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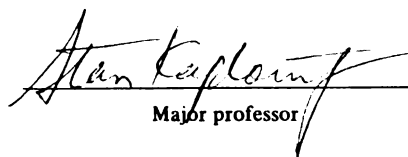
The Effect of Disconfirmation
and Discrepancy on
Attitude Change

presented by

Paul James Nemecek

has been accepted towards fulfillment
of the requirements for

M.A. degree in Sociology


Major professor

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THE EFFECT OF DISCONFIRMATION
AND DISCREPANCY ON
ATTITUDE CHANGE

By
Paul James Nemecek

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ABSTRACT

THE EFFECT OF DISCREPANCY AND DISCONFIRMATION ON ATTITUDE CHANGE

By

Paul James Nemecek

Experimental research was conducted to test the hypothesis that the relationship between discrepancy and attitude change is spurious with disconfirmation as the confounding variable. Experimental conditions were designed so that the effects of disconfirmation and discrepancy could each be analyzed while the other was held constant. Subjects were 183 students from a small liberal arts college. The hypothesis was disconfirmed, and in fact, the results clearly indicate a separate effect for discrepancy when disconfirmation is held constant.

Dedicated to Bev,
in appreciation of her support;
and to Jenny,
who brought us laughter when we needed it most.

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THE PROBLEM

Discrepancy and Opinion Change According to dissonance theory, individuals confronted with a message that is discrepant from their own opinion experience cognitive dissonance. This dissonance is likely to be reduced in one of four ways: (1) they can change their own opinion; (2) they can attempt to change the opinion of the communicator; (3) they can bolster their opinion by seeking social support; or (4) they can disparage the source and thereby invalidate the communicator's opinion (Festinger & Aronson, 1960). Most attempts at persuasive communication in a mass-communication setting do not allow for dialogue between communicator and audience, nor for discussion between members of the audience. For this reason, individuals in such situations are forced to reduce their dissonance by either changing their own opinions or by disparagement of the source (Aronson, Turner, and Carlsmith, 1963; Bochner & Insko, 1966; Brewer & Crano, 1968).

Hovland, Harvey, and Sherif (1957) found that individuals were inclined to change their own opinions if the position advocated was moderately discrepant from their own view. However, minimal opinion change occurred when the position advocated was considerably different, or minimally different, from the subject's own opinion. On the basis of their findings, Hovland, et. al. posited a curvilinear relationship between discrepancy and attitude change. Using a social judgment framework, they suggested that individuals

have a latitude of acceptance for discrepant messages. Messages that are extremely discrepant fall outside of this latitude of acceptance, are therefore rejected, and consequently produce little or no attitude change.

Philip Zimbardo (1960) conducted an experiment in which college students were led to believe that a close friend--who was also involved in the experiment--had an opinion that was discrepant from their own. In this experiment, Zimbardo found that the relationship between attitude change and discrepancy was significantly linear. That is, the greatest degree of opinion changes occurred when the position advocated was most discrepant.

Discrepancy and Source Credibility In an attempt to reconcile these seemingly contradictory findings, Aronson, Turner, and Carlsmith (1963) conducted experiments in which both source credibility and the level of discrepancy were varied independently. Using dissonance theory as their theoretical framework, Aronson et. al., suggested that a subject's response to a discrepant message depended on the credibility of the source. A discrepant message from a source with zero credibility would be expected to produce no dissonance, and therefore no attitude change. A source that was perfectly credible could not be disparaged and would therefore be expected to produce total acceptance of discrepant messages. It is assumed that a source with perfect credibility would make dissonance reduction by means of source disparagement impossible (by definition), thus

leaving the individual one option for reducing dissonance, total acceptance of the position advocated. A moderately credible source would produce maximum attitude change at moderate levels of discrepancy. A moderately credible source advocating a highly discrepant position is more susceptible to source disparagement, thus source disparagement, rather than opinion change, becomes the means of dissonance reduction.

In their experiments, Aronson et. al. did find significant differences in attitude change as affected by the credibility of the source and the level of discrepancy. As predicted, highly credible sources produced a relationship between discrepancy and attitude change that might best be described as a monotonically increasing curve. That is, there was a significant increase in attitude change between small and moderate amounts of discrepancy, and no significant decrease between moderately and highly discrepant messages. At extreme levels of discrepancy, sources of high credibility were shown to be more effective in producing attitude change. The moderately credible source produced the curvilinear relationship expected between attitude change and discrepancy. On the basis of their findings, Aronson, et. al. suggested that the seemingly contradictory findings could be reconciled by an understanding of the impact of source credibility as it relates to discrepancy and attitude change.

