicated

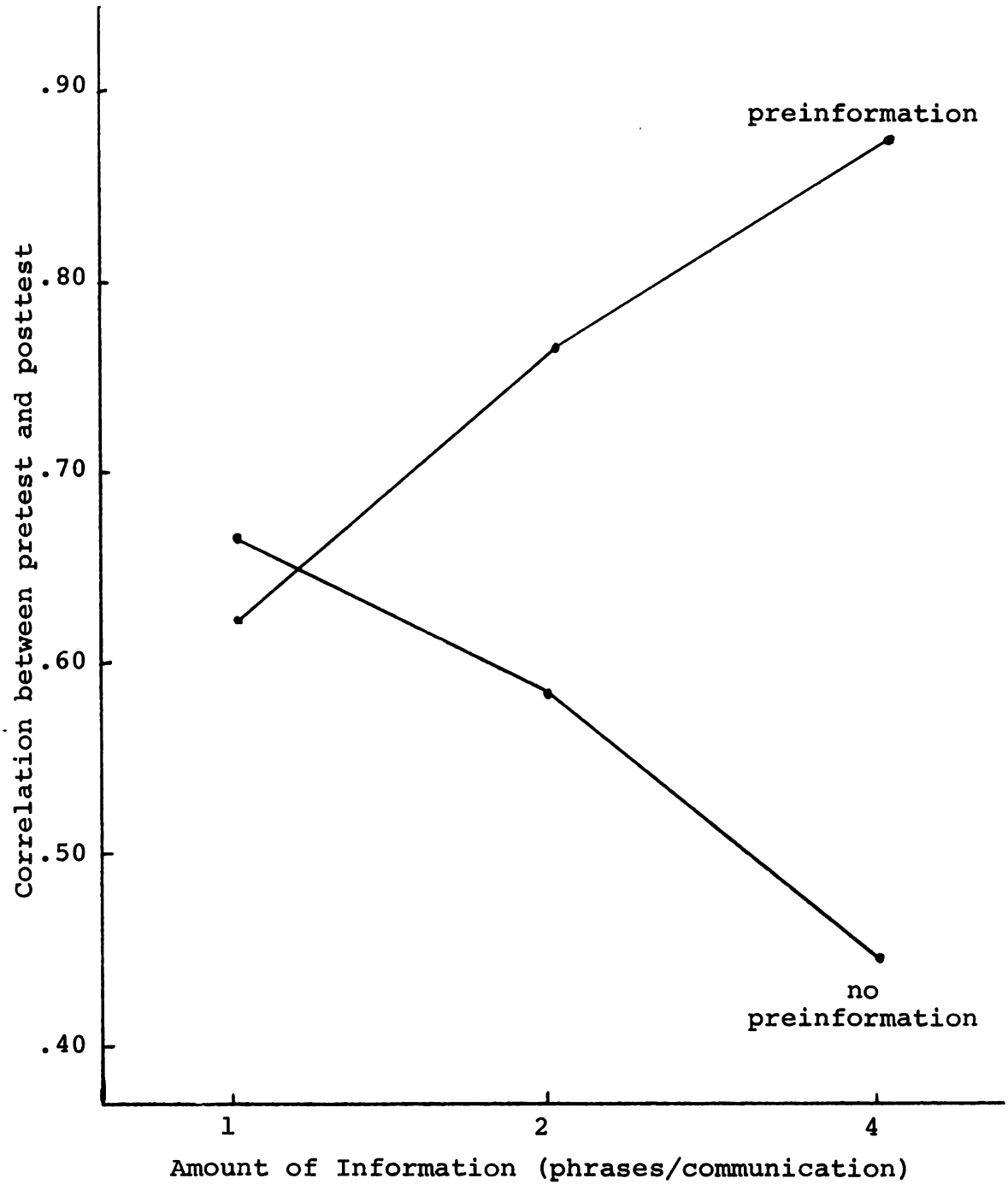

Figure 1. Correlations between pretest and posttest for conditions with and without information before the pretest, at three levels of information.

significant differences between the correlations (χ^2=12.24, 5df, $p<.05$). Figure 1 shows that the correlation in the preinformation conditions increased, while in the non-preinformation conditions, the correlations decreased. A reasonable interpretation of this result is that the relationship between the two measures tends to decrease as the amount of information between them increases, analogous to a decrease in test-retest reliability over time. However, increasing the level of preinformation appears to increase the reliability to an extent sufficient to overcome this "time" effect.

