

CHOICE BETWEEN NEGATIVE ALTERNATIVES: DISSONANCE REDUCTION OR REGRET?¹

G. WILLIAM WALSTER AND ELAINE WALSTER

University of Wisconsin

Summary.—In 1962 an experiment investigated whether or not individuals commonly experience regret after making decisions. Results suggested Ss probably experienced more regret as time passed. There was no evidence that they ever succeeded in reducing dissonance. One of three current interpretations is that the *more negative* the choice alternatives, the more post-decisional regret a decision maker should experience. An experimental design to test alternative interpretations is proposed.

Theorists agree that once an individual makes an irrevocable decision he is usually motivated to justify that decision to himself as well as others. Festinger (1957) described a typical decision sequence:

... having made the decision . . . one would begin to alter the cognition so that alternatives which had previously been nearly equally attractive ceased to be so. The alternative which had been chosen would seem much more attractive, and the alternative which had been rejected would begin to seem less attractive than it had been (p. 34).

Janis (1959) and Martin (1922) also observed that individuals tend to justify or "bolster" their decisions. Several experiments have supported the theoretical contention that choice alternatives diverge in attractiveness after a decision has been made (Brehm, 1956; Brehm & Cohen, 1959; Knox & Inkster, 1968).

Although most theorists agree that individuals usually justify their choices, Es have noted that individuals sometimes regret their decisions (Festinger, 1957; James, 1908; Janis, 1959; Lewin, 1938; Martin, 1922).² Until very recently, however, regret was assumed to be an unusual and infrequent occurrence. As a consequence of research on decision-making, however, it became evident that regret was not an unusual occurrence. Regret seemed to be a regular, but temporary, consequence of many decisions.

By 1964, Festinger (1964) had concluded:

... in order to reduce dissonance in the post-decision period, the person is mainly pre-occupied with attending to the dissonance that exists. Hence we are led to propose the following characteristic of the transition from pre-decision to post-decision process. As soon as the decision is made, all the negative aspects of the chosen alternative and all the positive aspects of the rejected alternative become salient for the person. In other words, immediately after the decision the person focuses his attention on the dissonance that exists and, of course, attempts to reduce it (p. 98).

¹This research was designed and conducted by students in a research practicum taught by Dr. Leon Festinger in 1962. Among the class members were Drs. Vernon Allen, Helen Bee, Marcia Braden, Peter Gumpert, and Jon Jecker. This report was financed in part by National Science Foundation Grant GS 1897 and in part by National Institute of Mental Health Grant MH 16661.

²Regret is operationally defined as a decrease in liking for the chosen alternative accompanied by a lack of change or an increase in liking for the rejected alternative.

Research by Brehm and Cohen (1962), Festinger and Walster (1964), Walster (1964), Brehm, *et al.*,³ Brehm and Wicklund (1969),³ and Wicklund (1968) supports the contention that regret might be a common consequence of making a decision.

The following experiment was actually the first experiment investigating whether or not post-decisional regret was a common reaction to making a decision. At the time this experiment was designed it was assumed that regret was probably a weak transitory phenomenon, while dissonance reduction was a robust, pervasive, and long-lasting phenomenon. Since we assumed regret would be extremely difficult to detect, if it existed, this experiment was designed to make regret be as intense and long-lasting an experience as possible. Since no theory existed to tell us how to maximize regret, we used our intuitions as to the kind of decision which would produce maximum regret. We made the choice an important one. In addition, the choice alternatives were negative.

METHOD

Subjects

Ss were 154 undergraduates from Stanford University and from the University of California at Berkeley. Eight individuals, with quite different theoretical biases, served as *Es*.

Procedure

E explained to *S* that he was conducting several experiments designed to measure Ss' physical and physiological reactions to pleasant and unpleasant stimuli. *E* then handed *S* a description of two experiments.

Experiment I: Judging Unpleasantness of Tastes

The purpose of this experiment is to determine the influence of pleasant distractions on judgment of unpleasantness of taste of various substances.

This particular experiment will deal only with the negative end of the taste scale; therefore, everything you sample will be distasteful, ranging from mildly unpleasant in taste to extremely unpleasant. Thus, some samples will be quite tolerable, so that you might even eat such a substance; others will be so very unpleasant that you would find it intolerable to swallow and difficult to prevent nausea.

Two types of pleasant stimuli, music and movie cartoons, will be used. The cartoons and music have been chosen on the basis of their having been judged as extremely interesting and enjoyable by a group of undergraduate students. I am confident that you will agree that the music and movies are attractive and entertaining.