Bochner and Insko (1966) suggested that previous studies had not thoroughly manipulated the entire range of

discrepancy, and that the messages had simply not been discrepant enough for the highly credible source to be discounted or lose effectiveness. They predicted that messages that explored a full range of discrepant positions (recommendations ranging from eight hours of sleep to zero hours of sleep per night) would produce a curvilinear relationship between discrepancy and attitude change for moderate and high credibility sources. While their findings did not clearly support this prediction--the relationship for the high credibility source was significantly linear and not significantly curvilinear--there was a sharp decrease in attitude change at the most extreme level of discrepancy, even for the source of high credibility. While this decrease in attitude change did not appear to be statistically significant, the fact that there seems to be some limit to the effectiveness of discrepant messages--even with highly credible sources--is important for our purposes here.

What conclusions can be drawn from the research findings on discrepancy, source credibility, and attitude change? First, there seems to be clear evidence that when the messages are identical, the effectiveness of a highly credible source will be equal to or greater than the effectiveness of a source of moderate credibility. Secondly, the effectiveness of a moderately credible source is maximized at moderate levels of discrepancy. Third, sources of high credibility are always more effective than moderately credible sources at extreme levels of discrepancy. If we

compare the levels of discrepancy at which sources begin to lose effectiveness, sources of moderate credibility will always show a decline in effectiveness at a lower level of discrepancy.

One of the important assumptions made in the research on discrepancy and source credibility is that the credibility attributed to a communicator is based on personal characteristics of the source. Research done by Walster, Aronson, and Abrahams (1966) seems to cast doubt on this assumption. Walster, et. al. hypothesized that a communicator, regardless of his or her general credibility, would be more effective, and would be seen as more credible, when arguing for a position against his or her own best interest. In other words, the credibility attributed to a given source is affected by the perceived relationship between the communicator's self-interest and the content of the message.

In their experiment, Walster et. al. used a convicted mobster and a prosecuting attorney as their two sources (low and high credibility respectively). Each of the two communicators gave one of two different messages, one arguing for more power for law enforcement officials, the other for less power for law enforcement officials. As predicted, both communicators were rated more credible and were more effective when arguing for positions obviously against their own best interest. In one of the conditions (mobster and prosecuting attorney both arguing for more power for law

enforcement officials) the effectiveness of the low credibility source was greater--though not significantly--than that of the high credibility source. The significance of this finding should be clearer when placed in the context of the research on disconfirmation and attitude change.

Disconfirmation and Attitude Change Individuals who are ready to receive a message from a given source inevitably develop expectations of the message based on information about, or perceptions of, the source. The source's affiliations or perceived biases may create in the members of the audience expectations as to the content of the message. For example, in the Walster et. al. study cited above, one would expect a convicted mobster to argue for less court power. This expectation is based on the perceived vested interest of the source. For the same reason, one would expect a prosecuting attorney to be in favor of increased power for the courts. There is a significant amount of evidence suggesting that the same message will produce greater opinion change if it disconfirms expectations than if it confirms expectations (Eagly & Chaiken, 1976; Eagly, Wood, and Chaiken, 1978; Wood & Eagly, 1981).

Eagly, Wood, and Chaiken (1978) suggested that expectations of source messages are based on the attribution of one of two types of biases--knowledge biases and reporting biases. Knowledge biases are attributed to sources when the message recipient believes that the communicator's knowledge

about external reality is nonveridical. Reporting biases are attributed to communicators when message recipients believe that a communicator's willingness to convey an accurate version of external reality is compromised. Eagly, et. al. suggested that expectancies of the source's message are based on one or both of these attributional processes.

Their experimental design was a 2 X 3 design with confirmation of expectancy (confirmed or disconfirmed), and type of expectancy (knowledge bias, reporting bias, knowledge bias and reporting bias) as the independent variables. Subject's were asked to read a transcript of a meeting between a mayoral candidate and influential citizens whose support was important to the candidate. The issue to be discussed was the environmental waste disposal of a particular company.

The attribution of reporting bias was manipulated by changing the reported background of the audience (pro-business or pro-environment). The attribution of knowledge bias was manipulated by changing the reported background and past affiliations of the candidate. In every condition the same persuasive message was given. In this way disconfirmation was manipulated by varying expectations while the message was held constant. As expected, Eagly, et. al. found that messages that disconfirm expectations are significantly more persuasive than messages that confirm expectations.

In the Wood and Eagly (1981) study subjects were

selected who demonstrated relatively clear attitudes (pro or con) on the issue of pornography. Subjects were then given transcripts of two interviews with an anonymous (and fictitious) source. The first transcript contained information regarding the individual's attitude toward freedom of speech, but also included items such as religious affiliation, and his position on abortion. This first transcript was designed to establish expectations of the individual's attitudes toward pornography in the mind of the subjects. The second transcript was a report of the interviewed individual's attitudes toward pornography. In every case, these were arranged so that the attitude given was either moderately or extremely discrepant from the attitude of the subject.