Table 4. Correlations between the pretest and the post-test for conditions with and without information before the pretest, at three levels of information.

	Amount of information		
Condition type	1	2	4
preinformation	.62	.77	.83
non-preinformation	.66	.58	.44

37 degrees of freedom each

Dependence of the Osgood Model on the Pretest

The results reported above prompted an investigation of the postulated mechanism by which the pretest was

assumed to have affected the performance of the Osgood model, that is, the dependence of the Osgood model predictions on the pretest. One means by which such an evaluation could be made was to examine the correlations between the Osgood predictions and the pretest. Table 5 presents correlations with the pretest for the Osgood predictions and, for purposes of comparison, the Fishbein predictions. Over all subjects this correlation was .32 for the Osgood model, indicating that the pretest accounted for approximately 10% of the variance in the predictions. The Fishbein model, which did not use the pretest scores in the calculation of predictions, had a comparable correlation of .39 indicating that about 15% of the variance in the Fishbein predictions could be attributed to the pretest. Thus it is probable that the use of the pretest in the Osgood model predictions was not the source of the relative failure of the model in studies of design similar to the non-preinformation conditions.

Comparative Contributions to Posttest Variance

Given the apparent failure of the models to improve upon the pretest in predicting the obtained postmanipulation scores, a question exists as to whether the models and the pretest account for the same variance in the posttest or for unique portions of the variance. This

question can be answered by several means, one of which is to obtain the correlations of each of the measures to the posttest with the others partialled out.[5] Table 6 presents these correlations for each of the design conditions and shows that the pretest and the Fishbein model each account for a large amount of the posttest variance separate from the other two measures. However, from the comparison of $r_{13.2}$ with r_{13}, it may be seen that much of the variance due to the Osgood model is contained within the variance due to the Fishbein model.

Table 5. Correlations of the Osgood prediction (3) and Fishbein prediction (2) with the pretest (4).

Condition	r_{34}	r_{24}
A	.0685	.0076
B	.5153	.5561
C	.3269	.3669
D	.4355	.6388
Over all Ss	.3222	.3862
r^2 over all Ss	.10	.15

n = 60 per condition

[5]This procedure was undertaken with some reservation, given the considerations of Brewer, Campbell, and Crano (1970), in that a single factor solution seemed to be a highly probable alternative in some conditions. It should be noted, however, that the author intends no notion of causality and that no significance tests are reported on the partial correlations in Table 6.

Table 6. Partial correlations with the posttest (1) for the Fishbein prediction (2), Osgood prediction (3), and the pretest (4).

Design Condition	Fishbein Prediction				Osgood Prediction				Pretest			
	r_{12}	$r_{12.3}$	$r_{12.4}$	$r_{12.34}$	r_{13}	$r_{13.2}$	$r_{13.4}$	$r_{13.24}$	r_{14}	$r_{14.2}$	$r_{14.3}$	$r_{14.23}$
A	.56	.42	.64	.54	.41	-.07	.43	-.17	.50	.60	.52	.61
B	.63	.48	.40	.40	.46	-.07	.16	-.19	.72	.57	.54	.48
C	.62	.51	.54	.49	.42	-.09	.31	-.15	.56	.46	.49	.48
D	.65	.51	.32	.23	.47	-.10	.24	-.01	.75	.58	.69	.59

N = 60 per condition

DISCUSSION

Relative Performance of the Models

The hypothesized effect of preinformation on the relative performance of the Osgood model with respect to the Fishbein model was not observed in this research; the correlation of the Fishbein predictions and the post-manipulation attitude scores was found in all conditions to be significantly greater than that obtained between the Osgood model predictions and the observed. More interestingly and surprisingly, the pretest as a predictor of the posttest attitude performed as well or better than either of the two models. A discussion of the theoretical significance of this latter finding is reserved until later in this report.

A possible explanation for the high correlation between the pretest and the posttest scores would be that the X_2 manipulation had a negligible effect on the expressed attitude. If this were so, one would expect that the change in attitude between O_1 and O_2 would also be negligible. However, the change was shown in Table 3 to be significant, and in the expected direction. Thus this alternative interpretation is not tenable.

