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The Effect of Discrepancy, Disconfirmation, and Extensiveness of Prior Knowledge of the Source on Attitude Change

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THE EFFECT OF DISCREPANCY, DISCONFIRMATION, AND EXTENSIVENESS OF PRIOR KNOWLEDGE OF THE SOURCE ON ATTITUDE CHANGE

By

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ABSTRACT

THE EFFECT OF DISCREPANCY, DISCONFIRMATION, AND EXTENSIVENESS OF PRIOR KNOWLEDGE OF THE SOURCE ON ATTITUDE CHANGE

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An experiment was conducted to investigate the effect of message discrepancy and message disconfirmation on attitude change. The amount of knowledge about the source's previous behaviors is the third variable. The more prior data points, the more confident should be the subjects in their expected position of the source. The more confident the subjects about their expectation the more the disconfirmation should affect the attitude change. Our experiment of (N=300) found a significant effect of discrepancy on attitude change. The relationship between discrepancy and attitude change seemed linear as predicted. We also found a significant effect of disconfirmation on attitude change. We found that attitude change is a monotonically decreasing function of disconfirmation. For the third variable there was no significant effect of the amount of knowledge about the source's previous behaviors on attitude change. We found that the large amount of knowledge about the source's previous behaviors did not enhance the effect of disconfirmation on attitude change.

Dedicated to my
parents Abdullah & Norah

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THEORY AND LITERATURE REVIEW

Among the variables which have been found to influence attitude change are message discrepancy, and message disconfirmation. Discrepancy is the difference between the position advocated by the message and the initial attitude of the recipient. Disconfirmation is the degree to which the position advocated and the position expected from the source differ.

Our first task is to review the discrepancy literature. Next, we shall review the disconfirmation literature. Finally we shall introduce our current study.

Aronson, Turner, and Carlsmith (1963) took the theory of cognitive dissonance as an approach to study the relationship between message discrepancy and opinion change. The theory suggests that when there is a discrepancy between the position advocated by the message and the initial opinion of the receiver, the receiver will be in the state of dissonance. Whenever dissonance occurs, it needs to be reduced. Someone who receives the message and can not communicate with the source, is likely to reduce the dissonance by one of two ways; either changing his/her own opinion or derogating the communicator.

According to Aronson et al. (1963), if the source is highly credible, there will be opinion change. If however, the source is less credible, derogation will

be the easiest avenue to reduce the dissonance.

Aronson et al. (1963) tested the following hypotheses. 1) For a highly credible source, the greater the discrepancy between the communicator opinion and the opinion of the recipient, the greater the opinion change. 2) If the communicator is only a mildly credible one, increases in discrepancy will increase opinion change up to a point. As the discrepancy becomes more extreme, the recipient will resort to disparagement, rather than opinion change, and the opinion change will decrease.

Aronson et al. (1963) found a significant effect of the discrepancy on opinion change. The study also discussed why previous studies tended to find linearity or curvilinearity relationships between discrepancy and opinion change. Linearity results when the communication is viewed as highly credible. Curvilinearity results when the communicator is viewed as only moderately credible.

Bochner and Insko (1966) hypothesized that opinion change would be curvilinearly related to discrepancy for both high and low credible source. They hypothesized that the hump on the curve would occur further out on the discrepancy dimension for the high credible source than for the low credible source. The study measured three dependent variables: opinions regarding how many hours sleep per night a person should receive, communicator disparagement, and

communication disparagement.

This study, unlike Aronson et al. (1963), treated communication and communicator disparagement separately. There were three independent variables manipulated: discrepancy, source credibility, and order of measuring dependent variables (opinion-disparagement or disparagement-opinion).

The result of this study showed that there is a curvilinear relationship between discrepancy and opinion change for medium credibility sources (which confirms the hypothesis). For the high credible source, the curve dropped markedly at that end, but the entire curve was nonetheless significantly linear and not significantly curvilinear (which did not support the hypothesis). Hence, this result supported Aronson et al.'s (1963) findings.

Jaccard (1981) studied message discrepancy and attitude change. In this study, three independent variables were manipulated: discrepancy, the confidence an individual has in his or her own position, and the confidence an individual has in the source (credibility of the source), and each variable has three levels (low, moderate, and high). This study resulted in a significant main and interaction effect of all the three independent variables on attitude change. But the effect varied according to the type of the confidence. When the subject is more confident in the source than in his/her own position, the relationship

between discrepancy and attitude change seemed linear. When the subject is more confident in his/her own position than in the source, or if his/her confidence in the source and in the self were equal there was little attitude change and there was not any notable relationship between discrepancy and attitude change.

Some aspects should be added to the discussion of discrepancy and its effect on attitude change. Lange and Fishbein (1983) studied the difference between peripheral dimensions and focal dimensions. The focal dimension is the positional differences, regardless of the categories to which these positions belong. The peripheral dimension is the different categories of the positions.

For example, when a student gets a grade of 50 or over, he or she will pass the test but less than 50 is not a passing grade. So, 49 or less are in a different category from 51 or over. The difference between 50, and 70 is 20, which is the difference on the focal dimension. The difference between failure and success is a difference on the peripheral dimension, because they belong to two different categories.

Lange and Fishbein (1983) found an increase of belief change, as the discrepancy increases within the same category of peripheral dimension. And the category differences between the recipient's position and source's position on a peripheral dimension decreased the receiver's acceptance of a message. This

resulted in less attitude change. They found that belief change is significantly greater if the position of source and position of receiver were in the same category of peripheral dimension, than if they were in the different category of peripheral dimensions.

Hence, a discrepancy within one category has more effect on attitude change than a discrepancy in a different category in opinion change. Therefore, the position of the source and the position of the recipient should be in the same category of peripheral dimension for discrepancy to cause a great deal of attitude change.

The previous studies showed some conditions affect the relationship between discrepancy and attitude change. The credibility of the source is an important variable. If the source is highly credible, the relationship tends to be linear. If the source is moderately credible, the relationship is curvilinear. Jaccard (1981) found linear relationship between discrepancy and attitude change when the subject was more confident in the source than in his/her own position. For the discrepancy to cause the greater amount of attitude change, the positions advocated should be belong to the same category of peripheral dimension as the subject's initial position.

Aside from studies investigating the relationship between discrepancy and attitude change, there are also studies devoted to the effect of the disconfirmation on

attitude change. The disconfirmation is the degree to which the position advocated by the source is different from the position expected from the source.

Eagly, Wood, and Chaiken (1978) studied the effectiveness of message disconfirmation in attitude change. The study manipulated both confirmation and disconfirmation as result of three types of biases: knowledge bias, reporting bias, or both. Eagly et al. (1978,P:424) defined these two biases as follows:

> Knowledge bias refers to a recipient's belief that a communicator's knowledge about external reality is nonveridical, and reporting bias refers to the belief that a communicator's willingness to convey an accurate version external reality is compromised.

The study created the knowledge bias by presenting the communicator himself as having a strong commitment to some values (pro-environment or pro-business). Reporting bias was created by portraying the communicator's audience as having a strong commitment to some values (pro-environment or pro-business).

In all conditions, the communicator advocated the pro-environment position. So, the disconfirmation occurred when the source's background (and/or audience) was pro-business and confirmation occured when the source's background (and/or audience) was pro-environment.

Eagly et al.(1978) found that regardless of the kind of source bias, disconfirmation of expectancy led to more persuasion than confirmed expectancy; and the recipients rated the communication more unbiased in the disconfirmed expectancy condition, than in the confirmed ones.

Wood and Eagly's (1981) study also studied the effects of disconfirmation on attitude change. An attributional analysis was made to explore the stages by which the persuasive messages led to opinion change. This study found that if the message is disconfirming, the recipients attribute the disconfirmation to factual evidence, and then view the communicator as unbiased. This enhances opinion change. In the case of expectancy confirmation, the subjects attribute the communicator's position to the communicator's background and view the communicator as biased.

Wood and Eagly's (1981) study found that while perception of the communicator as unbiased increases opinion change, perception of the communicator as biased increases message comprehension. As the message comprehension increases, the opinion change increases.

Although the perception of the communicator as biased led to more comprehension which, in turn, leads to more opinion change, the disconfirmed message was still more persuasive than the confirmed message. Wood and Eagly (1981) explained the reasons for this effect by concluding that perceiving the communicator as

unbiased, leads to attitude change by only one causal link (unbias ---> opinion change). But perceiving the communicator as biased needs two causal links (bias --> message comprehension ---> opinion change). So, the two causal links weakened the ability of a communicator seen as biased to cause opinion change.

The question of the effect of the confirmation (confirmed vs. disconfirmed expectancy) on the amount of attribution processing was investigated by Pyszczynki and Greenberg (1981). They examined the attributional analysis and found that people may engage in more thorough attributional processing, after observing unexpected events, than when they observe expected ones. This finding indicates that the disconfirmation enhances attributional processing. This finding helps us to know the process by which the confirmation and disconfirmation effect might occur.

Hunt and Kernan (1984) tested the Eagly et al. (1978) paradigm in a commercial advertising context. It was hypothesized that disconfirmed bias-related expectancy makes recipients:(1) accept the veridicality of the message, (2) view the message as unbiased, (3) judge the communicator as credible, (4) and engage in more message processing.