Discrepancy was manipulated by varying the strength of the communicator's position. While different messages were used in the pro-pornography vs. anti-pornography conditions, the level of discrepancy within each condition was manipulated by having the source represent his feelings as "strong" or "moderate." Within each of the two larger groups of subjects (pro or anti-pornography), the experimental design created, in effect, four experimental conditions (2 X 2) with the variables being: discrepancy (moderate and extreme), and disconfirmation (expectation confirmed vs. expectation disconfirmed). They found, as expected, that the source was more persuasive when expectations were disconfirmed than when the subject's expectations were

confirmed. They also reported a lack of effects for the discrepancy manipulation, which they attributed to a message topic that was insufficiently involving for the subjects.

Wood and Eagly (1976) found similar effects for disconfirmation in a study in which subject's were asked to respond to statements about Watergate. Statements were attributed to one of three sources, each of which was designed to elicit various expectations. Again, statements that disconfirmed expectations were found to be more persuasive than messages that confirmed expectations. They also found that messages that were extremely disconfirmatory were somewhat less persuasive. Wood and Eagly suggested that at extreme levels of disconfirmation subject's are inclined to question the accuracy of the reporting of the source's statement. This is consistent with previous findings by Osgood and Tannenbaum (1955) who suggested that message recipients are inclined to dismiss extremely unlikely statements. Subject's question the accuracy of the statements (e.g., "he didn't really say that"), or the true meaning of the message (e.g., "that's not what she meant", or "her statement was taken out of context."). Extremely disconfirmatory messages then, are relatively ineffective at producing attitude change.

Disconfirmation and Discrepancy If we compare the expected effects of disconfirmation and discrepancy in relation to attitude change, we will discover a great deal of similarity with regard to expected effects. Both

discrepancy and disconfirmation produce an inverted u-shaped curve in relation to attitude change. Noting the respective formulations for the measurement of discrepancy and disconfirmation may clarify the relationship between them. Where D =discrepancy, m =message, and a_i =subject's initial attitude, discrepancy can be noted as:

$$D=m-a_i$$

Using m_e for expected message, m for actual message, and D^* for disconfirmation, the formula for calculating disconfirmation is:

$$D^*=m-m_e$$

It should be clear from this that any changes in the actual message (m) affect both discrepancy and disconfirmation. Wood and Eagly (1981) for example, attempted to manipulate discrepancy and disconfirmation independently. However, discrepancy was manipulated by changing the message, and as is demonstrated above, this affects disconfirmation also.

What has been taken as empirical evidence supporting the causal effect of discrepancy on attitude change may in fact be a spurious result of the confounding of discrepancy with disconfirmation. In situations where source characteristics or perceived source affiliations did not create clear expectations of bias, it is reasonable to assume that some expectations would exist. Kaplowitz and Fink (1983) suggest that expectations are formed even in the absence of prior information about the bias of the source. That is, in the absence of such information, the receiver should expect the

source's position to be consistent with the cultural norm. Furthermore, if the receiver perceives him/herself as typical or in keeping with the cultural norm, the receiver would expect the source to take a position similar to his or her own. Thus, what has been taken as empirical evidence supporting the causal effect of discrepancy on attitude change may in fact be a spurious result of the confounding of discrepancy with disconfirmation (Kaplowitz and Fink, 1983).

Obviously the effects of disconfirmation and discrepancy are difficult to disentangle. For example, in the Bochner and Insko study, sources recommended various hours of sleep each night. Attitude change was attributed to the effects of discrepancy. It should be clear however that the reported changes in attitude could as easily--and perhaps more accurately--be attributed to the effects of disconfirmation.

While the effect of discrepancy may be spurious, the effects of disconfirmation are clearly not spurious. In two of the studies cited (Wood and Eagly, 1981; Walster et. al., 1966) disconfirmation was manipulated by changing the source, while discrepancy was held constant by using the same message. In both cases, disconfirmation affected attitude change as expected. These studies clearly suggest that the relationship between disconfirmation and attitude change is not spurious.

The hypothesis to be tested then, based on theories posited by Kaplowitz and Fink, is as follows: the suggested relationship between discrepancy and attitude change is

spurious, and is the result of confounding discrepancy with disconfirmation, the actual causal variable. It should be clear from a review of the literature that previous studies have not adequately manipulated disconfirmation and discrepancy independently while holding the other nearly constant. The following experiment was designed to effectively disentangle disconfirmation and discrepancy by manipulating each variable at different levels while holding the other constant.

METHODS

Overview

Research was conducted in two stages at a small private liberal arts college. The first stage involved a pilot test designed to determine issues which showed little variance in initial attitudes, and to discover sources that seemed to evoke relatively clear expectations, with minimal between-subject variance. The second stage involved an experimental design in which sources and messages were varied so as to separately vary discrepancy and disconfirmation so that their effect on attitude could be measured.

Pilot Test

Two separate issues were selected for analysis in the pilot test. The college involved required students to attend chapel service two times per week. The college also prohibited co-ed visiting in the dormitories except during selected open hours which totaled eleven hours per week. These issues were selected because both seemed to be sufficiently salient for the student body and both issues allowed us to ask questions whose answers were naturally numerical and non-dichotomous.

