A Fulcrum Model of Opinion Formation and Change

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A FULCRUM MODEL OF OPINION FORMATION
AND CHANGE

by

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Life


The author began his graduate studies at Loyola University in September of 1965 and obtained the degree of Master of Arts in January, 1968.
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Abstract

This study was designed to test the power of an additive versus a weighted average model of impression formation in predicting the subject's evaluation of a stimulus object on the basis of the subject's prior evaluation of separate pieces of information used to describe the stimulus object. Two hundred ten subjects were randomly placed in one of fourteen experimental groups. The general design of the study was a 2 x 7 factorial involving two orders of presentation of stimulus material and seven levels of affective information. With regard to levels of affective information, the subject received either one, two or three pieces of information about the stimulus object - each piece varying in affective importance to the subject, i.e., High affective importance Medium, Low or the combinations High-Medium, High-Low, Medium-Low or High-Medium-Low.

With regard to order of presentation of stimulus material, subjects received their information in a manner such that the addition of each successive piece of information had less affective importance: e.g., High-Medium-Low, High-Medium, High-Low, Medium-Low, High alone, Medium alone and Low alone or the subjects received their information in such a manner that the addition of each successive piece of information had more affective importance e.g., Low-Medium-High, Medium-High, Low-High, Low-Medium, High alone, Medium alone or Low alone.

On the basis of each subject's evaluation of each piece of information alone, predicted scores were calculated for the subject's obtained evaluation of the stimulus object on the basis of Fishbein's summation model, and Izzett's Fulcrum model (an averaging model).
Results indicated that the predicted scores derived from the Fulcrum (averaging) model correlated to a significantly greater extent with the obtained evaluation of the stimulus object than those scores derived from Fishbein's summation model. Also, there was no main effect for order of presentation of stimulus information and no interaction between order of presentation and levels of information, however, there was a significant main effect due to amount of information presented. The main effect due to amount of information presented supported the Fulcrum model at the $p < .001$ level, i.e., describing a stimulus object with two or more pieces of information varying in affect and importance but all having the same sign (positive) results in a less favorable impression of the stimulus object than what would have been obtained had the stimulus object been described by only one piece of information - namely, that piece which has the highest affect x importance rating of the two piece combination.

The conclusion drawn from this finding was that as a result of obtaining one piece of information about the stimulus object having high affect and importance, the subject develops a generalized expectation that the stimulus object will be high on all traits or characteristics and that as a result of being given a second piece of information about the stimulus object which does not measure up to the subject's expectations, the adaptation level of the subject concerning future expectations about the stimulus object drops - hence the averaging effect.
A FULCRUM MODEL OF OPINION FORMATION
AND CHANGE

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In recent years, the literature in the area of attitude formation and change has been expanding at a rapid rate. Since the Hovland, Janis and Kelley (1953) Yale communication series, social-psychologists have turned their attention to a number of basic issues involved in attitude formation and change: effects of source credibility, ego-involvement in the issue, primacy-recency effects, the effect of communicator-communicatee discrepancy, the importance of attention, comprehension and acceptance of message to attitude change, active versus passive participation, the effects of repetition, one-sided versus two-sided communications, the sleeper effect and so on.

Out of this mass of research have emerged two basic camps: the cognitive consistency theorists exemplified by Heider (1946), Newcomb (1953), Feather (1964), Festinger (1957), Osgood and Tannenbaum (1955) and M. Rosenberg and Abelson (1960) who advocate that attitude formation and change is a function of the individual's striving for a state of cognitive balance and that whenever imbalance occurs the individual will seek any one of a number of ways to restore balance such as source derogation, denial of source advocating the communication or attitude change itself. Secondly, there are the reinforcement theorists who utilize concepts of behavioristic psychology to explain attitude formation and change. Theorists such as Hovland, Janis and Kelley (1953), Staats (1961), Lott (1955) and Fishbein (1961) argue that attitude
change may be a function of the reward value associated with a particular position. An individual may hold a particular attitude toward an attitude object, because the position is advocated by a source who has been associated with rewarding experiences in the past, because the position itself is intrinsically satisfying and fits in with one's own values or because the particular position has been successful in the past as a means to some desired end.

Regardless of the camp which the individual follows, it is evident and must be conceded that an individual's attitude toward a given attitude object is in part a function of the information he has about the attitudinal object. Rhine (1958) has indicated that the more unique the stimuli defining a concept the more clearly defined the concept, i.e., the more information an individual is given about an attitudinal object, the more informed and knowledgeable the individual is about the defining characteristics of that class of objects. For example, the more physical defining characteristics a child is given about a dog, the stronger the child's belief that a given object is a dog providing the object of his inspection has all the defining characteristics.

The area of impression formation provides a fertile field within which to explore the function that information plays in shaping a person's attitude toward a given object of perception. As indicated by S. Rosenberg (1968) the typical impression formation experiment involves the presentation of a list of adjectives describing the object person to the subject and then the measurement of the subject's attitude to the stimulus person so described. A general question that has arisen in this field is: can the overall rating of attractiveness of an object be predicted from the scale values of the attractiveness of each adjective alone, i.e., does there exist within the
precise language of mathematics a general mathematical function which may be utilized to predict the overall impression of an attitude object based upon the scale values of each piece of information prior to combination?

Two general models have been put forth - one an additive model and the other an averaging or weighted average model - each originating from the reinforcement theorists' and consistency theorists' camps respectively. In a test of the utility of an additive model, N. Anderson (1962) had his subjects rate on a 20 point scale of attractiveness, a number of hypothetical persons who were described by a set of three adjectives. Here Anderson found a correlation of 0.967 between the obtained and the predicted scores based on the additive model. However, in Anderson's case, definitive evidence in favor of an additive model was not provided since a comparative prediction was not determined for an averaging model. Likewise, Levy and Richter (1963) using facial photographs as stimuli found evidence supporting the proposition that individual items of information combine in an additive manner to determine the overall impression of the stimulus object. But again as in the case of the 1962 Anderson study, no comparable predictions were attempted for an averaging model. Further evidence supporting cognitive summation has been obtained by Feldman (1962), Kerrick (1958), Podell and Podell (1963) and Tanka (1964).