They declared that the study supports the above hypotheses, except for the third one (disconfirmation causes the communicator to be viewed as more credible). Subjects in disconfirmation group did not rate the

communicator more honest or sincere than did the subjects in confirmation group. So, there was no effect of the disconfirmation variable on whether the communicator was rated as credible.

Most of the previous disconfirmation studies found an effect of disconfirmation on attitude change. Both Eagly et al. (1978), and Wood and Eagly (1981), found that the communicator was perceived as unbiased when the expectancy was disconfirmed. Both Pyszczynki and Greenberg's (1981) and Hunt and Kernan (1984) found that the disconfirmation caused more attributional processing.

The previous studies all investigated discrepancy and disconfirmation separately. There are also studies which have studied both the two variables in one study.

Studying both of discrepancy (Dp) and disconfirmation (Df), in one study, has its advantages since the seeming result of any one of these two variables might be a spurious result of the other variable. By means of the orthogonal design of these two variables, we can disentangle their effects.

Most of the existing studies in disconfirmation and discrepancy, had colinear designs, where the correlations between disconfirmation and discrepancy were close to 1 or -1. It is a difficult in the colinear designs to disentangle The effect of these two variables. We can quantify discrepancy (Dp) as follows:

$$Dp = \underline{P}_A - \underline{P}_0 ,$$

and disconfirmation (Df) may be quantified analogously:

$$Df = \underline{P}_A - \underline{P}_E ,$$

Where $\underline{P}_0$ is the initial attitude of the subject, and $\underline{P}_E$ is the position expected from the source.

In most of the previous studies, disconfirmation and discrepancy designs were colinear as clarified by Kaplowitz, Fink, Nemecek, Mulcrone, and Atkin (1988,P:3) as following:

> By treating discrepancy and disconfirmation as characteristics of an experimental condition rather than of the individual, the typical study treats $\underline{P}_0$ and $\underline{P}_E$ as if they were constant across subjects receiving the same source description. Given this assumption, we see from the following equation:
>
> $$\underline{Df} = \underline{Dp} + \underline{P}_0 - \underline{P}_E ,$$
>
> that disconfirmation and discrepancy differ by a constant ($\underline{P}_0 - \underline{P}_E$) and are, therefore, perfectly colinear. Hence, it is possible that the observed relationship between discrepancy and attitude change is spurious, with disconfirmation being the true causal variable.

Two experiments by Kaplowitz et al. (1988) have tried to disentangle the effect of the discrepancy (Dp) and the disconfirmation (Df) in attitude change by examining them in the same study.

The first study was conducted in a small church-oriented college. The study sought students' opinions about the number of chapel services per week to be requested.

The discrepancy was manipulated by subtracting the initial opinion of the subjects about the chapels, from the position of the source. The disconfirmation was manipulated by varying both the source and (hence, the expected position) and the actual position of the source. This study found a significant linear effect of the discrepancy on attitude change, but no effect of disconfirmation.

The second study investigated the effect of discrepancy, disconfirmation, and focus of attention on attitude change. This study had many levels of disconfirmation, whereas most other studies dichotomized this variable (disconfirmation vs. confirmation).

The topic of criminal sentencing was chosen for the second study because it is possible to express the message and the responses on a numerical scale with ratio level measurement. Armed robbery from a bank was chosen as the crime based on a pilot study. The crime was chosen from 18 different crimes because the recommended years imprisonment for this crime had the lowest ratio of variance to mean.

For all conditions, subjects read that 10 years is the guideline for armed robbery. The guideline of

armed robbery of ten years was based on a pilot study. In the pilot study, subjects were asked about the appropriate sentence for armed robbery, and the median sentences found to be 10 years. In the experiment, variance in initial attitude was reduced by making the subjects believe that the sentencing guideline of ten years was based in a consensus of legal expert and was publicly accepted.

Judge Walters was the source in all conditions. In all conditions, subjects read a statement about Judge Walters' experience in the judicial system, including his sentences for three previous armed robbers. Subjects, also, read a statement from Judge Walters as he sentenced a certain new defendant (Defendant X) for the same crime (armed robbery).

This study varied the positions advocated by the source (Judge Walters). The positions of the source are the different sentences for Defendant X. By subtracting the initial attitude from the position of the source, the difference is the degree of discrepancy.

Disconfirmation was manipulated by creating various expectations of the source, before presenting the Judge Walters' sentence for Defendant X. The disconfirmation is the difference between the sentence Judge Walters was expected to pass, and the "actual" sentence he passed for Defendant X. Subjects were given the Judge Walters' three previous sentences for

armed robbery, and then they were asked about their expected sentences from the source as a manipulation check for their expectation. The design of the second study was perfectly orthogonal, which means that the correlation between discrepancy and disconfirmation is 0. This enables us to separate their effects.

The subject's focus of attention was directed to either source's bias or to the message. A source focus was created by asking subjects to keep Judge Walters' point of view and his degree of strictness in mind as they read his sentence for Defendant X. A message focus was created by asking subjects to think about the reasons Judge Walters gave for his sentence.

They measured attitude change by asking the subjects' position on the appropriate sentence for defendant X, after receiving the message from the source (Judge Walters).

The result of the second study found a highly significant linear relationship between discrepancy and attitude change, a marginaly significant quadratic effect of disconfirmation, no significant effect of focus, and no significant interaction effects.

The authors proposed one possible reason for the weak effect of disconfirmation on attitude change. The reason is that subjects might not be very confident about their expectation from the source.

With large number of previous sentences, the previous defendants will be regarded as typical

robbers. If subjects perceived the previous armed robbers as typical, they will be more confident in the expected position from the source. When the subjects get more confident about their expectation, they will be shocked if their expectation is disconfirmed, and will change their initial attitude about the appropriate sentence for armed robbery. If the subject change his/her initial attitude, he/she is likely to give Defendant X a different sentence from the orginal initial attitude. As the confidence about the expected position from the source increases, the effect of disconfirmation on attitude change may increases.

In Kaplowitz et al. (1988) the expectation was formed by only three previous sentences and this small sample may not have been enough to make subjects confident about their expectation as Kaplowitz et al. (1988,P:42) stated:

> The subjects, however, may have not been very confident about this expectation. This may explain why, when their expectations were disconfirmed, they did not strongly conclude that Defendant X must be atypical (worse than the typical robber). Instead, they may have concluded that the three previous robbers were atypical (less bad than the typical robbers).

For this reason, subject should have a good deal of confidence in the prior expectations of the source to have an effect of disconfirmation.

This study suggested a further research which our study will take in consideration as Kaplowitz et al. (1988,P:43) noted:

> This discussion has a clear implication for further research. A study should be done which varies the confidence of the expectation, by varying the number of prior data points the expectation is based on. We hypothesize that many prior data points should lead to higher confidence. This, in turn, should lead to more of an effect of disconfirmation than should fewer data points (less confident).

Our study has taken the Kaplowitz et al. (1988) study's suggestion for further research. Discrepancy and disconfirmation are again varied. The number of prior data points on which the expectation is based, is also varied, to manipulate the third variable. The prior behaviors are either three (for small number of data points) or one hundred (for large number of data points). By manipulating number of data points, we are also manipulating the amount of knowledge about the previous behaviors of the source.

The following hypotheses have been formulated for this study:

1) There is a positive linear relationship between discrepancy and attitude change. This hypothesis was based on the finding of Kaplowitz et al.

(1988).

2) There is a quadratic relationship between disconfirmation and attitude change. We also predict that the moderate disconfirmation has the greatest attitude change. This hypothesis is based on Kaplowitz et al.'s (1988) finding.

3) There should be interaction effect of disconfirmation and the amount of knowledge about the source's previous behaviors on attitude change. When there is a small amount of knowledge about the source's previous behaviors, there should be little effect, if any, of disconfirmation on attitude change. When there is a large amount of knowledge about the source's previous behaviors, there should be a greater effect of disconfirmation on attitude change.

We next have some hypotheses dealing with the specific situation dealt with in Kaplowitz et al. (1988) which we are replicating.

4) With the increase of disconfirmation, the judgements of badness of previous defendants decrease.

The judgements of badness of previous defendants decrease because with greater disconfirmation Defendant X's sentence (the new sentence) is increasingly greater than the previous defendants' sentences. This makes subjects conclude that Defendant X must be worse than the previous defendants, therefore, the judgement of badness of previous defendants will decrease.

5) The larger the amount of knowledge about the

source's previous behaviors, the less the effect of disconfirmation on judgements of badness of previous defendants.

With large amount of knowledge about the source's previous behaviors, increasing new sentence will not have much effect on the subjects' confidence about the badness of previous defendants because previous sentences are averages of large number of cases of armed robbery (100 sentences). The previous defendants should, therefore, be assured typical.

6) With the increase of disconfirmation, the judgements of badness of Defendant X increase.

The judgements of badness of Defendant X increase because with greater disconfirmation Defendant X's sentence is increasingly greater than the previous defendants' sentences. This makes subjects conclude that Defendant X must be worse than the previous defendants and then the judgements of badness of Defendant X will increase.

7) The larger the amount of knowledge about the source's previous behaviors, the more the effect of disconfirmation on judgements of badness of Defendant X.

With large amount of knowledge about the source's previous behaviors, increasing the new sentence should have little effect on the subjects' confidence about the badness of previous defendants because previous sentences are averages of large number of cases of

armed robbery (100 sentences), but with Defendant X (one case only) subjects will conclude that Defendant X must be worse than the average armed robbery.