The use of a natural numerical scale--as opposed to a Likert-type scale--enabled subjects to give answers with relatively consensual meanings, thus making the meanings of the responses reasonably objective. For example, the meaning of "four" as in four chapels per week, has greater objective meaning than does the value "four" as used in a seven-point

Likert scale. Numerical responses also enabled us to create formulas for the measurement of disconfirmation and discrepancy.

In the pilot test, students were reminded of the current policy on both of the issues, and then asked to state the policy that they would establish if they were so empowered. For example, on the matter of mandatory chapel attendance, the questionnaire read:

At present, students are required to attend two chapels per week. If you had the power to establish policy, how many chapels per week would you require?

Following this, the questionnaire stated: "Now we would like to know how you think certain other people, here and elsewhere, would think about the issue of chapel policy". Students were then presented with eight different source descriptions, and were asked to report their estimate of the attitudes of each of the eight sources regarding the issue. Following this, subjects were given this statement and question regarding open hours:

A second issue of concern is open hours. At present, open hours are held three times per week (Thursday evening and twice on Sunday for a total of 11 hours). However, policies on this issue are under consideration at a number of campuses throughout the country.

If you had the power to establish policy, how many hours per week would you establish? (There are 168 hours in a week). _____

Subjects were then asked to estimate the responses of the same eight sources used in the chapel policy question.

Sources used in the pilot study were selected to represent a broad spectrum of possible responses. The eight sources selected were: (1) the College Dean of Students (responsible for enforcing the policies in question); (2) the College Community Senate; (3) Faculty member X (a member of the faculty for 20 years who has been active in coordinating the Spiritual Life Retreat); (4) Student Development Staff; (5) the College Director of Campus Ministries; (6) Citizen Z (a recognized opponent of organized religion); (7) Citizen W (founder of the Moral Majority; and (8) the Chaplain at Bob Jones University (an institution known for its enforcement of an ultraconservative lifestyle).

Sampling Procedure Students from two different dormitory floors (one male and one female) were asked to participate in the pilot test. Information was presented and gathered by means of a printed questionnaire. The intent of the survey was presented as follows:

We are doing a study of student opinion on campus regarding policies of concern to the student body. As part of that study, we are attempting to gather information about student perceptions of various individuals and groups. Your cooperation would be of great value to us.

Of the 56 students living on these two floors, 36 participated.

Results of Pilot Test The responses on the pilot test were evaluated by calculating the mean and standard deviation for each of the eighteen responses (subject's own attitude and estimations of eight other attitudes on two different

issues). In evaluating our findings, we were looking for expectations of sources that showed low variance and that were at roughly equal intervals (See Table 1).

In comparing chapel policy responses with open hours responses we looked for an issue that showed minimal variance in terms of the subject's own view. This was calculated by comparing the standard deviations of the responses as a ratio of their respective means. The standard deviation for chapel responses was approximately one-half the size of the mean, as contrasted to standard deviations which were one to two times the mean for the issue of open hours. On the basis of these findings, we selected chapel policy as the issue best suited to our purposes

Having decided on chapel policy, we looked for four sources with four distinct levels of expectation at roughly equal intervals. When two sources were close in levels of expectation, we selected the source with the lowest standard deviation. Sources W (4.07), X (3.14), and Z (.97) provided three sources with distinct levels of expectation. In order to meet our criterion of four distinct levels at roughly equivalent intervals, we found it necessary to create a fourth source.

While sources W, X, and Z gave us sources at distinct levels of expectation, they did not meet the criterion of roughly equivalent intervals. By using the three sources tested in the pilot project, and adding a fourth source--Student Y--we were able to meet the criteria

Table 1 - Results of Pilot Test

(A)	<u>Chapel Policy</u>	<u>mean</u>	<u>std. dev.</u>
	Subject's own view	1.80	.84
	Citizen Z	.97	1.78
	Community Senate	2.27	.56
	Student Development Staff	2.40	.79
	Director-Campus Ministries	2.80	.88
	Dean of Students	2.82	.79
	Faculty Member X	3.14	1.08
	Citizen W (Moral Majority)	4.07	1.32
	Chaplain-Bob Jones U	4.20	1.49
(B)	<u>Open Hours</u>	<u>mean</u>	<u>std. dev.</u>
	Subject's own view	26.50	33.65
	Citizen Z	95.60	70.95
	Community Senate	19.40	21.66
	Student Development Staff	18.90	24.80
	Director-Campus Ministries	11.84	5.42
	Dean of Students	19.49	23.24
	Faculty Member X	11.25	14.00
	Citizen W (Moral Majority)	5.70	5.26
	Chaplain-Bob Jones U	6.61	15.61

outlined for our sources. Student Y was designed to be representative of the average college student (1.90)--and therefore the subject's own view. Using the mean of subject's responses on the pilot test, the expectation of Student Y was assumed to be 1.8. When combined with the three other sources, this gave us us the following four sources and source expectations: Citizen Z (.97); Student Y (1.80); Faculty X (3.14); and Citizen W (4.07). These four sources provided source expectations roughly equivalent (plus or minus .2) to one, two, three, and four chapels per week.