Following this line of thinking, Fishbein (1961, 1963, and 1965) has developed a summation theory of attitude organization and change which is based upon the relationships between beliefs about an object and the attitude toward the object. Fishbein's theory would predict that an individual's attitude toward any given object would be a function of the individual's beliefs about the object and the evaluative aspects of those beliefs. Also,
Fishbein's theory would predict that the individual's attitude toward an object is in part a function of the total amount of affect associated with each of the beliefs about the object, i.e., information about an attitudinal object is combined in an additive fashion. This may be represented by the following formula:

$$A_o = \sum_{i=1}^{N} B_i a_i$$

where

- $A_o =$ the attitude toward a given object "o"
- $B_i =$ the strength of the belief i about o. Here Fishbein defines belief as the probability dimension of a concept, where the probability dimension may refer to the belief in a concept (the probability that the concept does exist) or the belief about a concept (the probability that a specific relation exists between the concept and some other object). Operationally, the beliefs in or about a concept are measured by an instrument called the B scale (Fishbein and Raven, 1962).
- $a_i =$ the evaluative aspect of $B_i$ which is operationally measured by a series of Osgood's evaluative semantic differential scales.
- $N =$ the number of beliefs.

Fishbein has evidenced support for his summation theory in a series of studies (Fishbein and Hunter, 1964; Triandis and Fishbein, 1963; L. Anderson and Fishbein, 1965). As pointed out by S. Rosenberg (1968), a critical test of the difference between the summation and averaging formulations can be illustrated by the following question: "If a subject is presented with a single highly desirable trait adjective, will this result in a more favorable impression than if he were presented with the same highly desirable adjective along with another adjective that is only moderately desirable?" (p. 191).

In a test of the adequacy of the summation model in answering this question,
Fishbein and Hunter presented four groups of subjects with varying amounts of positively evaluated information about a stimulus person in such a way that the average amount of affect which was associated with the information decreased as a function of the amount of information presented. The total amount of affect, however, increased with the amount of information presented. Fishbein and Hunter contended that the results of this study lend support to their summation model, i.e., the obtained evaluation of the stimulus object increased as a function of the amount of information presented even though the average amount of affect associated with the information decreased. Rosenberg, however, points out that the interpretation of Fishbein and Hunter's data in support of an additive model is not unequivocal since the information presented about the stimulus object was presented sequentially - with the more favorable information consistently being presented before the less favorable information. As Rosenberg indicated, sequential presentation of information may result in differential weighting of the information.

In a further test of Fishbein's summation model, and overcoming the criticisms of the Anderson (1962) study and the Levy and Richter (1963) study made by Rosenberg (1968), L. Anderson and Fishbein (1965) compared the predictive power of Fishbein's summation theory to that of Osgood's (1955) congruity theory. In contrast to Osgood's congruity theory which predicts that an attitude is in part a function of the average amount of affect associated with the information, again Fishbein predicted that the individual's attitude would be a function of the total amount of affect and not just the average. Not only did the mean ratings of all groups support summation theory but Fishbein also found that predictions based on his theory correlated significantly higher with the obtained attitude scores than the predictions stemming from Osgood's
congruity theory.

Norman Anderson (1965) also conducted a study to make a comparative test of the summation and averaging models. Anderson presented various sets of two and four adjectives varying in degree of affectiveness to his subjects. The two groups of primary concern in testing the summation prediction versus the averaging prediction were those that received either two pieces of high positive information (HH) and those that received four pieces of information - two high positive and two medium positive (HHMM). According to summation theory, that group of subjects which received the four pieces of information (HHMM) should rate the stimulus object to a more favorable degree than that group of subjects which received only two pieces of high positive information (HH). Anderson obtained significant results; however, the results were in support of an averaging theory, i.e., that group of subjects which received HHMM information rated the stimulus object less favorable than that group which received the HH information. Anderson also obtained a finding which would seem to contradict the averaging model. He found that the mean rating of the group of subjects given four high positive pieces of information (HHMM) was greater than that group given just two high positive pieces of information (HH). This finding would seem to support the summation model over the averaging model. Rosenberg indicates that this finding can be accounted for by an averaging model if one assumes the existence of an initial impression such that the final impression is an average of the affect associated with the stimulus information presented as well as the initial impression. One of the weaknesses of Anderson's work in this area, is that in utilizing an averaging model, he has been assuming that the stimulus information which he presents to his subjects all have equal weights, i.e., in combining the four pieces
of information \( HHIM \), he would predict the obtained evaluation of the stimulus object to be a function of the sum of the affect associated with each piece of information divided by four (the number of pieces of information). However, in the same study, Anderson (1965) found that the average of the subject's impression rating of the stimulus object described by the information \( LLLL \) and the stimulus object \( MMMMM \) did not equal the rating that the subject gave to the stimulus object described by the information \( LIM-M^- \). In effect, his results suggested that the \( L \) adjectives were given greater weight than the \( M^- \) adjectives, i.e., that even when subjects were instructed that each of the adjectives are equally important, they may in fact not pay equal attention to all adjectives (some adjectives being given greater weight than others).

Anderson and Jacobson (1965) also found differential weighting effects not only when the information about the stimulus object is affectively inconsistent but also when it is semantically inconsistent. Thus as Rosenberg (1968) indicates, the assumption of equal weights does not always appear to be completely adequate. Also, results of a study by Podell and Podell (1963) suggest that extreme adjectives (\( H \)) are given greater weight than other adjectives and hence some subjects when presented with stimulus information may even go so far as to assigning weights of zero to some information.

Another weakness of the work by Anderson dealing with an averaging model of impression formation has to do with the underlying psychological processes involved within the subject. Thus far, the work of Anderson has remained at the descriptive level, i.e., demonstrating that within his experiments information presented to the subject seems to combine in an averaging fashion and not in a summation fashion, but he does not attempt to explain this phenomenon. Thus, in an attempt to further investigate the summation versus
averaging conflict in impression and opinion formation and in an attempt to
give more precise meaning to the weight given to stimulus information and in
an attempt to explain the underlying psychological processes involved, the
following fulcrum model is postulated.