METHOD

Overview.

Subjects were told that we are doing research regarding criminal justice system. Questionnaires were distributed to subjects, containing the pre-treatment measures, the experimental treatment, and the post-treatment measures. The questionnaire provided ten years in prison as the guideline for armed robbery, then some information about a judge and some previous sentences he had passed for armed robbery. Then the questionnaire provided a judge's recent sentence for the same crime. Subjects were then asked to indicate their view of the recent case as their final attitude measures. Our independent variables are discrepancy, disconfirmation, and amount of knowledge about the source's previous behaviors.

This study based mainly on Kaplowitz et al.'s study (1988) with some differences. Kaplowitz et al.'s study has manipulated two different foci of the subject's attention: source focus, and message focus, whereas our study manipulated only the source focus in all conditions. Another difference between these studies is that, we have manipulated amount of knowledge about the source's previous behaviors as the third independent variable. This variable was not manipulated in Kaplowitz et al.'s study, but was suggested by Kaplowitz et al.'s study (1988).

Features Common to All Experimental Conditions

The topic of criminal justice system was taken from Kaplowitz et al. (1988) study. The subjects in all conditions read that the Michigan sentencing guideline for the crime of armed robbery is ten years. They were further told that this guideline is a consensus of legal experts, and supported by a large majority of the public. (See P.59 of Appendix A). After that, we asked them about the appropriate sentence for armed robbery. This serves as the measure of the subjects initial attitude.

Subjects in all conditions read a description about certain judge, called Judge Walters (JW). (See P.61 of Appendix A). They read that (JW) is a judge in a large metropolitan area. He is in his fifties, has gray hair, is married, and has grown children. This descriptions was based on a pilot study by Kaplowitz et al. (1988). In this pilot study, subjects were asked to describe what they think the typical judge is.

The questionnaire provided information about Judge Walters experience in the judicial system, including his prior sentencing behaviors. It states the number of prior sentences he has passed for armed robbery, and states the average, the smallest, and the greatest of those sentences. The smallest sentence was always 20% below the average, and was created via multiplying the average by 0.8. The greatest sentence

was always 25% above the average, and it was created via multiplying the average by 1.25. (See P.61 of Appendix A).

For all conditions, subjects read the same message from the source (Judge Walters). The message explains the sentence (Judge Walters) passed on Defendant X. Defendant X's sentence was varied in each condition for the purpose of varying the discrepancy and the disconfirmation. (See P.63 of Appendix A).

In all conditions the following speech was given by Judge Walters, before pronouncing Defendant X's sentence:

> By threat of force and violence, you gained access to money which was not rightfully yours. You brandished a lethal weapon and made quite clear that you would not hesitate to use it if your crime were in any way resisted. Since there was no resistance, you did not fire your weapon, but the terror you instilled in all of those present will be with them for a very long time. Clearly, you played a major role in the planning and execution of this crime. Finally, your record shows that this is not the first time that you have violated the laws which create a civilized society. . . . Therefore, I sentence you to [number of years] in the penitentiary.

Prior to measuring the final attitude, in all

booklets, subjects read the following statement to prevent them from feeling an obligation to keep their initial attitude:

> In this study, you expressed an initial opinion, but since then, you have received additional information and have had additional time to think about this issue. Therefore, please feel free to change your views.

After this statement, subjects were asked to state what they think that should have been Defendant X's sentence. This is the final attitude. (See P.65 of Appendix A). In addition to measuring the final attitude, subjects were asked their views of Judge Walters, the criminals, the crime of robbery, some memory questions about this specific crime, and about their thoughts while deciding the appropriate sentence for Defendant X. These were possible intervening variables.

Manipulation of Independent Variables

Message discrepancy (Dp) is the difference between the message advocated by the source (P_A) and the initial attitude of the subject (P_0). The (P_0) is the individual initial attitude which, for most subjects, should be the guideline. Since, in our pilot study, and Kaplowitz et al.'s study (1988), the median initial attitude of the subjects was ten years, which is the guideline, we regarded ten years as the initial attitude (P_0) of the typical subject.

The position advocated by the source ($\underline{P}_A$) was varied to different levels (10, 22.5, and 50 years sentences) to create low, medium, and high discrepancy. (See P.63 of Appendix A). The reason of choosing 10 is to have a condition with zero message discrepancy. We chose 50 because we needed to have an extreme message in order to get an extreme message discrepancy. A sentence of 22.5 years was chosen to make the ratio of successive steps constant. We expressed the discrepancy and disconfirmation not by the raw numbers but by the logarithms because "if pairs of stimuli have the same ratio, the logarithms of the responses to them will be equally far apart." (Kaplowitz et al. 1988). For the discrepancy we needed three levels with constant ratio between adjacent sentences. In order to get these three levels, we went through three steps; 1) We want lowest sentence to be 10 and highest to be 50. 2) Therefore, our sentences are 10, 10x, and $10x^2$. Since $10x^2 = 50$, $x = 2.24$. 3) Therefore, if

$$Dp = \log_{2.24}(\underline{P}_A/\underline{P}_0) = Ln(\underline{P}_A/\underline{P}_0)/Ln(2.24),$$

our three levels of discrepancy became 0, 1, and 2.

Message disconfirmation (Df) is the difference between the message advocated by the source ($\underline{P}_A$) and the position expected from the source ($\underline{P}_E$). We formed the expectancy by varying the average of previous sentences that Judge Walters gave for armed robbery. There were five different averages: in the different conditions (2, 4.5, 10, 22.5, and 50 years). (See P.61

of Appendix A). These five numbers were chosen as the source's position (new sentences). According to the procedure for getting the discrepancy the base of the logarithm is 2.24, so, we took this base also to produce three levels of disconfirmation. In order to get the disconfirmation levels we used the following formula:

$$Df = \log_{2.24}(\underline{P}_A / \underline{P}_E) = \ln(\underline{P}_A / \underline{P}_E) \; / \; \ln(2.24).$$

As the result of this procedure, we got three levels of disconfirmation (0, 1, and 2).

Due to the three different positions advocated by the source ($\underline{P}_A$), and the five expected positions from the source ($\underline{P}_E$) we could have 15 different combinations (3 X 5) as our experimental design, but we confined it to only 9 combinations (3 x 3). We confined the design to the nine combinations, for two reasons. First, we do not want to have a negative discrepancy or a negative disconfirmation. Second, having these particular combinations makes our design perfectly orthogonal. The correlation between discrepancy and disconfirmation in our design is 0, which means that our design is perfectly orthogonal. Supposedly, if we included all possible combinations, the correlation would be 0.5, which is neither perfectly orthogonal nor perfectly colinear. For the experimental design of discrepancy and disconfirmation see table 1.

Table 1

Experimental design of discrepancy and disconfirmation

The Previous Average Sentence for Judge Walters PREVAVE (P_E)	New Sentence For Defendant X NEWSENT (P_A)		
	10	22.5	50
50	*	*	0/2
22.5	*	0/1	1/2
10	0/0	1/1	2/2
4.5	1/0	2/1	*
2	2/0	*	*

Note. Dp is the number of the right of the slash. Df is the number of the left of the slash.
An asterisk (*) means that the combination did not appear in the design.

The third independent variable is amount of knowlege of the source's previous behaviors. In our study, we manipulated this by varying the number of previous sentences given by Judge Walters for armed robbery. The smaller number is three previous sentences. The larger number is one hundred previous sentences. Subjects read either that Judge Walters has

passed three, or one hundred, previous sentences for armed robbery. (See P.61 of Appendix A). This variable was created to test our hypothesis that disconfirmation affects the attitude, more when there is large amount of knowledge, than when there is small amount of knowledge of previous behaviors. So, we have 18 different conditions (3 x 3 x 2), 3 Df, 3 Dp, and 2 different amount of knowledge.

Major Dependent Variable

The final sentence recommended for Defendant X is our major dependent variable. (See P.64 of Appendix A). We tried to make most subjects to choose ten years as their initial attitude. The effect of the independent variables on attitude change measured by looking to how the final attitude was affected according to the different levels of the independent variables.

Other Dependent Variables

As a manipulation check for the subjects' expectation, we asked about the average sentence they expected from Judge Walters in the future. (See P.62 of Appendix A). We expected the answer to this question to be predicted by the average of the previous sentences. The question was stated as following:

> If, in the future, Judge Walters passed 100 additional sentences for armed robbery, what is your best guess as to what the average of the additional sentences will be?.

Subjects were then asked how sure they were about their expected average. Then, subjects were asked about their expectation of smallest and largest possible values of the average to be passed by Judge Walters in the future. These questions were provided to check the manipulation of amount of knowledge about the source's previous behaviors and to see how confident the subjects about their expectation in large amount of knowledge vs. small amount of knowledge. (See P.62 of Appendix A).

We have some magnitude scaling questions. The questions measure the subjects' view of the criminals and the crime. Some questions were about Defendant X's sentence, such as how surprising and how unexpected this sentence was. Some questions were asked about how bad the previous armed robbers were and how bad Defendant X was. (See P.66 and 67 of Appendix A).