Although the comparison of the two models appears to reinforce the results of the previous comparative research, none of these studies is conclusive in terms of a comparison of these two models as predictors of attitude outside of the laboratory situation. First, all of the studies have dealt with an impression formation rather than an attitude change paradigm. While the two phenomena may be similar, they diverge in several important respects. Among the more important of these is that, in the real-life impression formation situation, the subject knows that reciprocation of affect is highly probable (cf. Price, Harburg, and Newcomb, 1966).

Secondly, all of the studies have dealt with only positive information about the object person. Given that the pretest scores in impression formation situations tend to be neutral to slightly positive, this fact limits not only the direction of change, but also the range of change attempted by the manipulation.

Finally, all of the studies except that of Anderson and Hackman (1967) have dealt only with hypothetical attitude objects and have asked the subject to act "as if." If structural relationships between the attitude manipulated and other attitudes and values are important (as most consistency theorists maintain), then the ability of the subject to create a complete cognitive world appropriate to the object in question limits the validity of the obtained results with respect to attitude change in general.

Pretest Validity

As hypothesized, the validity of the pretest was found to be somewhat attenuated in conditions designed to be similar to the previous research as compared to conditions in which some informational basis for the pretest evaluation was available to the subjects. Further, increasing the amount of preinformation appears to overcome the effect of an increase in information between the tests; unfortunately, a more rigorous statement cannot be made as these variables were not independently manipulated. It is suggested, though, that if one were dealing with attitudes more intensely held by the individual, the correlation between the pretest and the posttest would be extremely high, regardless of the manipulation, especially within the definition of an attitude as a relatively stable cognitive response to an object.

Pretest and Prediction Error

Contrary to expectations, the mechanism by which the error variance of the pretest was hypothesized to affect adversely the Osgood model was not found, in that there was less common variance between the Osgood predictions and the pretest than between the Fishbein predictions and the pretest. This result could be based, however, in the limitations of an impression formation

paradigm. Because the Osgood model weights the pretest as a function of the extremity, and pretests in impression formation situations tend to be somewhat neutral, the weight of the pretest in this situation would be small compared to the highly polarized evaluations of the information. If the attitude toward a more highly polarized object were manipulated, the initial evaluation would be more heavily weighted. Thus the selection of a paradigm in which the initial evaluations tend to be neutral may have reduced the dependence of the Osgood predictions on the pretest. This argument is also somewhat supported by the higher correlation between the pretest and the Osgood model in conditions with preinformation (B and D in Table 4); in these conditions pretest scores were higher than in the non-preinformation conditions.

The Pretest as a Predictor

Possibly the most interesting result of the thesis is that the pretest evaluations were as highly correlated with the obtained attitude scores as were the predictions of the two models, even though significant change occurred between O_1 and O_2. Thus the interpretation of the results of the reviewed studies (and other similar research) as support for either model is questionable if the alternative of the pretest as a predictor of attitude is considered. As an examination of the partial correlations

reveals, neither of the two models accounts for as much of the posttest variance as does the pretest. Given these results and the number of measures required by the models to obtain the predictions, it is obvious that the models have lower utility in terms of our understanding of the phenomenon than their respective proponents claim. It is suggested, then, that the models considered in this paper are too complex in terms of the conception of cognitive structure upon which they are based, given the number of measures they require. Concurrently, the models are too simple in conception of the cognitive structure, for they appear to ignore an important part of the definition of attitude as well as the primary reason for its study. For the characteristic of attitudes that makes them useful in understanding behavior is that, relative to other determinants of a person's responses, attitudes are stable.

CONCLUSION

The major hypotheses of this thesis were not substantiated in that the relative performance of the Osgood model was not improved in the preinformation conditions nor was the dependence of the model on the pretest observed. However, it appears that an even more viable alternative explanation for these and previous results merits examination; that is, that the use of an impression formation paradigm might have produced results different from those obtained in an attitude change situation having a correspondingly greater involvement level for the subjects.

The result of this thesis with the broadest theoretical and methodological implications, however, is the serendipitous finding that the pretest predicted as well or better than either of the two models. The thesis thus prompts two recommendations for further research in the area of attitude change: First, that psychologists attempting to model attitudes begin with the assumption that attitudes are stable and use paradigms appropriate to that assumption, and second, that the comparison of interest in the evaluation of a model of attitude is not its

performance relative to a correlation of zero, but whether the model improves upon the prediction of attitude made by the assumption of simple stability.