Experimental Design

To accomplish our objective of measuring the effects of disconfirmation as separate from discrepancy it was necessary to develop a design in which these two variables could be manipulated independently. Disconfirmation can be manipulated, while keeping discrepancy constant, by changing the source--and thus the source expectation--while keeping the message constant. For example, if Student Y and Citizen Z both give exactly the same message advocating 1.9 chapels per week, discrepancy remains constant while disconfirmation changes since the expectation of the source changes.

To manipulate discrepancy independent of disconfirmation, it is necessary to change the message and the source. For example, when Student Y advocates 1.9 chapels per week, and Faculty X advocates 3.25 chapels per week, both positions have a low disconfirmation (approximately .1), but the positions vary in terms of their

discrepancy.

Experimental Forms In our experimental design, each of the four sources was combined with one of two different messages, thus providing eight different experimental conditions (See Table 2). Basing our estimation of source expectations on the pilot test, we created one condition for each of the four sources in which disconfirmation was less than .5 and another condition in which disconfirmation was greater than 1.0. In this way, a design was created in which source and disconfirmation were independent of each other. Each of these conditions contained the following paragraphs in common:

We are doing a study of student opinion regarding chapel policy. We want to find out your opinion. Before we do, we want to present you with the opinion of another person. You may or may not agree with this opinion, but we hope it will help you clarify your own thoughts.

(SOURCE DESCRIPTION)

Recently, (source) made the following statement.

"In considering chapel policy, several things must be kept in mind. First, students at a religiously oriented private college have freely chosen to attend such an institution. Second, chapel can provide an opportunity for the expression of shared moral values and a sense of community. On the other hand, freedom of conscience is one of the most important values in American society. Considering all of these points, I believe that (message) required chapels per month is best for an institution such as this."

(NOTE: Since there are 4.3 weeks per month, this translates to () chapels per week.)

What is your opinion? If you had the power to establish policy, how many chapels per week would you require?

Table 2 - Experimental Conditions by Source and Message

<u>Source</u>	<u>Low Disconfirmation (less than .5)</u>	<u>High Disconfirmation (greater than 1)</u>
W	4.65	6.00
X	3.25	4.65
Y	1.90	3.25
Z	.47	1.90

The final sentence in the introductory paragraph, ("You may or may not agree with this opinion, but we hope it will help you clarify your own thoughts"), was added to minimize subjects' suspicions that this might be an attempt to persuade.

The experimental conditions differed only in terms of the source descriptions and the number of chapels recommended by the source. With the exception of the number of chapels recommended, the messages given in each of the experimental treatments were identical.

The message given to each subject contained statements supporting both sides in the issue of chapel policy. In this way, any number of required chapels recommended by a source could be seen as being consistent with the message. This enabled us to manipulate the independent variables (source and number of recommended chapels) while keeping the arguments in the messages constant. This eliminated the possibility that the arguments, rather than disconfirmation or discrepancy, were the cause of attitude change.

Source Descriptions Each of the eight experimental forms contained one of the following source descriptions:

Citizen W is the President of Liberty Baptist College and a leading spokesperson for the Moral Majority. He has been involved with a number of organizations committed to restoring the prominence of religion in American life.

Faculty member X has been at Spring Arbor College for more than 20 years and graduated from SAC when it was Spring Arbor High School. He has been active in coordinating the Spiritual Life Retreat

in recent years.

Student Y is a member of the Student Association at SAC, and is someone who has spent a good deal of time trying to become acquainted with students in order to adequately represent their views in Student Association.

Citizen Z is a recognized opponent of organized religion. This individual has initiated movements calling for the removal of "In God We Trust" from U.S. money, the phrase "one nation under God" from the pledge of allegiance, and the phrase "so help me God" from courtroom testimony.

The next section on the experimental forms involved self-reports on discrepancy and disconfirmation. Subjects were asked the following three questions:

1. How different is the view expressed from your own.
2. How surprised were you at the position advocated?
3. How many chapels per week did you expect this person would advocate?

For the first two questions, subjects were asked to respond using magnitude estimations. Instructions given were as follows:

Please tell us how different (or, for the second question, surprised) the view expressed on the previous page is from your own. If the view expressed is moderately different from your own, write 100. If the view expressed is no different from your own, write 0 (zero). If you think the view expressed is twice as different as a moderate difference from your own, write 200 (= 100 x 2). You may use any number between 0 and 100 for views that are less than moderately different from your own, and you may use any number greater than 100 for views that are more than moderately different from your own. While 0 is the lowest number you can use, there is no highest number.

The next section of the experimental forms involved

self-reports by the subjects regarding their opinions of the source involved. Subjects were asked to estimate how different the source was from themselves, and then asked to assess the source's trustworthiness, admirability, and expertness. In each case, magnitude estimation--where 100 represented a moderate amount of these characteristics--was used.