These questions allow subjects to respond to unbounded scale starting from zero up to any number, The scale was unbounded at the upper end. One hundred units was set as the moderate response for twoe of magnitude scales (SURPRISE and UNEXPECT). For example, if the subjects were asked about how surprising Defendant X's sentence was, they were told to use 100 as moderately surprising. In two of the magnitude scaling variables, namely, how bad were the previous armed robbers and how bad was Defendant X, one hundred unit was set as the average response. For example,

before subjects were asked about how bad previous armed robbers, they read the following statement (See P.67 of Appendix A):

> We are now going to ask you how bad you think various criminals are. To measure badness of criminals, let us now use a new "yardstick". As your new "yardstick", imagine that the average armed robber is 100 unit bad. You will then be comparing the badness of various criminals with the badness of the average armed robber.

The magnitude scaling questions also measure some cognitive processes implicated in any attitude change as intervening variables.

Subjects were asked about the guideline and Defendant X's sentence to make sure that the subjects remembered the main features and serve as a manipulation check for discrepancy.

Data Collection

A sample of three hundred undergraduate students in a communication class at Michigan State University participated voluntarily. The students were offered some class credit for participating. Before distributing the questionnaires, we read the oral instruction, which indicated the cover story of our study, that is study of public attitude towards the criminal justice system. Also we explained to the subjects how to answer the magnitude scaling questions

and some relevant information.

After That subjects received consent forms. The consent forms included some information about their right of withdrawing from the participation any time and other information. The various experimental forms were ordered and distributed randomly among the subjects. By interspersing the conditions, we gave all the conditions the chance to be distributed equally. The questionnaire took approximately 45 minutes to be answerd. After all the questinnaires were collected, the subjects were told about the actual purpose of this study.

RESULTS

Elimination of Subjects

We wanted subjects to think that the purpose of our study is knowing the attitude toward criminal justice system. We found whether they believed this by our question as to the purpose of the study. Some subjects showed that they did not believe in the cover story by saying the purpose of this study is to see how student affected by the Judge Walters' view, saying this is a psychological experiment, or saying the purpose is to see how students keep their view unchanged. So, those subjects who did not believe in the cover story or said they heard or participated in this study before, were excluded from the analysis. We excluded those subjects who heard or participated because Kaplowitz et al.'s study (1988) was done prior to this study and the data were collected in 1985. Both of mentioned study and ours used the same topic and similar questions. Due to this elimination we end up with 283 subjects from the original of 300 subjects.

Data Transformations

Normality and homoscedasticity are important assumptions in order to perform analysis of covariance and numbers of statistical test. Examining of dependent measures indicated that our raw data did not meet these assumptions.

To meet the assumptions, we did two different ways. First, we reduced the effect of outliers by recoding the most extreme responses to be less extreme. Initially, any response greater than 10,000 was recoded to 10,000. For two magnitude scaling questions, the highest numerical response, which was greater than 3,000 was recoded to 3,000. These two variables were SURPRISE and UNEXPECT. The basis for these recoding, was the ratio of the maximum value to the next to the highest value. If the ratio was more than three, the maximum value was recoded to 3,000.

Second, we transformed dependent measures by the logarithm since, the logarithm is an appropriate function to use with positive skewed data. Since, we have a zero value in most of variables, and the logarithm can not be used with zero value, we added constant values for any variable which has zero value before taking the logarithm. For each variable which had zero values, we tried different constants, choosing the constant which made the variable most normal and most homoscedastic.

The transformation resulted in minimal skew, which made our data close to normal. It also reduced the heteroscedasticity. In one of the variables, (DEFXBAD) we failed to come up with a satisfactory transformation by logarithm. So, we met the assumption by taking this variable to the power of -1, and this transformation made this variable close to the

normality and more homoscedastic. See Table 2 for the transformation procedures used. Table 3, and 4, show the dependent measures before and after the transformation, for both normality and homoscedasticity.

Table 2 Transformation Procedures

Dependent Measures	Transformation Used
ATT1	ln(ATT1)
ATT2	ln(ATT2)
FUTAVE	ln(FUTAVE)
SURPRISE	ln(SURPRISE+15)
UNEXPECT	ln(UNEXPECT+15)
BADPREV	ln(BADPREV+1)
DEFXBAD	100/(DEFXBAD)

Note. ATT1 = initial recommendation for armed robbery sentence. ATT2= recommended sentence for Defendant X. FUTAVE= the expected future sentence from the source. SURPRISE= how surprising Defendant X's sentence. UNEXPECT=how unexpectedness of Defendant X's sentence BADPREV=how bad previous armed robbers. DEFXBAD=how bad Defendant X.

Table 3 Normality For Dependent Measures

Dependent Measures	Skew Before Transformation	Skew After Transformation
ATT1	3.243	0.203
ATT2	1.865	0.299
FUTAVE	1.615	-0.030
SURPRISE	7.488	-0.313
UNEXPECT	7.146	-0.318
BADPREV	14.713	0.322
DEFXBAD	8.495	0.772

Note. For definition of the variables, See the note in table 2.

Table 4 Homoscedasticity For Dependent Measures

Dependent Measures	Variance Ratio Before Transformation	Variance Ratio After Transformation	Sample Size
ATT1	8.662	4.227	277
ATT2	23.032	4.427	283
FUTAVE	152.456	21.593	282
SURPRISE	109.099	2.308	283
UNEXPECT	193.480	2.244	282
BADPREV	2589.622	7.375	281
DEFXBAD	1188.192	4.281	282

Note. See table 2 for the meaning of the variable. Variance ratio= maximum variance / minimum variance. These variances were computed for 9 conditions, 3 discrepancy levels x 3 disconfirmation levels. The two amount of knowledge conditions were combined. Sample size ranges between 26 and 34 per cell, for a total N for each variable between 277 and 283.

Manipulation Checks

Disconfirmation (Df) and expected position (P_E). Subjects were asked about the expected average sentence (FUTAVE) from Judge Walter (JW) in the future. This question was asked after reading the JW's average (PREVAVE) in the previous armed robbery. PREVAVE predicted the subjects expectation of JW's average sentence in the future (FUTAVE), with r=.96, F(1, 280)=2946.25, P=.000. Not only was PREVAVE highly correlated with FUTAVE, but the standard deviations of these two variables were sufficiently similar that the slope (with FUTAVE as the dependent variable) was close to 1.0 (b= .915, s_b= .017). This results showed that subjects expected JW to behave the same way as he behaved before.

For the manipulation of the disconfirmation (Df). Subjects were asked about how unexpected (UNEXPECT) and surprising (SURPRISE) Defendant X's sentence. Both of UNEXPECT and SURPRISE were significantly affected by Df. By analysis of regression for Df and UNEXPECT, r=.48, F(1, 280)=83.7899, P=.000, for SURPRISE, r=.47, F(1, 281)=78.09215, P=.000. This result indicates that the unexpected and surprising among subjects differ according to the Df levels.

The response to UNEXPECT and SURPRISE expected to correlate and should be close to each other because

both questions carry the same meaning. The subjects' answers for these two questions correlated with r=.73. This result assured us that the subjects understood the questions and responded adequately, because their answers for both questions are similar. Also, this result assured the reliability of measuring unexpectedness, since these two variable correlated with each other. In short we successfully manipulated the disconfirmation and the expected position.

Discrepancy (Dp). We checked the manipulation by checking subjects' memory of the guideline and the sentence imposed on Defendant X. For the memory of the guideline the mean is 10.13, median is 10, standard deviation is 2.385 and 99.3 % of the subjects remembered that the guideline is 10 years imprisonment. The memory of Defendant X's sentence is strongly correlated with the actual sentence imposed on Defendant X, r=.994. So, subjects were aware of the discrepancy because the discrepancy was based on the difference between the guideline and the Defendant X sentence and subjects also were aware of the component of the discrepancy.

Subjects' initial attitude. In addition to constructing the ten years imprisonment as the guideline we asked subjects about their initial attitude. Since the guideline based on a study and number of pilot studies, our aim was to have the subjects' initial attitude on the proper sentence have

a mean of 10 years and small variance. In our study, the geometric mean for our pre-treatment measure was 10.35. Furthermore, 41.2% from the subjects chose ten years and 90.8% were in the range from five through fifteen years. Thus, these results were found to be sufficient to satisfy our pre-conditions and the acceptance of ten years as the guideline and the initial attitude for the subjects (P_0).

Amount of knowledge (Knowl). We expected the large amount of knowledge (Large Knowl) about the source's previous behaviors to make subjects more confident about their expectation from the source than small amount of knowledge (Small knowl). We asked the subjects about their confidence by the question of how sure they were about their expectation. The result showed a significant effect of Knowl on the confidence of the expectation (HOWSURE), $\eta^2 = .034$, $F(1, 281) = 9.973$, $p = .002$. The mean percentage of Large Knowl was 73.50%, whereas the mean of Small Knowl was 65.89%. Also, interestingly, we found a significant effect of PREVAVE on HOWSURE, $\eta^2 = .04$, $F(4, 281) = 2.982$, $p = .02$, this variable was not predicted to have an effct on HOWSURE. But, it was not surprising since different sentences might effect the confidence about the expected from the source.

We further checked the confidence of the subjects about expected average from JW in the future by asking subjects to write their smallest and largest

expectation of JW's average sentence in the future. We predicted that Large Knowl would have a smaller ratio of largest to smallest sentence than Small Knowl.