One may look at the area of impression formation and opinion formation
in terms of a physical analogy based on principles of physics. Consider for example a typical balance scale where the fulcrum of the scale represents a balance point (viz. a teeter-totter). If we take for a starting point the case where the individual is totally unfamiliar with the stimulus object whether it be a person in the case of impression formation or an issue in the case of opinion formation, one can represent the psychological state of the individual in the following manner:

\[
\begin{array}{c}
\text{extremely unfavorable} \\
\downarrow \\
\text{Fulcrum} \\
\uparrow \\
\text{extremely favorable}
\end{array}
\]

Here the individual has no information whatever about the stimulus object and hence his point of balance (represented by the fulcrum) will fall in the middle of the scale in the neutral zone, i.e., if one were to conceptualize a teeter-totter that was perfectly balanced which had no weights placed on either side (in our case the weights being pieces of information), the pivotal point (fulcrum) or point of balance would be directly in the middle.

Now if a weight were to be placed on either side of the teeter-totter, the plank itself would tilt down in the direction of the weighted end. Graphically, this may be represented as follows:
In order for the plank itself to be restored to a level state, the weight would have to be removed, another weight added on the other side of the fulcrum, or the fulcrum itself would have to shift in the direction of the weight. Graphically this may be represented as follows:

Going back to our impression formation situation then, the plank may be said to represent a scale of affect ranging from extremely unfavorable at one end of the scale through a neutral zone to an extremely favorable position at the other end of the plank. It is apparent then that any one weight (piece of information) will have three components. First, it will have direction, i.e., it will fall to either the left or right side of the fulcrum; secondly, it will have extremity, i.e., if it falls on the right side it may fall right next to the fulcrum or it may fall at the extreme end of the plank or at any intermediate value between these two points. Thirdly, the weight itself will vary in size (intensity). For example, consider the case of two pieces of information having the same direction, the same extremity but different intensities. One situation would be represented as follows:
and the other as:

\[
\begin{array}{c}
0 \\
\Delta
\end{array}
\]

Let us consider now a number of hypothetical situations concerning opinion formation in a physical sense.

A.

\[
\begin{array}{c}
\triangle \\
0 \\
\end{array}
\]

B.

\[
\begin{array}{c}
\Delta \rightarrow \\
0 \\
\end{array}
\]

C.

\[
\begin{array}{c}
0 \\
\triangle \\
\end{array}
\]

D.

\[
\begin{array}{c}
\triangle \\
0 \\
\end{array}
\]

In situation A, the individual is totally unfamiliar with the issue and has no information whatsoever about the issue and hence the fulcrum is in the middle of the plank representing a neutral position concerning the stimulus object.

In situation B, the individual has been given four pieces of information supporting the exact same position and all pieces of information have the same intensity; hence the fulcrum has now shifted to a point of balance dir-
ectly under the four pieces of information thus representing the individual's new position on the issue.

In situation C, the individual has been given two new pieces of information which have a different direction and extremity than the information given in situation B and hence the fulcrum will shift again but this time in the direction of the two new pieces of information. Also, the amount of the shift will not be as much as advocated by the two new pieces of information (were the other four pieces not already existing). Instead, there will only be a partial change in the direction advocated - the shift being to a point of balance between the two new pieces of information and the four old pieces.

Notice that in the above three situations, it is assumed that all the pieces of information have the same intensity or weight (represented by the same sized circles), although they do have different direction and extremity. However, as pointed out above, different pieces of information may have different weights and it may be that one piece of information will be of sufficient intensity to counterbalance a number of other pieces of information of lesser intensity. Hence in situation D we have an example of the occasion where one piece of intense information counterbalances a number of other pieces of lesser intensity.

For example, an individual may be prejudiced against negroes because they are "lazy", "dirty", "uneducated" and "unreliable". One may hold this attitude toward negroes for a long time, however, the attitude may be changed by one piece of intense information. Suppose for example, that a negro saved the life of the prejudiced white man as well as the lives of his wife and children. This one piece of evaluative information may be of sufficient in-
to counterbalance his former prejudicial attitude.

As is evident from the above figures, the more knowledge the individual has supporting a given direction and extremity, the more difficult it will be to change his position concerning a given issue because the more information the individual has the more weighted the plank will become in a given direction and the more information it will take to change his position or the more intense the information will have to be.

What are the implications of this fulcrum model with regard to the additive-average conflict in impression formation? First of all let direction and extremity of a piece of information operationally be measured by a series of Osgood's affective semantic differential scales and secondly, let us consider the intensity or weight of the piece of information to be operationally measured by a 7-point importance scale; then having these values for any one piece of information taken alone, one should be able to predict on the basis of the principles derived from the fulcrum model the outcome of any combination of two or more pieces of information. With regard to the summation-averaging conflict, it was pointed out that the critical question concerned that situation where the individual is given two or more pieces of information which have the same direction but different or varying amounts of extremity and intensity. That is in a situation where the individual is first given one piece of information with high affect and then a second piece of information with low affect but the same sign, summation theory predicts an additive effect (i.e., the combination of the two pieces of information will result in a more favorable impression than the one piece of high affect information given alone); however, the averaging theory would predict that the com-
bination of the two pieces of information would result in an impression of intermediate value between the high and low affective pieces of information.

With regard to the fulcrum model the situation may be represented as follows: initially the subject has a neutral impression of the stimulus object since he has no information hence:

\[ \triangle \]

Upon receiving one piece of information having a favorable direction and having extreme affect, the fulcrum will shift in the direction of that piece of information hence:

\[ \triangle \rightarrow \triangle \]

Upon receiving a second piece of information having the same direction but less extremity with regard to affect, the fulcrum will shift back in the direction of this second piece of information hence:

\[ \triangle \rightarrow \triangle \]

Here it is seen that the fulcrum model makes a similar prediction to the averaging type models. The question still remains as to why the individual should decrease his evaluations of the stimulus object when presented with a second piece of information having the same direction. One could turn to Helson's (1959) adaptation level theory for a possible explanation. If a subject is given one piece of information about a stimulus object having an extremely high positive affective evaluation, then the subject may formulate some kind of a halo effect concerning the stimulus object, i.e., the subject may generalize from this one piece of information and expect the stimulus object to have other highly positive affective qualities. When in fact the subject is presented with a second piece of positive information which does
not quite measure up to his expectations, by contrast to the first piece of information the subject will be disappointed, i.e., his adaptation level will not have been reached and hence the subject will lower his evaluation of the stimulus object. Thus, on the basis of the fulcrum model, the following hypotheses are put forth:

1. Given a situation with three pieces of information, all having the same direction but different with respect to affective extremity and intensity (importance), that group of subjects given one piece of information with high affect and importance (herein represented by H) will have a more favorable impression than (a) that group of subjects given one piece of information with intermediate affect and importance (herein represented by M); also that group of subjects given one piece of information with high affect and importance will have a more favorable impression than that group given one piece of information with low affect and importance (herein represented by L).