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APPENDIX

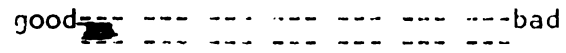
A SAMPLE QUESTIONNAIRE

Instructions

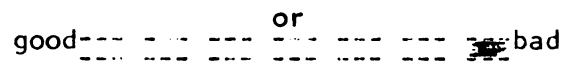
In this experiment, you will be asked to rate some concepts and some people on a set of scales. Each scale consists of a pair of adjectives separated by seven spaces. For example:

good--- --- --- --- --- --- ---bad

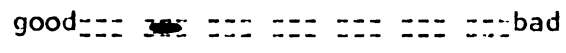
If you believe that the person or concept is extremely like one or the other adjectives you would fill in one of the end spaces as follows:



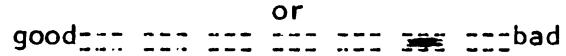
or



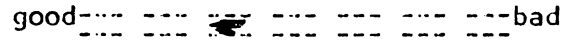
If you feel that the person or concept is somewhat similar to one of the adjectives, then you would fill in the spaces as follows:



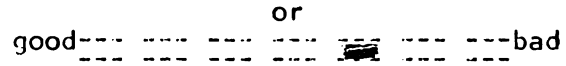
or



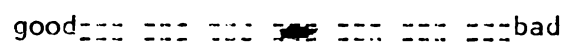
If you believe that the person or concept is only slightly more similar to one of the adjectives than the other, then you fill in one of the spaces as follows:



or



Finally, if you believe that the person or concept is not more like one of the adjectives than the other, then you would fill in the center space as follows:



Be sure that you fill the space completely and erase any extraneous pencil marks on the IBM sheets.

"Jim is an intelligent individual . . . has always been courteous in his dealings with others." "James Hill is quite perceptive, . . . among the most competent students I have had."

James Hill

harmful	=	beneficial
wise	=	foolish
dirty	=	clean
bad	=	good
sick	=	healthy

". . . and Jim Hill has always been well-liked by his classmates." "In all of my dealings with this very honest young man . . ." "James is a very independent person, . . . work shows that he is highly motivated."

James Hill

rmful	=	beneficial
wise	=	foolish
dirty	=	clean
bad	=	good
sick	=	healthy

Please rate the statements which appear on the next page.

JAMES HILL IS INTELLIGENT

sible = impossible
false = true
stent = non-existent
bable = improbable
ikely = likely

JAMES HILL IS WELL-LIKED

sible = impossible
false = true
stent = non-existent
bable = improbable
ikely = likely

JAMES HILL IS COURTEOUS

sible = impossible
false = true
stent = non-existent
bable = improbable
ikely = likely

JAMES HILL IS HONEST

ssible = impossible
false = true
istent = non-existent
obable = improbable
likely = likely

JAMES HILL IS COMPETENT

ssible = impossible
false = true
istent = non-existent
obable = improbable
likely = likely

JAMES HILL IS PERCEPTIVE

ssible = impossible
false = true
istent = non-existent
obable = improbable
likely = likely

JAMES HILL IS MOTIVATED

ssible = impossible
false = true
istent = non-existent
obable = improbable
likely = likely

JAMES HILL IS INDEPENDENT

ssible = impossible
false = true
istent = non-existent
obable = improbable
likely = likely

Please rate the adjectives which appear on the next page.

INTELLIGENT

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

WELL-LIKED

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

COURTEOUS

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

HONEST

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

COMPETENT

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

PERCEPTIVE

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

MOTIVATED

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

INDEPENDENT

rmful = beneficial
wise = foolish
dirty = clean
bad = good
sick = healthy

On the next page please rate:

LEGALIZED ABORTION

asant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fnagrant
rtant	unimportant
hless	valuable
steful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
itable	disreputable
olish	wise
oying	pleasing
ofound	superficial

On the next page please rate:

GUN CONTROL LAW

easant ____ unpleasant
strong ____ weak
good ____ bad
fast ____ slow
clean ____ dirty
honest ____ dishonest
nice ____ awful
kind ____ cruel
large ____ small
fair ____ unfair
ugly ____ beautiful
active ____ passive
sour ____ sweet
foul ____ fragrant
portant ____ unimportant
rthless ____ valuable
asteful ____ distasteful
cessful ____ unsuccessful
rtunate ____ unfortunate
false ____ true
putable ____ disreputable
foolish ____ wise
nnoying ____ pleasing
rofound ____ superficial