We transformed the mentioned ratio logarithmically (FUTRATIO). Then, a two way analysis of variance was performed to test the effect of two variables on FUTRATIO. The two variables are: Knowl and PREVAVE. We found significant effect of both of the two variables. The effect of PREVAVE had, $\eta^2=.04$, $F(4, 278)= 2.952$, $p=.021$, the effect of Knowl had, $\eta^2=.07$, $F(1, 278)=19.891$, $p=.000$. The geometric mean of this ratio for Large Knowl was 1.86, whereas the geometric mean of this ratio for Small Knowl was 2.48. Since, the subjects in Small Knowl group had a bigger ratio than the subjects in Large Knowl group, this finding indicated that subjects in Large Knowl group were more confident about their expectation from JW than Small Knowl group. See table 5 for FUTRATIO geometric means in both Knowl and PREVAVE.

Table 5 The Geometric Means For FUTRATIO

Amount of Knowledge	PREVAVE				
	2	4.5	10	22.5	50
Small Knowl	2.92 (n=15)	2.83 (n=33)	2.18 (n=46)	2.27 (n=31)	2.92 (n=14)
Large Knowl	2.10 (n=15)	2.23 (n=28)	1.72 (n=49)	1.77 (n=31)	1.67 (n=17)

Note. PREVAVE is JW's previous averages. Subjects for whom the smallest expected future average were larger than their greatest expected future average were excluded. Also, we added a constant 0.2 to the smallest to expectation, because in some cases there are values of 0, and the division by 0 can not be computed. Sample size ranges between 14 and 49 per cell, for a total N= 279. The sample size varied because there are some values of PREVAVs were used more than others (10 was used in three conditions, 22.5 and 4.5 were used in two conditions, whereas, 2 and 50 were used only in one condition). See table 1 for the conditions corresponding to each value of PREVAVE.

The above results revealed a successfull manipulation of the amount of knowledge variable, since subjects were more confident about their expectation in the large amount of knowledge group than in the small amount of knowledge group in both two measures, HOWSURE and FUTRATIO.

Experimental Effects on the Subject's Position

Three way analysis of covariance was performed to examine the effect of our independent variables on

attitude change. The independent variables are disconfirmation (Df), discrepancy (Dp), amount of knowledge of the source's previous behaviors (Knowl), and initial attitude ($\underline{P}_0$) as the covariate.

We found a highly significant effect of our covariate $\underline{P}_0$, $\underline{r}^2$=.17, $\underline{F}(1, 276)$= 100.954, $\underline{p}$=.000. There was a significant effect of Df, η^2= .013, $\underline{F}(2, 276)$= 3.7, $\underline{p}$= .026. Also we found a highly significant effect of Dp, η^2 =.36, $\underline{F}(2,267)$= 103.367, $\underline{p}$=.000. But we found no significant effect of Knowl and no significant interaction effect. For all variables $\underline{R}^2$=.543. See table 6 for a summary.

Table 6 Experimental Effect on Attitude Change

SOURCE	SS	DF	MS	F	P
Initial Attitude(P_0)	13.166	1	13.166	100.954	.000
Disconfirmation(Df)	.965	2	.483	3.700	.026
Discrepancy(Dp)	26.963	2	13.481	103.367	.000
knowledge(Knowl)	.302	1	.302	2.315	.129
Df x Dp	.433	4	.108	.831	.507
Df x Knowl	.074	2	.037	.283	.754
Dp x Knowl	.332	2	.166	1.271	.282
Df x Dp x Knowl	.177	4	.044	.339	.852
Explained	42.163	18	2.342	17.960	.000
Residual	33.649	258	.130		
Total	75.812	276	.275		

Note. Attitude change (P_1) as an effect of the disconfirmation (Df), the discrepancy (Dp), amount of knowledge of the source's previous behaviors (Knowl), and initial attitude (P_0) as the covariate. The analysis uses transformed data (i.e, the natural logarithm of the raw score.). Sample size ranges between 13 and 17 per cell, for a total N of 277.

Our finding seemed, that there was a strong linear relationship between discrepancy and attitude change, which support hypothesis 1. Our result seemed, that there was slightly linear relationship between disconfirmation and attitude change. The direction of the relationship for discrepancy was positively monotonic, whereas, disconfirmation had a negatively

monotonic with attitude change, which indicated that hypothesis 2 was not confirmed. The geometric mean and 95% confidence interval of sentence for Defendant X recommended by subjects, by discrepancy and disconfirmation levels, is shown in table 7.

Table 7

Geometric Mean (95% confidence interval) of Sentence for Defendant X Recommended by Subjects: by Discrepancy and Disconfirmation Level

Discrepancy Level	Disconfirmation Level			Unweighted Row Means
	0	1	2	
0	10.88 (9.85,12.02)	9.36 (8.06,10.86)	9.07 (7.96,10.33)	9.74
1	17.36 (15.66,19.25)	14.19 (12.83,15.69)	16.57 (14.17,19.38)	15.98
2	24.73 (20.01,30.57)	23.20 (19.93,27.01)	18.68 (15.64,22.31)	22.05
Unweighted Column Means	16.72	14.55	14.11	15.08

Note. The geometric mean is the anti-logarithm of the arithmetic mean of the logarithmically transformed data. The limits of the confidence interval for the geometric mean are obtained by taking the anti-logarithms of the limits of the confidence interval for the transformed data. The confidence limits are, therefore, asymmetric. The two amount of knowledge conditions are combined in this table. There are between 28 and 34 subjects per cell, for a total N= 283.

We found no significant interaction effect of disconfirmation and amount of knowledge about the source's previous behaviors on attitude change. This result indicates that the large amount of knowledge does not enhance the attitude change with the increase of disconfirmation. In all disconfirmation and discrepancy levels, the attitude change turned to be less in Large Knowl than in Small Knowl. In short, this finding does not confirm hypotheses 3, that the large amount of knowledge enhance the effect of disconfirmation on attitude change. This is shown by the fact that there was no interaction effect of disconfirmation and amount of knowledge on sentence recommended for Defendant X. (See table 8).

Table 8

Geometric Mean of Sentence for Defendant X Recommended by Subjects: by Disconfirmation and Amount of Knowledge

Knowl	Disconfirmation Level 0	1	2	Row Means
Small Knowl	17.64 (n=48)	15.64 (n=46)	14.30 (n=44)	15.80
Large Knowl	15.49 (n=49)	13.87 (n=47)	13.74 (n=43)	14.44
Column Means	16.44	14.73	14.01	15.03

Note. Total N= 277.

Experimental Effects on Possible Mediating Variables

We have two questions for magnitude scaling variables as other dependent variables. 1) How bad previous defendants, 2) how bad Defendant X. A three way analysis of covariance was conducted with each one of these dependent variables. The independent variables are Df, Dp, Knowl, and P_o as the covariate.

Subjects were asked to report their perception of how bad are the previous armed robbers were (BADPREV). We found a significant main effect of both Df and Dp. For Df, $\eta^2 = .04$, $F(2, 274) = 5.473$, $p=.005$. The geometric mean (anti-logarithm) of BADPREV for low, moderate, and high disconfirmation levels are; 129.02,

107.77 and 92.76. (See table 9). This result indicates that as the Df increases, the subjects tend to rate the previous armed robbers as less bad. This finding, supports hypothesis 4. For Dp, η^2 = .031, $F(2, 274) = 4.585$, $p = .01$. The geometric means across discrepancy levels, for low, moderate, and high are, 97.51, 104.58, and 131.63. This result showed that as the discrepancy increased the subjects rated the previous armed robbers as more bad, which is the opposite of the effect of disconfirmation on BADPREV.

Table 9

The Geometric Means of BADPREV By Df and Knowl

Knowl	Disconfirmation Level			Row Means
	0	1	2	
Small Knowl	125.2 (n=48)	111.05 (n=45)	75.94 (n=43)	102.51
Large Knowl	134.29 (n=49)	105.64 (n=47)	113.30 (n=43)	117.92
Column Means	129.02	107.77	92.76	109.95

Note. Total N= 275.

We found a marginally significant interaction effect of disconfirmation and amount of knowledge on BADPREV, $F(2, 274) = 2.315$, $p = .101$. While the p level corresponding to the interaction effect of Df and Knowl on BADPREV is greater than .05, that is a non-directional p level. Since we have a directional hypothesis (greater Knowl leads to less effect of Df on BADPREV), our true p level is half of that, or .05. This interaction effect is predicted by hypothesis 5. The subjects in Large Knowl group changed their view less than the subjects in Small Knowl with the increase of Df. For Small Knowl, the ratio of low Df to high Df is 1.65. For Large Knowl, the ratio of low Df to high Df is 1.18. So, the subjects in Large Knowl group are more confident about the badness of the previous armed robbers than the subjects in Small Knowl group.

The small Knowl ratio was produced by dividing the geometric mean of BADPREV for disconfirmation of zero level by the geometric mean of BADPREV for two units disconfirmation in small Knowl group (125.2 / 75.94 = 1.65). The Large Knowl ratio was produced by dividing the geometric mean of BADPREV for disconfirmation of zero level by the geometric mean of BADPREV for two units disconfirmation in Large Knowl group (134.29 / 113.3 = 1.18).