The final section of the experimental form asked for information regarding class standing at the college, and college plans for the following year. These questions were added as a possible check for seemingly extreme or unusual responses, the assumption being that a student who was not returning the following year, might be less inclined to provide genuine responses. The final section also include the question, "what were you thinking about as you filled out this form?". This was included to provide a check for possible suspicion and/or confusion.

Control Forms Control forms were used to gather information about the initial expectations of the sample population regarding chapel policy and each of the sources. The decision to include control conditions was based on several considerations. Because the pilot test was administered in different dorms at an earlier time, a comparison of the experimental results with the results of the pilot test would necessitate consideration of history and/or maturation effects. The use of control forms enabled us to gather information about initial expectations and

attitudes from the same population used in the experimental conditions, and at the same point in time. In addition to providing a better point of comparison, this gave us an additional check of the findings in the pilot study.

In the control forms, subjects were given no message of any kind. Each subject was asked for his/her own attitude toward chapel policy, after reading the following paragraph:

We are doing a study of student opinion regarding chapel policy, and we want to find out your opinion. We also want to know how you think other people, here and elsewhere, would think about the issue of chapel policy.

Following this, each subject was given the four source descriptions, in each case followed by the question, "How many chapels per week do you think (source) would want to require?". Each subject was asked to evaluate all four sources so that we could obtain a sufficient sample of source expectations.

It was necessary to determine initial attitudes of the sample group so that we could adequately measure the effects of disconfirmation and discrepancy. For each of the four sources, this question was followed by the four source characteristic questions described above. The final page of the control forms was identical to the final page of the experimental forms (what were you thinking about . . . ?, what is your class standing?, will you be returning next year?).

In order to control for possible order effects, the control forms were collated so that there were, in effect,

four different control conditions. In this way, each of the four sources occupied a different position in each of the control forms. For example, in the first control form, subjects were asked about Citizen W first, in the second control form, Citizen X came first, etc. (The order of the sources in Control Form 1 was WXYZ; Form 2 was XYZW, Form 3 was YZWX, and Form 4 was ZWXY). The end result was eight experimental forms (forms B1-B8), and four control forms (forms B9-B12).

Experiment Administration The survey was administered in a college dormitory by the researcher and four assistants. The dormitory housed 290 students (approximately 100 male and 190 female) on 10 different floors. Five floors were surveyed--individually by floor--at the same time. The remaining five floors were surveyed less than five minutes after the first five were completed, so as to minimize the possibility of student interaction and discussion. Each of the individuals administering the survey read from an identical script in which the students were told that this was a graduate research project. Each person administering the survey read the subjects the following script, identifying it as a message from Paul Nemecek:

As part of my Master's thesis, I am doing research on attitudes of college students regarding required chapel policy. I am also trying to gather information about student attitudes towards the opinions of other people.

There are a lot of things we want to know from you, but in the interest of time, we aren't asking all of these of all of you. For this reason, not all of you have the same form.

We do not want your name or other information, so you may be assured that your anonymity is guaranteed. It is essential that you do not communicate with one another while you are filling out the survey. Please fill out the survey to the best of your ability without asking questions or discussing. Thanks so much for your time and cooperation.

The subjects were, of course, not informed of the purpose of the research. Title pages had been prepared for the forms, so that each form appeared identical. The control forms were significantly thicker than the experimental forms; subjects were told that we wanted to gather a great deal of information, and that in the interest of time, we were not asking every person all of the questions. Before administering the survey, the forms were collated so that each of the experimental and control conditions was represented on every floor. Of the 290 students living in the dorm, 183 participated.

RESULTS

The initial attitude for subjects was determined by computing the mean response of subjects in the four control conditions. The message expected of the four sources was determined in the same way. Mean scores and standard deviations for these items are reported in Table 3.

Given a reliable measure of initial attitude, levels of discrepancy were determined for each condition by computing the difference between the initial attitude, derived from the mean response of subjects in the control conditions, and the message given in each experimental condition. Levels of disconfirmation were determined by computing the difference between the message expected, again derived from the control conditions, and the message given in each of the experimental conditions. The results of these computations are reported, by condition, in Table 4, along with the mean scores and standard deviations for the dependent variable, attitude.

The mean scores for attitude are also represented in Figure 1 by experimental condition. The solid line represents the four conditions in which disconfirmation was high (ranging from 1.49 to 2.12). The broken line represents those conditions in which disconfirmation was low (ranging from .14 to .77).

According to our hypothesis, this graph should show two lines that are essentially horizontal since disconfirmation is held constant, and it was predicted that holding disconfirmation constant, discrepancy would have no effect on

Table 3 - Message Expected of Source

<u>Source</u>	<u>Mean</u>	<u>Std. Dev.</u>
W	3.875	1.218
X	2.675	.666
Y	1.762	.650
Z	.276	.816
Subjects' attitudes	1.872	.695

Results based on combined reponses of subjects in the four control conditions.