2. That group of subjects given the two pieces of information H-M about the stimulus object will have an evaluative rating of the stimulus object which will fall between the evaluative ratings of that group of subjects given the one piece of information (H) and that group given the one piece of information (M).

3. That group of subjects given the two pieces of information M-L about the stimulus object will have an evaluative rating of the stimulus object which will fall between the evaluative ratings of that group of subjects given the one piece of information (M) and that group given the one piece of information (L). Furthermore, that group of subjects presented with the stimulus combination H-M-L will have an evaluative rating of the stimulus object which will fall below the obtained evaluative ratings of that group of subjects.
given just the one piece of information \((H)\).

4. On the basis of the fulcrum model the following order is predicted for the mean values of all combinations of information: \((H) > (H-L) > (H-M) > (H-M-L) > (M) > (M-L) > (L)\). This is in contrast to Fishbein's summation theory which would predict \((H-M-L) > (H-M) > (H-L) > (M-L) = (H) > (M) > (L)\).

Because of the possible effect of differential weighting of pieces of information due to sequential presentation (Anderson, 1965b; Anderson and Barrios, 1961), this experiment will also explore the effect of reversal of the order of presentation of the stimulus information for the separate groups receiving two or more pieces of information; hence corresponding to that group which obtained their information in a H-M-L order there will be a group which will receive their information in a L-M-H order; corresponding to that group of subjects which will obtain their information in a H-L order there will be a group of subjects which will receive their information in a L-H order; corresponding to that group of subjects which obtain their information in a H-M order, there will be a group of subjects which will receive their information in a M-H order; and finally corresponding to that group of subjects which receive their information in a M-L order, there will be a group of subjects receiving their information in a L-M order. Although no hypothesis is being made on the basis of the fulcrum model, a primacy effect will be obtained if the L-M-H group has a more favorable impression of the stimulus object than the H-M-L group and a recency effect will be obtained if the order is reversed i.e., if \((H-M-L) > (L-M-H)\).

Method

Subjects and Design. Two hundred ten Introductory Psychology students
attending Loyola University served as subjects in this study - each subject being randomly assigned to one of fourteen conditions. The general design was a $2 \times 7$ factorial involving two orders of presentation of stimulus material and seven levels of affective information.

**Issues.** In order to select the stimulus material, a pilot group of 35 subjects evaluated a number of political issues on five of Osgood's Semantic Differential Scales (beneficial-harmful; foolish-wise; dirty-clean; bad-good; and sick-healthy). A list of the political issues used are in Appendix I. The scales used were selected from the A scale of Fishbein and Raven (1962) and were utilized in order to select one issue of high positive affect, low positive affect and an issue of intermediate positive affect. Each scale then, consisted of a set of polar adjectives separated by the seven points of the scale. Thus, each concept rated could obtain a score ranging from -15 (negative evaluation) to +15 (positive evaluation). Also, each subject rated each issue on a seven point importance scale set up in semantic differential form with the polar adjectives being "extremely important" at one end and "extremely unimportant" at the other end. For example, the subject was asked, "How important do you consider the above issue, that is, how important is the above issue to you?" This is illustrated as follows:

```
important
```

The importance measure was scored by assigning a weight of 1 to the slot closest to the phrase "extremely unimportant" and a weight of 7 to the slot closest to the phrase "extremely important" and intermediate weights to those slots between the two ends. In this way, the weight or intensity of any one piece of information could be determined for each subject. Thus, on the basis
of the products obtained from the two scales (affective scales and importance scale) any one subject could obtain a score ranging from (7) (-15) or -105 to (7) (+15) or +105.

The issues selected consisted of (a) the one issue which had the highest positive evaluative x importance rating on the pilot test (attacking organized crime - mean rating = 57.7); (b) the one issue which had the lowest but positive evaluative x importance rating (European Common Market - mean rating = 14.7); and (c) an issue which had an intermediate evaluative x importance rating (highway expansion program - mean rating = 38.6), i.e., an issue having an evaluative x importance rating falling between attacking organized crime and the European Common Market. An analysis of variance performed on these ratings indicated that the issues were significantly different from one another ($F = 28.5999; df = 2, 102; p < .001$) and a Duncan's Multiple Range test indicated that the mean evaluative x importance rating for attacking organized crime was significantly more favorable than the mean evaluative x importance rating for the highway expansion program ($p < .005$) which in turn was significantly more favorable than the mean evaluative x importance rating for the European Common Market ($p < .005$). These three issues were selected because they fitted the necessary criteria of using one issue of high positive affect x importance score falling midway between the high and the low issues. Note that the obtained mean evaluative x importance scores have a 20 point interval between them (low = 14.7; intermediate = 38.6; high = 57.7). Also, these three issues had considerably less variance than any of the other pre-tested issues.