We predicted in hypothesis 5, when there is a large amount of knowledge about the source's previous

behaviors, disconfirmation has less effect on BADPREV than, when there is a small amount of knowledge. This hypothesis was confirmed in our study.

Subjects also were asked to answer the question of how bad is the Defendant X. We did not find a significant effect of the covariate, P_0. But we found a significant main effect of both of Dp, and Df. For Dp, $\eta^2 = .021$, $F(2, 274) = 3.284$, $p=.039$. The means for low, moderate, and high discrepancy respectively are, 138.89, 169.49, and 156.25. These means were computed by taking the transformed mean and using the inverse transformation to transform it back to the original metric.

For Df, $\eta^2 = .08$, $F(2, 274) = 11.807$, $p=.000$. The means for low, moderate, and high disconfirmation respectively are, 128.21, 175.44, and 172.41. This result indicates that judgement of badness of Defendant X increase with the increased of disconfirmation, which supports hypothesis 6.

Hypothesis 7 predicted that with small amount of knowledge, disconfirmation has more effect on DEFXBAD than with large amount of knowledge. We found no significant interaction effect of Knowl and Df on DEFXBAD, $F(2, 274) = 1.004$, $p=.368$. This hypothesis was not confirmed in our study because there was no evidence that with small amount of knowledge, disconfirmation has more effect on DEFXBAD than with large amount of knowledge. (See table 10)

Table 10 The Means of DEFXBAD by Df and Knowl

Knowl	Disconfirmation Level			Row Means
	0	1	2	
Small Knowl	131.58 (n=48)	192.31 (n=45)	166.67 (n=43)	158.73
Large Knowl	126.58 (n=49)	161.29 (n=47)	175.44 (n=43)	149.25
Column Means	128.21	175.44	172.41	153.85

Note. The means were computed by taking the transformed mean and using the inverse transformation to transform it back to the original metric. N=275.

In short, we did not find any significant main effect of Knowl on any of the magnitude scaling variables, but we have a marginally significant interaction effect of Knowl and Df on BADPREV.

DISCUSSION AND CONCLUSION

We have done a study, which separated the effect of disconfirmation and discrepancy. Our study used criminal justice sentencing as our topic. The sample was college students. We manipulated, discrepancy, disconfirmation, and amount of knowledge about the source's previous behaviors. In our study, we found a very strong effect of discrepancy on attitude change, a weak effect of disconfirmation, and no significant effect of amount of knowledge about the source's previous behaviors on attitude change.

Discrepancy. The relationship between discrepancy and attitude change in our study (as predicted by hypothesis 1) seemed linear. One important conclusion, therefore, is that the effect of discrepancy on attitude change is not a spurious one stemming from its correlation with disconfirmation. In reference to Kaplowitz et al's study (1988), which we shall call Judge Walters I, our result confirmed that there was a positive linear relationship between discrepancy and attitude change.

Some studies have shown clear evidence that extreme discrepancies are less persuasive than moderate ones, but typicaly, those studies have employed sources which are not highly credible and/or topics on which the subject is highly committed to his/her original view (see Kaplowitz et al. 1988).

In our study, we suspect that most subjects were not highly committed to their original view. Moreover, while Judge Walters was somewhat more than moderately credible, we do not believe he would be considered extremely credible. The geometric mean of the expertise rating was 148.41, where 100 is moderately expert. we conclude that, JW is more than moderately credible and the effect of Dp on the attitude change should be linear as proposed by Aronson et al. (1963). Our finding for the effect of Dp on attitude change was also seemed linear as stated earlier.

Disconfirmation. We found a significant effect of disconfirmation on sentence recommended for Defendant X. Both of Judge Walters I and our study (Judge Walters II), found that there was a significant relationship between disconfirmation and attitude change. Judge Walters II found that attitude change is a monotonically decreasing function of disconfirmation, whereas, Judge Walters I, found a quadratic relationship between disconfirmation and attitude change. Hence, hypothesis 2 was not confirmed in this study.

In Judge Walters I, the ratios of $\underline{P}_A$ to $\underline{P}_E$ for disconfirmation levels of 0, 1, 2, and 3, respectively are, 1.0, 1.7, 3.0, and 5.0. The maximum attitude change occurred when $\underline{P}_A/\underline{P}_E = 1.7$. In Judge Walters II, the ratios of $\underline{P}_A$ to $\underline{P}_E$ for low, moderate, and high disconfirmation respectively are, 1.0, 2.24, and 5.0.

The maximum attitude change was at zero disconfirmation (ratio of 1.0). So, our design of disconfirmation in Judge Walters II did not have a ratio of 1.7 for $\underline{P}_A$ to $\underline{P}_E$. We might have passed the hump of the curve, which made our result negative monotonic, instead of the quadratic relationship between disconfirmation and attitude change. It is possible that if we had a $\underline{P}_A/\underline{P}_E$ ratio close to 1.7, we could have come up with a quadratic relationship between disconfirmation and attitude change (as predicted by hypothesis 2).

In contrast with the effect of discrepancy on attitude change, in both Judge Walters I and II the effect of disconfirmation on sentence recommended for Defendant X were weak effects. The measures of strength respectively were, $\eta^2 = .013$ for Judge Walters II, and $\eta^2 = .006$ for Judge Walters I. We conclude from these two studies that the effect of disconfirmation on attitude change is very weak.

In hypotheses 3, we hypothesized that, the larger the amount of knowledge about the source's previous behaviors, the greater the effect of disconfirmation on attitude change. This hypothesis was not confirmed in our study. There was no significant interaction effect of disconfirmation and amount of knowledge about the source's previous behaviors on attitude change. Therefore, we conclude that the amount of knowledge about the source's previous behaviors is not an important variable to enhance the effect of

disconfirmation on attitude change. Varying the amount of knowledge to small and large does not make any difference in the effect of disconfirmation on attitude change.

Judge Walters I predicted that the large amount of knowledge about the source's previous behaviors increases the subjects' confidence about their expectation from the source. In this case, subjects will change their attitude with the increase of disconfirmation. According to our finding, we conclude that more confidence about the expectation from the source does not enhance the effect of disconfirmation on attitude change. This does not support the Judge Walters I prediction.

Hypothesis 4 predicted that, as disconfirmation increases, the judgements of badness of previous defendants decrease. Our finding showd that in both amount of knowledge groups, as the disconfirmation increased, the previous defendants were rated less bad. This result supported hypothesis 4.

Hypothesis 5 predicted that, the greater the amount of knowledge about the source's previous behaviors, the less the effect of disconfirmation on judgements of badness of previous defendants. This hypothesis was confirmed in our study. We found a significant interaction effect of disconfirmation and amount of knowledge on how bad previous defendants were. According to this result, we had some evidence

that subjects in large amount of knowledge group were more confident about how bad previous armed robbers than subjects in small amount of knowledge group.

Related to the last hypotheses, we had analogous hypotheses which concerned how bad Defendant X was viewed.

First, hypothesis 6 predicted that, as disconfirmation increases, the judgements of badness of Defendant X increase. This hypothesis was confirmed in this study.

Next, hypothesis 7 predicted that, the larger the amount of knowledge about the source's previous behaviors, the greater the effect of disconfirmation on judgement of badness of Defendant X. This hypothesis was not confirmed in our study. We found no significant interaction effect of disconfirmation and amount of knowledge about the source's previous behaviors on how bad Defendant X.

In reference to Judge Walters I, there was an interaction effect of disconfirmation and focus, and in source focus, with the increase of disconfirmation, the judgement of Defendant X as bad increased. The finding in Judge Walters II found similar results of Judge Walters I, we had a significant main effect of disconfirmation on how bad Defendant X, and as the disconfirmation increased, the judgement of how bad Defendant X increased. Therefore, We conclude that our findings confirmed the findings in Judge Walters I for

the effect of disconfirmation on how bad Defendant X.

As suggested by Judge Walters I, we manipulated the amount of knowledge about the source's previous behaviors to see how the disconfirmation effect attitude change according to the amount of knowledge (small and large) about the source's previous behaviors. But our result showed no significant effect of amount of knowledge on attitude change, and a weak effect of disconfirmation.

The weak effect of disconfirmation and a failure to find significant interaction effect of amount of knowledge and disconfirmation on attitude change might be a result of a weak manipulations of these variables. Clearly, an $\underline{r}^2$ of .91 between previous sentences and expected sentences indicates that our manipulation of expectation was highly successful, and how unexpected and how surprising the source's position were affected significantly by disconfirmation, which meant also, a success manipulation of disconfirmation. For the amount of knowledge about the source's previous behaviors there was a significant effect of this variable on the subject confidence about their expectation.

The confidence about the expectation measured by two variables, namely, how percent sure, and the ratio of the subjects' highest expectation to the smallest expectation, and the highest η^2 was .07. Even though, the relationship was not strong, subjects in large

amount of knowledge group have more confidence than subjects in small knowledge group, and the significant effect of amount of knowledge on these two variables indicated that we manipulated amount of knowledge variable successfully.

Conclusion

We find discrepancy to have a strong positively monotonic relationship with attitude change. We find a negatively monotonic relationship between disconfirmation and attitude change. We might have a quadratic effect of disconfirmation on attitude change if we had used appropriate levels of disconfirmation, which might be considered in future studies of disconfirmation. We find that the large amount of knowledge about the source's previous behaviors does not enhance the effect of disconfirmation on attitude change.