On the next page please rate:

THE BLACK PANTHERS

easant	unpleasant
strong	weak
good	bad
fast	slow
clean	dirty
honest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
active	passive
sour	sweet
foul	fragrant
portant	unimportant
rthless	valuable
asteful	distasteful
cessful	unsuccessful
rtunate	unfortunate
false	true
putable	disreputable
foolish	wise
noying	pleasing
rofound	superficial

On the next page please rate:

LEGALIZATION OF MARIJUANA

asant ..... unpleasant
rong ..... weak
good ..... bad
fast ..... slow
clean ..... dirty
onest ..... dishonest
nice ..... awful
kind ..... cruel
large ..... small
fair ..... unfair
ugly ..... beautiful
ctive ..... passive
sour ..... sweet
foul ..... fragrant
ortant ..... unimportant
hless ..... valuable
steful ..... distasteful
essful ..... unsuccessful
unate ..... unfortunate
false ..... true
utable ..... disreputable
olish ..... wise
roying ..... pleasing
ofound ..... superficial

On the next page please rate:

SPIRO AGNEW

asant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
ortant	unimportant
hless	valuable
steful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
rtable	disreputable
polish	wise
noying	pleasing
pfound	superficial

On the next page please rate:

EIGHTEEN-YEAR-OLD VOTE

rsant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
rtant	unimportant
hless	valuable
teful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
table	disreputable
olish	wise
oying	pleasing
found	superficial

On the next page please rate:

R. O. T. C.

asant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
rtant	unimportant
hless	valuable
teful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
itable	disreputable
olish	wise
oying	pleasing
ofound	superficial

On the next page please rate:

TED KENNEDY

asant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
rtant	unimportant
hless	valuable
steful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
itable	disreputable
olish	wise
oying	pleasing
ofound	superficial

On the next page please rate:

CAMPUS DEMONSTRATIONS

asant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
rtant	unimportant
hless	valuable
steful	distasteful
essful	unsuccessful
tunate	unfortunate
false	true
utable	disreputable
oolish	wise
noying	pleasing
cfound	superficial

On the next page please rate:

EUGENE McCARTHY

asant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
ortant	unimportant
thless	valuable
steful	distasteful
essful	unsuccessful
tunate	unfortunate
false	true
utable	disreputable
oolish	wise
noying	pleasing
ofound	superficial

On the next page please rate:

WATER POLLUTION CONTROL

asant	unpleasant
trong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
rtant	unimportant
hless	valuable
steful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
itable	disreputable
olish	wise
oying	pleasing
ofound	superficial

On the next page please rate:

RICHARD NIXON

asant	unpleasant
strong	weak
good	bad
fast	slow
clean	dirty
onest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
ctive	passive
sour	sweet
foul	fragrant
rtant	unimportant
hless	valuable
teful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
itable	disreputable
olish	wise
oying	pleasing
found	superficial

On the next page please rate:

PRE-MARITAL SEXUAL RELATIONS

...sant	unpleasant
...rong	weak
...good	bad
...fast	slow
...lean	dirty
...onest	dishonest
...nice	awful
...kind	cruel
...large	small
...fair	unfair
...ugly	beautiful
...ctive	passive
...sour	sweet
...foul	fragrant
...rtant	unimportant
...hless	valuable
...teful	distasteful
...ssful	unsuccessful
...unate	unfortunate
...false	true
...table	disreputable
...olish	wise
...oying	pleasing
...found	superficial

On the next page please rate:

GOV. WILLIAM MILLIKEN

rsant	unpleasant
rong	weak
good	bad
fast	slow
lean	dirty
nest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
tive	passive
sour	sweet
foul	fragrant
rtant	unimportant
hless	valuable
teful	distasteful
ssful	unsuccessful
unate	unfortunate
false	true
table	disreputable
olish	wise
oying	pleasing
found	superficial

On the next page please rate:

STUDENTS FOR A DEMOCRATIC SOCIETY (S.D.S.)

asant	unpleasant
strong	weak
good	bad
fast	slow
clean	dirty
nest	dishonest
nice	awful
kind	cruel
large	small
fair	unfair
ugly	beautiful
active	passive
sour	sweet
foul	fragrant
ortant	unimportant
thless	valuable
steful	distasteful
essful	unsuccessful
tunate	unfortunate
false	true
utable	disreputable
olish	wise
noying	pleasing
ofound	superficial