Experimental Procedure. Subjects in the actual study were given a test booklet, the first few pages of which contained a number of filler issues in
addition to the three issues of attacking organized crime (High), highway expansion program (Medium), and the European Common Market (Low). The particular issue to be evaluated on each page was centered at the top and enclosed in parentheses. The subjects were instructed as follows: "On this page and on each of the following pages you will be asked to evaluate a number of topics. The issue to be evaluated will be centered in the middle of the page and enclosed by parentheses. Following the issue will be a number of seven point scales. Place an "x" in the appropriate space on these seven-point scales. For example, if you feel that the issue is very good you might place your "x" as shown below:"

\[
\text{bad: } \_\_\_\_\_\_\_\_\_ : X : \text{good}
\]

\[
\text{very } \_\_\_\_\_\_\_\_\_ : \text{neutral } \_\_\_\_\_\_\_\_\_ : \text{very}
\]

The subjects then proceeded to rate the three issues of concern along with a number of filler issues on the above mentioned Osgood Semantic Differential Scales as well as five of Fishbein's (1962) B (Belief) scales. The Fishbein B scales utilized were impossible-possible; false-true; nonexistent-existent; improbable-probable; unlikely-likely. These five B scales were interspersed with the above mentioned A scales as well as with some filler scales. The B scales were set up in the same fashion as the A scales and they were scored in the same manner. Thus, for any one issue each subject could have a B score ranging from -15 to +15. The B scales were utilized in order to measure each subject's belief in the concept being rated.

After the subject evaluated the issue on the A and B scales as well as the filler scales, they completed their evaluation of the issue by rating it on an importance scale which was placed on the same page as the issue but immediately below the A and B scales. Here again as in the pilot group, the
subjects were asked: "How important do you consider the above, that is, how important is the above issue to you?" The subjects then checked one of seven positions of the seven-point scale which was illustrated above.

Thus, on the basis of the pre-test, three scores were obtained for each subject on each issue: an affect score, a belief score, and an importance score. These three measures were determined in order to predict the obtained evaluation score of the stimulus object, attributed one or more of these three characteristics, on the basis of Fishbein's summation formula or the Fulcrum formula.

After evaluating each of these three dimensions each subject was randomly given one of eleven communications. That is, each subject was given one, two or three pieces of information about a hypothetical Mr. X who was running for political office and then after reading the communication, the subjects were instructed to rate the hypothetical Mr. X on a seven point scale of like-dislike. For example, if the subjects felt that they extremely liked the candidate they were instructed to place their "x" as shown below:

extremely like: __ x ___________________ :extremely dislike

The eleven communications represent the eleven possible combinations of the three pieces of information presented singly, in combination and with order of presentation varied. Visually this may be represented as follows:

<table>
<thead>
<tr>
<th>Order of Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
</tr>
<tr>
<td>M</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>H-M</td>
</tr>
<tr>
<td>H-L</td>
</tr>
<tr>
<td>M-L</td>
</tr>
<tr>
<td>H-M-L</td>
</tr>
</tbody>
</table>

Pieces of Information
For example, one group of subjects was told, "Mr. X is in favor of attacking organized crime" (H group); another group of subjects was told "Mr. X is in favor of attacking organized crime and he is in favor of the European Common Market" (H-L group); and with order of presentation reversed another group of subjects was told "Mr. X is in favor of the European Common Market and he is in favor of attacking organized crime" (L-H group). This same format was followed for all treatment groups.

The obtained evaluation of the hypothetical Mr. X on the like-dislike scale was used to test the predictive power of Fishbein's summation theory and the Fulcrum theory by correlating this score with the predicted evaluation of the candidate based on the pre-test evaluation of the political issues on the A and B scales and the importance scale.

The obtained mean ratings of the hypothetical Mr. X also served as a basis to compare the differential predictions stemming from the summation theory and the Fulcrum theory; i.e., to determine whether two or more pieces of information combined in an additive fashion as predicted via Fishbein's model or whether they combined in a weighted average fashion as predicted via the Fulcrum model.

After all subjects completed the pre- and post-test evaluations, the experimenter informed them as to the nature of the research.

Results

Pretest evaluation of three critical issues. A separate analysis of variance was performed on the pretest measures for each of the three pieces of information that were used to describe the hypothetical Mr. X. Results of the ANOVA for the pretest measures on the issue attacking organized crime (high affect and high importance) are reported in Table 1. Results indicate
that the 14 experimental groups were comparable in the pretest evaluation of the issue attacking organized crime ($F = .5339$, df = $13/196$).

Results of the ANOVA for the pretest measures on the issue of the highway expansion program (intermediate affect and importance) are reported in Table 2. Results indicate that here also the 14 experimental groups were comparable with respect to their pretest evaluation of the issue highway expansion program ($F = .955$, df = $13/196$).

Table 1

ANOVA for Pretest Measures on Issue of Attacking Organized Crime

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>109.985</td>
<td>13</td>
<td>8.460</td>
<td>.5339</td>
</tr>
<tr>
<td>Within Groups</td>
<td>3105.539</td>
<td>196</td>
<td>16.845</td>
<td></td>
</tr>
</tbody>
</table>

Table 2

ANOVA for Pretest Measures on Issue of Highway Expansion Program

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>338.551</td>
<td>13</td>
<td>26.042</td>
<td>.9555</td>
</tr>
<tr>
<td>Within Groups</td>
<td>5341.429</td>
<td>196</td>
<td>27.252</td>
<td></td>
</tr>
</tbody>
</table>
Results of the ANOVA for the pretest measures on the issue of the European Common Market (low affect and importance) are reported in Table 3. Again the results indicate that the 14 experimental groups were comparable with respect to their pretest evaluations of the issue European Common Market ($F = .6264$, $df = 13/196$). Hence all experimental groups gave comparable pretest evaluations of the issues used to describe the stimulus object.

Table 3

ANOVA for Pretest Measures on Issue of European Common Market

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>238.13</td>
<td>13</td>
<td>18.3177</td>
<td>.6264</td>
</tr>
<tr>
<td>Within Groups</td>
<td>5731.44</td>
<td>196</td>
<td>29.2420</td>
<td></td>
</tr>
</tbody>
</table>

Also, a separate analysis of variance was performed to determine if the pretest evaluations of the three pieces of information used to describe the stimulus object were significantly different from one another as would be predicted from the results of the pilot group evaluation.

Table 4

ANOVA for Over-all Differences Between Premeasures on Attacking Organized Crime, highway Expansion Program, and European Market

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2660.424</td>
<td>2</td>
<td>1330.212</td>
<td>56.105*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>14865.243</td>
<td>627</td>
<td>23.709</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .001$
Results of the ANOVA are reported in Table 4. Results indicate that there was a significant difference in the evaluation of the three issues ($F = 56.105$, $df = 2/627$, $p < .001$). A Duncan's Multiple Range test was performed on the means of these evaluations and results indicate that attacking organized crime was rated significantly more favorably than the highway expansion program ($p < .001$) which in turn was rated significantly more favorably than the European Common Market ($p < .001$). See Table 5 for these results.