APPENDICES

APPENDIX A

Study of Public Attitudes
Towards the Criminal Justice System
Michigan State University

Form 122
1987-1988

Today's date _____
Course Number _____
Section Number _____
Class Time _____

Study of Public Attitudes

Towards the Criminal Justice System

There is great concern over whether the criminal justice system has the support of the community. Some people may feel that judges are very lenient towards criminals, but ignore the suffering of victims of crimes. Others, however, may feel that overly harsh punishments make criminals more likely to commit crimes in the future and tend to encourage cruelty in the society.

If the law is to be supported, people must believe that the criminal justice system serves the needs of society. While not everyone need agree with every judicial decision, it is necessary that the public understand the way in which the criminal justice system functions and the kinds of factors which can enter into sentencing decisions.

In this study, you will first be asked about your own experience with the criminal justice system and your acquaintance with people who work in this system. You will then be told of a recent real-life decision by a judge. You will be asked some questions about this decision. The answers you provide will help make judges more aware of your concerns since your answers will be reported to the US Commission on Judicial Reform. This body is currently studying sentencing policies and practices in various states.

Please read all questions carefully and give each of them the carefully thought out answers they deserve. This is not a speed test. Please try to answer all questions on the form.

Part I

Below you will be asked some questions about your experience with the criminal justice system. Please answer them honestly. Be assured that your response is totally anonymous and confidential.

1. Are you personally acquainted with anyone who has been judge in criminal trials?
   ____ Yes (1)
   ____ No (0)

2. Are you personally acquainted with anyone who has been an attorney in criminal trials?
   ____ Yes (1)
   ____ No (0)

3. Have you, or anyone you know, ever been a witness in a criminal trial?
   ____ Yes (1)
   ____ No (0)

4. Have you or anyone you know well, ever been a defendent in a criminal trial?
   ____ Yes (1)
   ____ No (0)

Part II

Sentencing Guidelines

The sentence you will be examining was for the crime of armed robbery.

The State of Michigan, along with many other states, has issued a Sentencing Guidelines Manual. These Guidelines, which are based on a consensus of legal experts, are to assist judges and provide some degree of consistency in sentencing. Below is a copy of the cover of the Sentencing Guidelines Manual of the State of Michigan.

The Michigan Sentencing Guideline for the crime of armed robbery is 10 years imprisonment. The sentence for this crime is not only a consensus of legal experts, but has also been found to be supported by a large majority of the public.

These Guidelines, however, are recommendations, not laws. Because many people feel that a judge must be able to take into account the special features of each case, the law permits a judge to pass a sentence which is considerably greater or considerably less than the Guideline.

To make sure that you have absorbed all of the information above, please answer the following questions. REFER TO THE PRECEDING PAGE, IF YOU NEED TO REFRESH YOUR MEMORY.

1. On the views of which group of people are the Sentencing Guidelines based?

_____

_____

2. What is the Sentencing Guideline for the crime of armed robbery? _____ years imprisonment

3. How does the public feel about this particular Guideline?

_____

_____

4. Think of some reasons which might be used to justify the selection of 10 years as the Guideline for the crime of armed robbery.

_____

_____

_____

5. How many years in prison do <u>you</u> think is an appropriate sentence for the crime of armed robbery?

_____ years

(<u>Note:</u> You need not choose a <u>whole</u> number of years but do choose a <u>number</u> of years. Hence, please do not choose "life imprisonment" or "death." The death penalty is not allowed in Michigan.)

6. Are judges <u>required</u> to follow these Guidelines?
___ Yes (1)
___ No (0)

7. Why or why not?

_____

_____

_____

Part III

As stated earlier, while the State of Michigan has Sentencing Guidelines, the State still allows Judges to make up their own minds in passing sentences. Therefore, a sentence may deviate considerably from the Guidelines, for a variety of reasons.

We will now give you some information about a particular judge, Judge F. Walters. The following are excerpts from a recent report on various Michigan Judges, which was compiled in July, 1987.

> Judge F. Walters is a judge in a large metropolitan area. He is in his fifties, has gray hair, is married, and has grown children.
>
> He has had many years of experience as a judge in criminal cases. In imposing sentences, he sometimes imposes the sentence recommended by the Sentencing Guidelines. However, he places the greatest weight on his own judgment.
>
> In his many years of judicial experience, Judge Walters has had to pass sentence on many defendents for a variety of crimes. . . .
>
> Of those defendents, 100 were convicted of, and sentenced for, the crime of armed robbery. Of these 100 sentences for armed robbery, the average sentence he imposed was about 22.5 years in prison. The smallest of these sentences was 18 years while the greatest of them was 28.1 years. . . .
>
> (Criminal sentences are typically expressed in as a certain of years plus a certain number of months. To improve comprehension, however, this report has expressed parts of a year in decimal format. For example, 6 months is expressed as .5 years.)

Like all people, different judges have different points of view. Some tend to be more severe with defendents who have been found guilty, while others tend to be more lenient.

Answer the following questions, before you turn to page 8.

1. Keeping in mind what you have learned about Judge Walters, how severe do you view him?

_____

_____

If Judge Walters continues to be a judge for many more years, he may pass many more sentences for armed robbery. Suppose he passes 100 more sentences for armed robbery. These 100 sentences may not all be the same. We would like to know what you think will be the average of the next 100 sentences he may pass for armed robbery.

2. If, in the future, Judge Walters passes 100 additional sentences for armed robbery, what is your best guess as to what the average of the additional sentences will be?
_____ years imprisonment

3. How sure do you feel about the guess you have just made? If you feel completely certain it is correct, choose 100%. If you feel completely certain it is incorrect, choose 0%. If you feel it is equally likely to be right or wrong, choose 50%. You may use any number between 0% and 100%.

I feel ____ % sure of my answer to question 2 above.

Above, we asked you for a best guess about the average of the future sentences Judge Walters will pass. You may, however, not be totally certain of what his average sentence will be in the future. So we will now ask you to specify a range for Judge Walters' average sentence for this crime.

Think about what you expect Judge Walters' average sentence to be over the next 100 sentences for armed robbery. What are the lowest and highest believable values for the average of his next 100 sentences?

4. What do you see as the smallest value of Judge Walters' average sentence in future armed robbery cases, which you would find believable?
_____ years imprisonment

5. What do you see as the largest value of Judge Walters' average sentence in future armed robbery cases, which you would find believable?
_____ years imprisonment

Part IV

Since the release of the report which we quoted, Judge Walters has had to pass a sentence for armed robbery on a new defendent, whom we shall call Defendent X. We will now present the statement Judge Walters made as he sentenced Defendent X. As you read it, keep in mind Judge Walters' point of view, as well as your own point of view.

> By threat of force and violence, you gained access to money which was not rightfully yours. You brandished a lethal weapon and made quite clear that you would not hesitate to use it if your crime were in any way resisted. Since there was no resistance, you did not fire your weapon, but the terror you instilled in all of those present will be with them for a very long time. Clearly, you played a major role in the planning and execution of this crime. Finally, your record shows that this is not the first time that you have violated the laws which create a civilized society. . . . Therefore, I sentence you to 50 years in the penitentiary.

Before proceding further, let us be sure that certain facts are clear in your mind. To assure this please take a moment to answer the following questions. YOU MAY TURN BACK TO REFRESH YOUR MEMORY IF NECESSARY.

1. What was the Sentencing Guideline for the crime of armed robbery? _____ years imprisonment

2. What sentence did Judge Walters pass on Defendent X? _____ years imprisonment

STOP

You will soon be asked to evaluate Judge Walters' sentence for Defendent X. But before you do so, it is important that you review and think about

1) the Sentencing Guideline for the crime of Armed Robbery

2) Judge Walters' sentence for Defendent X

3) How strict or lenient Judge Walters generally is and the sentence he has given before

4) Your own view of the appropriate sentence

Please spend at least a minute reviewing and thinking before turning the page.

* *

* * * ONCE YOU HAVE TURNED TO THE NEXT PAGE, PLEASE DO NOT RETURN TO ANY PAGE BEFORE THIS. * * *

* *

Part V

When a jury hears a case, the members typically give their initial views. Then, after they have heard the evidence, they give their final views. In this study, you expressed an initial opinion, but since then, you have received additional information and have had additional time to think about this issue. Therefore, please feel free to change your views.

We know that you do not have all of the information that Judge Walters had when he imposed the sentence he did. Nonetheless, please answer the following questions the best you can. While some of the questions may seem very similar to others, please answer all of them.

1. To how many years in prison do you think defendent X should have been sentenced?

   (Note: You need not choose a whole number of years) but do choose a number of years. Hence, please do not choose "life imprisonment " or "death." The death penalty is not allowed in Michigan.)

   I think Defendent X should have been sentenced to _____ years.

We will next be asking you some questions using a kind of scale with which you may not be familiar. While some scales have 100 as a maximum value, the scales which follow treat 100 as a moderate value and have no upper limit.

2. Think back to the sentence expected before you read Judge Walters' speech sentencing Defendent X. How surprising did you find the sentence he imposed on Defendent X?

   If you found the sentence not at all surprising, write 0 (zero). If you found his sentence moderately surprising, write 100. If you found his sentence twice as surprising as moderately surprising, choose 200 (2 x 100). If you found his sentence half as surprising as moderately surprising, choose 50 (1/2 x 100). You may use any number between 0 and 100 to indicate a level of surprise which is less than moderate and any number greater than 100 for to indicate a level of surprise which is greater than moderate. While 0 is the lowest number you may use, there is no "highest number".