Table 4 - Variables and Results by Condition

Group	Source	Message	Expected ¹ Message	Initial ² Attitude	Disconf. ³	Discrep. ⁴	Results Mean Std. Dev.
1	Y	1.90	1.76	1.87	.14	.03	1.784 .692
2	Y	3.25	1.76	1.87	1.49	1.38	1.625 .719
3	Z	.47	.28	1.87	.19	-1.40	1.721 .675
4	Z	1.90	.28	1.87	1.62	.03	1.759 .662
5	X	3.25	2.68	1.87	.57	1.38	1.886 1.111
6	X	4.65	2.68	1.87	1.97	2.78	2.028 .499
7	W	4.65	3.88	1.87	.77	2.78	1.969 1.217
8	W	6.00	3.88	1.87	2.12	4.13	2.441 1.467

¹Based on the mean of subjects' responses from control conditions.

²Based on the mean of subjects' responses from control conditions.

³The numerical difference between message and expected message ($m-m_e$).

⁴The numerical difference between message and initial attitude ($m-a_i$).

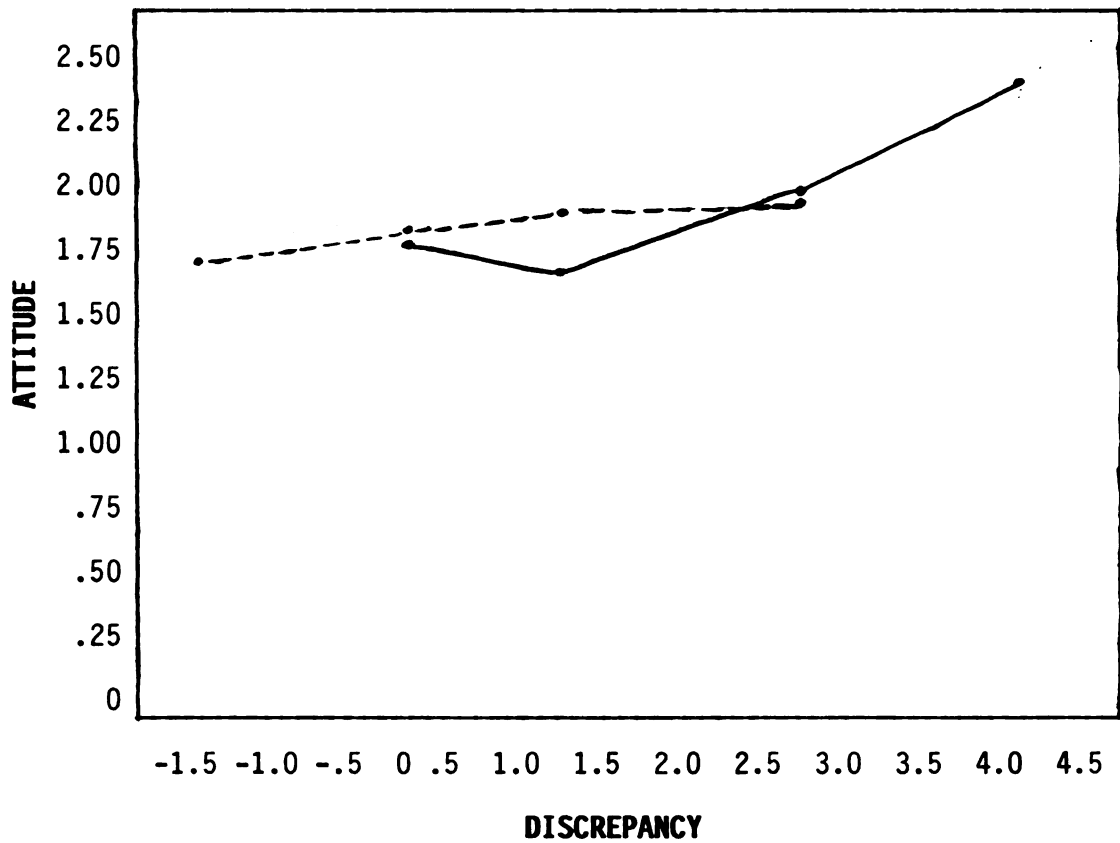


Figure 1 - Discrepancy and Attitude by Condition

Unit of Measurement = Chapels per week

High Disconfirmation —————
(Range of Disconfirmation = 1.49 to 2.12)

Low Disconfirmation - - - - -
(Range of Disconfirmation = .14 to .77)

attitude. It was also expected that the high disconfirmation conditions would produce greater attitude change than the low disconfirmation conditions. As can be seen from Figure 1, our findings do not support these predictions.

A regression analysis was conducted to examine the relationship between disconfirmation, discrepancy, and attitude change. The effects of the independent variables, disconfirmation and discrepancy, were analyzed individually and combined, to determine their effect on attitude, the dependent variable.