Table 5

Duncan Multiple Range Test for Differences Between Mean Ratings on Pretest Measures of Attacking Organized Crime, Highway Expansion Program, and European Common Market

<table>
<thead>
<tr>
<th></th>
<th>ECM</th>
<th>HEP</th>
<th>AOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>5.77</td>
<td>7.39</td>
<td>10.7</td>
</tr>
<tr>
<td>ECM</td>
<td>1.62*</td>
<td>4.93*</td>
<td></td>
</tr>
<tr>
<td>HEP</td>
<td>3.31*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .001$

Obtained Evaluations of the stimulus object. With respect to the Fulcrum model, it was predicted that the subject's evaluation of the stimulus object, Mr. X, would be a function not of the total amount of affect and importance of the affect that was associated with each of the pieces of information attributed to the stimulus object as predicted by Fishbein's summation model, but instead would be a weighted average function of the amount of affect and importance associated with each of the pieces of information attributed to the stimulus object. Table 6 presents the results of the ANOVA performed on the post-test measures of the evaluation of the stimulus object.
after having been attributed 1, 2, or 3 characteristics. Results indicate that there was no main effect for the order of presentation of the stimulus information ($F = .014, df = 1/196$); there was no interaction between order of presentation of stimulus material and amount of information ($F = .398, df = 6/196$); however, there was a highly significant main effect due to the amount of information presented about the stimulus object ($F = 8.744, df = 6/196, p < .001$).

Table 6
ANOVA for Post-Test Rating of Stimulus Object

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order (A)</td>
<td>.019</td>
<td>1</td>
<td>.019</td>
<td>.014</td>
</tr>
<tr>
<td>Information (B)</td>
<td>69.828</td>
<td>6</td>
<td>11.638</td>
<td>8.744*</td>
</tr>
<tr>
<td>A x B</td>
<td>3.181</td>
<td>6</td>
<td>.530</td>
<td>.398</td>
</tr>
<tr>
<td>Within Cell</td>
<td>260.867</td>
<td>196</td>
<td>1.331</td>
<td></td>
</tr>
</tbody>
</table>

*P < .001

Since there was no significant main effect due to order of presentation of stimulus material, order was collapsed, and a Duncan's Multiple Range Test was performed on the means of the remaining seven groups. Results of this test are presented in Table 7.

Inspection of this table reveals that the obtained mean ratings of the stimulus object for that group of subjects given only the one piece of information rated the stimulus object significantly more favorably than those sub-
jects given the one piece of information $M$ ($p < .001$); also, these same subjects rated the stimulus object significantly more favorably than those subjects given the one piece of information $L$ ($p < .001$). Although those subjects given the one piece of information $M$ did not rate the stimulus object significantly more favorably than those subjects given the one piece of information $L$, results approach significance at the $p = .1$ level. Thus, for both Fishbein's summation theory and Izzett's Fulcrum theory, empirical support has been obtained.

Table 7
Duncan Multiple Range Test for Differences Between Mean Ratings on Post-Test Evaluation of Stimulus Object

<table>
<thead>
<tr>
<th></th>
<th>L</th>
<th>M-L</th>
<th>M</th>
<th>H-M-L</th>
<th>H-M</th>
<th>H-L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>4.5</td>
<td>4.7</td>
<td>4.9</td>
<td>5.47</td>
<td>5.57</td>
<td>5.67</td>
<td>6.27</td>
</tr>
<tr>
<td>L</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.01</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>M-L</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.05</td>
<td>.01</td>
<td>.01</td>
<td>.001</td>
</tr>
<tr>
<td>M</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.10</td>
<td>.05</td>
<td>.05</td>
<td>.001</td>
</tr>
<tr>
<td>H-M-L</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.05</td>
</tr>
<tr>
<td>H-M</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.05</td>
</tr>
<tr>
<td>H-L</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.05</td>
</tr>
</tbody>
</table>

The critical comparison between the two models lies in the obtained ratings of that group of subjects given the two pieces of information $H-M$ with respect to those subjects given the one piece of information $H$ and those given the one piece of information $M$; also, another critical comparison lies in the obtained ratings of that group of subjects given the two piece of
information M-L and those subjects given the one piece of information M alone and the one piece of information L alone.

Inspection of Table 7 reveals that those subjects given the two pieces of information H-M rate the stimulus object significantly more favorably than those subjects given the one piece of information M (p < .05) but significantly less than those subjects given the one piece of information H alone (p < .05). This is in direct contrast to Fishbein's summation model but is as predicted by the Fulcrum model. Although those subjects given the two pieces of information M-L do not differ significantly from those just given the information L alone or M alone, the results are in the direction predicted by the Fulcrum model and are directly opposite to those predicted by Fishbein's summation model.

Further support is given to the Fulcrum model if one looks at that group of subjects which was given the two pieces of information H-L and that group of subjects given the three pieces of information H-M-L. Again, those subjects given the two pieces of information H-L evaluate the stimulus object significantly less favorably than those given the one piece of information H (p < .05). Again both of these findings lend support to the Fulcrum model and contradict Fishbein's summation model.

Correlational Data. Two predicted attitude scores were determined for each subject - one based on Izzett's Fulcrum model and the other based on Fishbein's summation model.

According to the Fulcrum model, an individual's attitude toward any stimulus object should be a weighted average function of the sum of the products of the evaluative aspect of any single piece of information (A1)
and the importance (I) of that piece of information to the subject divided by the sum of the importance ratings of each of the pieces of information. Thus, by the direct application of the formula a predicted attitude score was determined for each subject i.e.,

\[
\text{Predicted Attitude} = \frac{\sum_{i=1}^{N} A_i I_i}{\sum_{i=1}^{N} I_i}
\]

where \( A_i \) = the evaluation of the polarity of any piece of information about the stimulus object.
\( I \) = the importance of any piece of information about the stimulus object
\( N \) = the number of pieces of information.