   Judge Walters' sentence of Defendent X was _____ units surprising to me.

3. Think back to the sentence you thought armed robbery should receive before you read Judge Walters' sentencing speech. How different was Judge Walters' sentence of Defendent X from your own prior view of a proper sentence for armed robbery?

   Imagine that 100 is moderately different from your own view. If you think the difference between your view and Judge Walters' sentence is twice as much as a moderate difference, rate it as a 200. If you think the difference between your view and Judge Walters' view is half as much as a moderate difference, rated it as a 50. If Judge Walters' sentence is not at all different from your view, rate it 0 (zero). You may use any number you wish, from zero on up.

   Judge Walters' sentence was _____ units different from the sentence I initially would have have imposed.

4. How expert a judge do you think Judge Walters is? (Imagine that 100 is moderately expert.)

   I think Judge Walters is _____units expert.

5. How fair a judge do you think Judge Walters is? (Imagine that 100 is moderately fair.)

   I think Judge Walters is _____ units fair.

6. How serious a crime is armed robbery? (Imagine that 100 is moderately serious).

   I think armed robbery is ____ units serious.

7. Think back to the sentence you expected before you read Judge Walters' speech sentencing Defendent X. How unexpected did you find the sentence that Judge Walters imposed on Defendent X? (Imagine that 100 is moderately unexpected.)

   I found the sentence Judge Walters imposed on Defendent X _____ units unexpected.

   We are now going to ask you how bad you think various criminals are. To measure badness of criminals, let us now use a new "yardstick".

   As your new "yardstick", imagine that the average armed robber is 100 units bad. You will then be comparing the badness of various criminals with the badness of the average armed robber.

8. Think back to the people Judge Walters sentenced for armed robbery, prior to his sentence of Defendent X. How bad are they.

   I think those people previously sentenced for armed robbery, by Judge Walters, were _____ units bad.

9. How bad is Defendent X? (Again, imagine that the average armed robber is 100 units bad.)

   I think Defendent X is _____ units bad.

Part VI

We would now like to ask some factual questions. Please answer them, without looking up the information in the questionnaire. Do not worry if you do not recall some of the answers. The questionnaire is anonymous, and you are not being graded.

1. Prior to his sentence of Defendent X, how many defendents did Judge Walters sentence for armed robbery?
   _____ defendents

2. The average of those prior sentences was _____ years imprisonment.

3. The lowest of those prior sentences was _____ years.

4. The highest of those prior sentences was _____ years.

For the next few questions, place a check next to True, for statements, which are TRUE, according to the speech made by Judge Walters as he sentenced Defendent X. Place a check next to False, for statements, which are FALSE, or which were not stated or implied in Judge Walters' sentencing speech.

5. In the armed robbery in which Defendent X took part, someone was shot.
   _____ True (1)
   _____ False (0)

6. Defendent X played a major role in the crime.
   _____ True (1)
   _____ False (0)

7. This robbery was the first crime Defendent X had committed.
   _____ True (1)
   _____ False (0)

8. Hostages were taken in that armed robbery.
   _____ True (1)
   _____ False (0)

Part VII

We know that we have asked you many questions and some of them may seem very similar to others. We want to assure you that we do have reasons for asking them and to request your patience and co-operation in answering them.

1. Think back to when you were making your decision as to the appropriate sentence for Defendent X. What thoughts did you have which were relevant to that decision?

   While I was deciding on the sentence, I thought:

   _____

   _____

   _____

   _____

   _____

2. Have you previously heard about this study?
   ____ Yes (1)
   ____ No (0)
   If "yes", please explain briefly what you heard.

   _____

   _____

   _____

3. Have you previously participated in this study?
   ____ Yes (1)
   ____ No (0)
   If "yes", please explain briefly.

   _____

   _____

   _____

4. In your own words, please describe what you think the purpose of this study is.

   _____

   _____

   _____

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

November 6, 1987

Dr. Stan Kaplowitz
Sociology

Dear Dr. Kaplowitz:

Subject: Proposal Entitled, "Study of Public Attitudes Towards the Criminal Justice System"

I am pleased to advise that I concur with your evaluation that this project is exempt from full UCRIHS review, and approval is herewith granted for conduct of the project.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval prior to November 6, 1988.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to my attention. If I can be of any future help, please do not hesitate to let me know.

Sincerely,

Henry E. Bredeck, Ph.D.
Chairman, UCRIHS

HEB/jms

APPENDIX C

Pilot Studies

One purpose of the pilot studies was to serve as an initial manipulation check for the three independent variables. The other purpose was to be more certain that our questions were understandable before conducting the actual study.

Two pilot studies were conducted. Both involved subjects answering the questionnaire and our interviewing some of the subjects. In the first pilot study, subjects were seventeen students from a community college. And the second study used eight students from the same college.

Some weaknesses of our questionnaire were encountered and needed to be improved. We found that some subjects confused the number 2000, which was indicated as the number of defendants in all different crimes, sentenced by Judge Walters, with the number of armed robbery defendants. The armed robbery sentences were either 3 or 100 throughout all conditions. After the pilot study, we omitted mentioning the number 2000, to prevent subjects from the confusion because the number of previous armed robbery sentences is very important as a manipulation for the amount of knowledge

about Judge Walters' previous sentences.

Based on the interview, some subjects tended to think of the expected future sentence from Judge Walters as the sentence expected for a single defendant. So, we instead of saying what is the average of additional sentence, we changed it to ask the average of the next 100 sentences, and made the word average bold in the text.

We originally had a number of multidimensional scales provided in the end of the questionnaire. Based on the interview, most subjects found these questions confusing ones. So, we omitted them from the actual study to prevent subjects from the confusion and from being overburdened by many questions.

We found that the question of how fair and the question of how trustworthy conveyed the same meaning. So, we eliminated the second question because the answer to one of them seemed sufficient.

Some initial manipulation checks. We combined the two pilot studies in the purpose of doing some data examination for the manipulation check of the three independent variables. The independent variables are; disconfirmation (Df), discrepancy (Dp), and the amount of knowledge about Judge Walters' previous behaviors (Knowl). We have some questions for the manipulation checks.

The questions of how unexpected and how surprising Defendant X's sentence were analyzed for

dint levels of disconfirmation. In the pilot st.e have only two levels of disconfirmation, they ar. and high disconfirmation. We found the mean unetedness and surprising of low disconfirmation lesan the mean of high disconfirmation. The means resively for UNEXPECTED are 52.78, and 135.91. The meain SURPRISE for low and high disconfirmation resively are 25, and 132.91. This result showed thatbjects found these sentences more unexpected and morerprising in high disconfirmation condition than in l.disconfirmation condition. This result sugge.ed that disconfirmation was manipulated succefilly.

'o the expectation manipulation check, subjects were ski about their expected sentence from Judge Walte. n the future after reading the previous averag sentence of Judge Walters. In our pilot study, the previous average predicted the expected average sentence rom Judge Walters, with $\underline{r}$= .99. This finding assures u that the sentence expected from the source was manipulated well.

For discrepancy, we asked two questions: one for the memory of the guideline, and the other for the memory of the sentence Judge Walters imposed on Defendant X. In the pilot studies, all the subjects remembered the guideline as 10 years, and all the subjects also remembered Defendant X's sentence. Remembering these numbers assures us they are aware of

the components of discrepancy.

For the manipulation of the amount of knowledge about the source's previous behaviors, we varied the levels of amount of knowledge into two levels: small amount of knowledge, which is 3 defendants, and large amount of knowledge, which is 100 defendants. We expected large amount of knowledge to produce more confidence about the expected position from Judge Walters. We asked subjects about how sure they are (on a scale of 0% to 100%) about their expected average sentence from Judge Walters in the future.

We found in the pilot study, that the subjects were more confident about their expectation in the large amount of knowledge group than in the small amount of knowledge group. The mean and median for the large amount of knowledge respectively were 72.3% and 75%, whereas in the small amount of knowledge, the mean and median respectively were 61.3% and 55%. This result indicated a success manipulation of the amount of knowledge variable.

We further checked the manipulation of amount of knowledge by getting the ratio between the highest and smallest expected value in both the large and small amount of knowledge. We expected the group with a large amount of knowledge to have a smaller ratio because the more confident the subject about his/her expected average the smaller the range will be between his/her largest and smallest expected sentences.

We ranked the ratios, so, that the largest ratio received number 1 and ending by the smallest ratio which received rank 25. In the group with large amount of knowledge, the mean and the median rank are larger than the mean and the median rank in the group with small amount of knowledge. The mean and median ratio for large amount of knowledge respectively have ranks 14.6, and 17.5, whereas the mean and median for small amount of knowledge group respectively have ranks 9.8 and 9. Since these ranks are smaller the ratio is bigger. This is also another indication of the success of the manipulation of the amount of knowledge.

Although the discrepancy and the disconfirmation were successfully manipulated in Kaplowitz et al. (1988), we checked the manipulation again to make sure that the manipulation is reliable. We also asked subjects about their individual initial attitude to see how our finding confirm Kaplowitz et al.s (1988) finding and to use the individual initial attitude as a covariate.

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