Discrepancy is operationally defined as the numerical difference between the subject's attitude and the attitude expressed in the message. Regression analysis indicates a significant effect of discrepancy in relation to attitude ($R^2 = .04105$, $p = .015$). Our hypothesis suggested no effect of discrepancy on attitude.

Disconfirmation is operationally defined as the numerical difference between the actual message (recommended chapels per week) and the expected message. Regression analysis of the effects of disconfirmation on attitude indicate a slight effect for disconfirmation ($R^2 = .01831$, $p = .107$). Our hypothesis suggested a more significant effect of disconfirmation in relation to attitude.

Our analysis of the relationship between disconfirmation and discrepancy shows a strong correlation between these variables ($R = .68$). When their combined effect on attitude is analyzed, we get results that are marginally significant

($R^2 = .04118$, $p = .053$).

The incremental effect of disconfirmation to discrepancy can be determined by calculating the difference between the combined effect of disconfirmation and discrepancy ($R^2 = .04118$) and the effect of discrepancy alone ($R^2 = .04105$). We can see from this that the incremental effect of disconfirmation is negligible (.00013). The incremental effect of discrepancy, again determined by comparing the combined score ($R^2 = .04118$) with the R^2 for disconfirmation alone (.01831), shows a somewhat greater effect. The difference (.02287) suggests a significant incremental effect of discrepancy in relation to disconfirmation.

DISCUSSION

Our study, contrary to our hypothesis, provides clear empirical evidence that discrepancy does have an effect on attitude when disconfirmation is held constant. In fact, in our study, discrepancy had a significantly greater effect than did disconfirmation. When looking at our findings alone, one might be tempted to suggest a spurious relationship between disconfirmation and attitude change with discrepancy as the confounding variable. However, the studies cited previously (Walster et. al., and Eagly et. al.) did find a significant effect for disconfirmation when discrepancy was held constant.

One possible explanation for the weak effect of disconfirmation, and the relatively weak effects overall, might be the limited range of the positions represented. That is, our experimental messages may not have been sufficiently discrepant and/or disconfirmatory to produce significant attitude change. The only condition to produce an effect greater than .2 units was the condition in which disconfirmation and discrepancy were greatest. In this condition, disconfirmation was measured at 2.12 units, and discrepancy at 4.13 units. The resulting effect on attitude was calculated to be .57 units of change in attitude. Theories of disconfirmation and discrepancy would both predict minimal attitude change when the independent variable is present, but not sufficiently large. A replication that provided a greater range of manipulation of the independent

variables, particularly disconfirmation, might produce results more in keeping with previous studies on disconfirmation and discrepancy.

This explanation, in and of itself however, would not account for the differential effect of the two variables. This might be explained by comparing the range and variance of disconfirmation and discrepancy. In the experimental conditions, disconfirmation ranged from .14 to 2.12, a difference of 1.98 units. Discrepancy on the other hand, ranged from .03 to 4.13, a difference of 4.10 units. When we compare the variances of disconfirmation ($s^2 = .558$) and discrepancy ($s^2 = 2.868$), we can see that discrepancy showed greater variance than disconfirmation. This could explain some of the difference between the effects of the variables, since a lower variance for an independent variable lowers the correlation with the dependent variable.

Another possible explanation for the weak effect for both variables might be found in the balanced nature of the messages. While the positions advocated varied by condition, the message and arguments did not. In order to manipulate disconfirmation and discrepancy independently, it was necessary to construct a message that could be used for all experimental conditions. It is possible that the balanced nature of the message (arguments for and against required chapels), served to minimize the effectiveness of varying the position by implicitly supporting the status quo.

Since discrepancy and disconfirmation were manipulated

by changing the advocated number of chapels without changing the persuasive arguments, it was necessary to construct a message that could be convincingly used to support any of our positions. It is possible that the lack of a clearcut persuasive message contributed to reduced cognitive processing and thus minimal attitude change. In other words, the subject presented with an ambiguous message may have simply chosen to resolve the ambiguity by maintaining his or her initial attitude.

Yet another explanation for the unexpected results would be that disconfirmation and discrepancy together affect attitude in a manner that is as yet not fully explained. For example, it is possible that the degree of attitude change is a function of a weighted average of the two variables. In our study, it could be that the relatively small effect of discrepancy is a result of the weak effect of disconfirmation. That is, a message that was only marginally disconfirmatory might not receive the same attention and cognitive processing as a message that was highly disconfirmatory thus producing an attenuated effect for discrepancy.

While our results do not confirm our hypothesis that the relationship between discrepancy and attitude change is spurious, they do provide some insights into the relationship between disconfirmation and discrepancy. Specifically, there is clear empirical evidence for a separate effect of discrepancy. When we combine this fact with the previous

studies demonstrating a separate effect for disconfirmation, it should be clear that future studies in discrepancy or disconfirmation should be so designed as to adequately account for the interaction of these two variables. Further studies are called for to explore the possibilities mentioned here and in so doing, further clarify the nature of the relationship between discrepancy and disconfirmation.

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