Fishbein on the other hand, predicts that an individual's attitude toward any given object is a function of the sum of the products of the beliefs about the stimulus object (\( B_i \)) and the evaluative aspects of these beliefs (\( a_i \)). According to the Fishbein model then, the predicted attitude score for any one subject equals \( \sum_{i=1}^{N} B_i a_i \).

The intercorrelations between the two predicted scores and the obtained scores across all treatments are reported in Table 8. As indicated in the

Table 8
Intercorrelations of the Predicted Scores and the Actual Posttest Evaluation of the Attitude Object

<table>
<thead>
<tr>
<th>Fishbein Prediction (1)</th>
<th>Fulcrum Prediction (2)</th>
<th>Obtained (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>---</td>
<td>.79*</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>.61*</td>
</tr>
</tbody>
</table>

\*P < .005
Table both predictors are significantly correlated with the obtained scores ($p < .005$). However, the predictions based on the Fulcrum model are significantly more accurate than the predictions based on Fishbein's summation model ($z = 2.43, p < .01$). This finding lends further support to the Fulcrum model and again suggests that impression formation is a weighted average cognitive function rather than a function of cognitive summation. Furthermore, a partial correlation between the predicted and the obtained evaluation based on the Fulcrum prediction with the correlation between the Fishbein prediction and the obtained score partialed out results in a correlation of $+.4884$, while a partial correlation between the predicted and the obtained evaluation based on Fishbein's prediction with the correlation between the Fulcrum prediction and the obtained score partialed out results in a correlation of $-0.1068$ - a difference significant at $p < .001 (z = 6.53)$.

Two further correlations were obtained for those subjects who received only one piece of information about the stimulus object in order to determine the predictive power of Fishbein's belief component ($B_1$) and Izzett's importance component ($I$). The obtained correlation based on Fishbein's $B_1$ component is $+.46$ ($p < .005$) and the obtained correlation based on Izzett's ($I$) component is $+.58$ ($p < .005$). However, the two correlations do not differ significantly from one another ($z = 1.09, \text{N.S.}$). Furthermore, eliminating the three groups $H$ alone, $M$ alone and $L$ alone and working only with those groups of subjects receiving two or more pieces of information produces a correlation of $+.63$ for the Fulcrum model and a correlation of $+.41$ for Fishbein's model. The difference between these two correlations is significant at the $p < .05$ level, again pointing to the greater predictive power of the Fulcrum model.
Further, a rank order correlation, rho, was obtained for both Fishbein's summation prediction and the Fulcrum weighted average prediction. According to Fishbein's summation model the following order for the means of the obtained scores was predicted: \((H-M-L) > (H-M) > (H-L) > (M-L) = (H) > (M) > (L)\). The obtained rank order correlation for Fishbein's model was .53. However, this was not significantly different from zero \((z = 1.29)\).

According to the Fulcrum model, the predicted rank order for the means of the obtained scores was \((H) > (H-L) > (H-M) > (H-M-L) > (M) > (M-L) > (L)\). Here the obtained rank order correlation was 1.00 which was significantly different from zero \((z = 2.45, p < .01)\). Again, the evidence points to the greater predictive power of the Fulcrum model.

Discussion

This experiment set up a crucial test of the predictive powers of an additive model of impression formation (Fishbein) versus a weighted average model of impression formation (Fulcrum model) by presenting the subjects with one, two or three pieces of information which varied in terms of degree of affect and importance to the subject but with sign of affect held constant in all situations (positive). The results indicated that there was a significant main affect due to the amount of information presented to the subject; moreover, the results confirmed the prediction of the Fulcrum or weighted average model at the .001 level of significance and hence did not support the predictions generated from Fishbein's summation model.

The results indicated that there was no significant main effect due to the order of presentation of the stimulus material. One can interpret this in one of two ways. First of all, previous studies have indicated a primacy
effect for sequential presentation of stimulus information; however, although
this study varied the order of presentation of the stimulus information, the
information was presented in the format of either Mr. X is in favor of H-M
or Mr. X is in favor of M-H, which would be considered as simultaneous pre-
sentation of the stimulus material. Or alternatively, one could say that
for those subjects who received their information in the H-M-L, H-M, H-L
M-L order, their adaptation level concerning the stimulus object was contin-
ually lower since their expectancies of the stimulus objects were not met on
the basis of each prior piece of information and that those subjects receiving
their information in the L-M-H, M-H, L-H, L-M order had their adaptation level
raised with each successive piece of information. Perhaps by varying the time
interval over a period of a few days between successive pieces of information
a primacy effect may be obtained.

The results also indicate that the fulcrum model has greater power than
a summation model in predicting the obtained evaluation of a stimulus object
on the basis of prior knowledge with respect to the affective evaluation of
separate piece of information about the stimulus object and the importance
of these pieces of information to the subject; e.g., knowing the subject's
affective evaluation of the issues "attacking organized crime" and the "high-
way expansion program" as well as the importance of these issues to the sub-
ject, one can predict the subject's evaluation of another person who is in
favor of these two issues to a significantly greater extent on the basis of
a weighted average model of impression formation than on the basis of an
additive model.

In effect what is occurring, is that if a subject is given two (or more)
pieces of information about a stimulus object and each piece of information
is respectively of high affect and importance (H) and intermediate affect and importance (M) to the subject, then he will rate the stimulus object to a less favorable extent than if the subject were given only one piece of information about the stimulus object that was of high affect and importance. In other words, the more positive information you give a subject about a stimulus object, the more likely you will lower the subject's evaluation of that object if all of the information does not have the same affective importance to the subject.

This phenomena could be explained in terms of the expectations of the subject. If a subject is given just one piece of information about a stimulus object, and that piece of information has high positive affective importance to the subject, then the subject’s adaptation level concerning the stimulus object would shift in the direction of that piece of information (Helson, 1959). Those subjects would then have the high expectations that any other piece of information about the stimulus object would also have a high affective and importance value. For example, if a layman were told that Dr. X was an excellent research scientist at University Y, then they might also expect him to be an excellent teacher in the classroom. This being the case, then those subjects who are told that Dr. X is only a slightly better than average teacher (a piece of information which would normally be somewhat positively evaluated) by contrast to their first piece of information that Dr. X was an excellent researcher would not have their expectations met and hence there would be a displacement of the subject’s evaluation of the stimulus object in a downward direction—hence the averaging effect.

Likewise, those subjects given as their first piece of information that Dr. X is a slightly better than average teacher would evaluate the man to
only a slightly positive extent and hence their expectations of the man would not be as great as those subjects who are told that Dr. X is an excellent researcher, i.e., their adaptation level is lower; however, when these subjects are told that in addition to being only a slightly better than average teacher, Dr. X is also an excellent researcher, this piece of information more than meets their expectations concerning the man and hence the additional piece of information "Dr. X is an excellent researcher" has the effect of increasing the subjects evaluation of the man.

It is to be noted that Osgood's congruity theory would have made the same prediction in the above situation but in terms of the subjects striving to maintain cognitive balance or congruity. However, let us take another situation to point out the difference between Osgood's congruity model and the fulcrum model especially with respect to the expectations of the subject.

Suppose that a departmental committee on faculty appointments was looking for a man to join their department. Let us further suppose the department consisted of a staff in which everyone was an excellent teacher but that no one was doing any research and hence their concern was for a man who was an excellent researcher and that they were not at all concerned about the type of teacher this man was, i.e., being an excellent researcher was of prime importance (+7) on a 0 to +7 scale, and teaching qualities not being of any concern to the appointment committee receives a weight of zero (0).

The problem with Osgood's (1963) extension of his congruity theory is the assumed isomorphism between the subject's affective response to a piece of information and the weight given to that piece of information in forming an impression, i.e., in looking at Osgood's extension of his congruity theory:
Predicted Attitude = \[ \frac{|a_i| (a_i) + |a_{n_i-1}| (a_{n_i-1})}{|a_i| + |a_{n_i-1}|} \]

where \(|a_i|\) and \((a_i)\) = the absolute and algebraic evaluation of the "ith" piece of information

\(|a_{n_i-1}|\)

and \((a_{n_i-1})\) = the absolute and algebraic evaluation of the noun modified by \(i-1\) pieces of information.

Thus, if a subject affectively evaluates a piece of information as +3, the weight given to that piece of information is also +3 and if a subject affectively evaluates a piece of information as +1, the weight given to that piece of information is also +1; this theoretical thinking is in accord with the work of Podell and Podell (1963) which suggests that extreme pieces of information are given greater weight than pieces of information of intermediate value. The fulcrum model on the other hand assigns a separate weight to a piece of information on the basis of the importance of that information to the subject.

Going back then to our committee on faculty appointments, they have a need for an excellent researcher and obtaining such a man can reduce or satisfy (at least partially) this need, hence great importance is placed on the trait "excellent researcher"; and because there is no need for the man to be an excellent teacher, this trait is given no weight or importance at all - hence it has a value of zero.

Suppose now that the committee on faculty appointments obtained a letter of recommendation concerning an applicant in which it was indicated that the candidate was an excellent researcher but only a slightly better than
average researcher. Further, assume that excellent researchers are affectively evaluated as +3 on a -3 to +3 scale and that slightly better than average teachers are evaluated as +1 on the same scale. Then Osgood's prediction concerning the candidate would be:

$$\text{Predicted attitude} = \frac{|3| \times (+3) + |1| \times (+1)}{|3| + |1|} = \frac{9 + 1}{4} = 2.5$$

However, the fulcrum prediction would be:

$$\text{Predicted Attitude} = \frac{\sum_{i=1}^{N} A_i I_i}{\sum_{i=1}^{N} I_i} = \frac{(+3) + (+7) + (1) 0}{7 + 0} = 3$$

Hence, being only a slightly better than average teacher would be superfluous information to the committee on appointments according to the Fulcrum model, but according to Osgood's model it would hurt the candidate. However, according to S. Rosenberg (1968), a person may (depending on the occasion) ignore or assign weights of zero to some information. Hence, according to the Fulcrum model, the weight assigned to a piece of information depends on the make-up of the individual and his needs and what he considers to be important and does not necessarily carry the weight whose values is equal to the affective evaluation of the piece of information. This, however, is a point to be explored in future research.

The Fulcrum model also has some interesting implications with respect to source effects, and traits of the subject receiving the information such as intelligence and dogmatism. With regard to source effects one would expect more of an averaging effect and hence a less positive evaluation of a stimulus.
object with a high source than with a low source even if all information presented is positive. For example, if a high source said that a man was an excellent researcher, the general tendency of the recipient of the information might be that the man was also an excellent teacher, hence his expectations concerning the man as a teacher would be quite high. As a result of such high expectations any information which did not meet these expectations (e.g., the man is only an average teacher) would by contrast lessen the evaluation of the man; one might expect that the contrast between the expectation of the man and the actual information obtained would be greater if it stemmed from a high source than a low source and hence the high source would result in a less favorable impression of the man.

With regard to intelligence, one might expect that the more intelligent subject might have a greater capacity to have differential expectations concerning the traits of an object and hence if they are told that a candidate for an academic position is an excellent researcher, their expectations concerning the teaching qualities of the man might be more realistic than his lesser intelligent counterpart who following the "great man theory" might have high expectations concerning the candidate in all areas, hence the contrast then between the expectations of the high intelligent subject concerning the candidate and the actual obtained information on other traits may not be as great and hence there would be less of an averaging effect. One might also expect the reverse finding for dogmatic subjects, i.e., the higher the D score of the subject the more the averaging effect obtained. Although just speculation, these hypotheses would provide interesting topics for further research.
References


Appendix I
List of Issues Evaluated by Pre-Experimental Subjects

attacking organized crime
highway expansion program
European Common Market
federal aid to education
farm program
prison reform
nuclear test ban treaty
gun control
eliminating the draft
open housing
lowering the voting age to 18
foreign aid program
decreasing foreign travel
increasing tariffs
political patronage system
eliminating capital punishment
legalizing marihuana
social welfare program
farm program
Southeast Atlantic Treaty Organization
The dissertation submitted by Richard R. Izzett has been read and approved by members of the Department of Psychology.

The final copies have been examined by the director and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

April 23, 1969
Date

Signature of Adviser