Your task will be as follows. *E* will place a small spoonful of a substance in your mouth. You should let the substance remain in your mouth for several seconds to experience fully its disflavor, and then swallow it, if possible. All substances are perfectly harmless, of course. Ratings of unpleasantness will be obtained by your calling aloud a

³J. W. Brehm, D. Linder, C. Crane, & S. S. Brehm. The effect of pre-decisional reactance on post-decisional dissonance reduction. (Mimeographed paper, 1969) J. W. Brehm & R. A. Wicklund. Regret and dissonance reduction as a function of postdecision salience of dissonant information. (Mimeographed paper, 1969)

number on a scale ranging from 0 to 10. Half of the time during the experiment—while music is presented—you will be blindfolded.

The substances will be in various forms: some will be liquid, some powder, and some solid. There will be 50 samples for you to taste, and the experiment will last the entire 2 hr. In order to obtain some comparison data, for the first 10 min. of the experiment no pleasant distractions will be given. Thereafter alternate periods of music and movies will occur throughout the remainder of the experiment.

You may find that there is a tendency for some of these tastes to linger in your mouth for several hours after the experiment. We will give you a solution with which to rinse your mouth every 10 min. or so after the study, and this should dissipate the lingering unpleasant taste in your mouth. Within 8 hr. after the experiment there should be no unpleasant aftereffects remaining.

At the conclusion of the experiment you may see your results, and any questions you might have about the experiment will be answered.

Experiment II: Performance Under Different Amounts of Shocks

This study investigates the effect of different amount of electrical shock and the role of pleasant stimulation on behavior.

In the experiment you will be seated comfortably in a chair, and several pieces of equipment will be attached to you. One of these is an electrode taped to your right wrist, and the shock will be delivered through this. Another device is used to measure heart rate. To do this two electrodes are attached to the body—one on the left forearm and one on the left calf. Another measure of physiological reactivity will also be taken using a galvanometer. You will find that attaching these pieces of equipment to the body is painless. In addition, part of the time during the experiment you will be asked to perform several routine tasks ranging from simple to complex.

Intermittent shock will be delivered to you during the experiment. The shock lasts for short intervals ranging from 2 to 5 sec., and the intensity of shock varies in a predetermined, irregular way. The amount of shock will at times be painful and uncomfortable, particularly when it persists for 5 sec. at a fair degree of intensity; but even at these higher intensities it is not physically dangerous. You will not be told how intense the shock will be or how long it will last.

In addition to the shock, which you will receive from time to time, during most of the experiment you will be presented with some rather pleasant stimulation. This consists of listening to music and watching movie cartoons. The particular movies and music we use were selected by undergraduates as very enjoyable and entertaining, so I am sure that you will find this part of the experiment quite interesting. The only time that you will not be listening to the music or watching the movies will be during the first 10 min. of the experiment. During this time we will establish reliable baserate reactions for you on the variables we are using in the study.

For completion of the different parts of the study, the experimental procedure requires the full time allotted for each S; this means you can expect to be in the experiment for the entire 2 hr.

After the experiment is finished, your results will be shown to you and any questions you have will be answered.

E explained that after taking a few physiological tests *S* would be asked to participate in one of these two experiments. *E* then made sure *S* had the following 2½ hr. free to participate in this research. Almost all *Ss* did. In the few instances in which *S* was not free, an appointment was scheduled for the next day.

E then reminded *S* that he would participate in only one of these experiments. In the Control condition, *E* then flipped a coin in order randomly to assign *S* to one of the two experiments. In all other conditions, *S* was asked to choose the experiment in which he preferred to participate.

We were hypothesizing that soon after making a choice *Ss* would experience regret and that this regret would be followed by dissonance reduction. We wished to secure ratings of the attractiveness of the choice alternatives at various times after the decision had been made. We thus secured ratings immediately, 4 min., and 16 min. after the choice had been made. (We also ran a very few *Ss* in a 36-min. condition. We believed there was a remote possibility that dissonance reduction might take as long as 36 min.)

Ss' liking for the various choice alternatives was assessed in the following way. In the Control and Immediate conditions, immediately after making their choice or immediately after being assigned to an experiment, *Ss* were shown a 15-point scale ranging from (1) "Extremely attractive" to (15) "Extremely unattractive." *Ss* were asked to indicate their liking for the Taste and Shock experiments on this scale. In addition, *Ss* were asked to indicate how certain they were that the experiment in which they would be participating was the best available. *Ss* indicated their confidence on a 15-point scale, varying from (1) "Absolutely certain I made the right choice" to (15) "Absolutely certain I made the wrong choice." (*Ss* in the Control condition were asked how certain they were that they had been assigned to the right or wrong experiment.)

In the 4-min., the 16-min., and the 36-min. conditions a time-consuming task was interposed between the choice and the *Ss*' ratings. Immediately after choosing the experiment in which they wished to participate, *Ss* were asked to take a visual acuity test. The visual acuity test ostensibly required *Ss* to dark-adapt for 3, 15, or 35 min. before taking a 1-min. eye test. Actually, this acuity test was devised solely to give *Ss* a chance to consider the choice alternatives for various amounts of time after having made a decision. After the eye test was administered, *Ss* rated the attractiveness of the two experiments and their confidence that their decision was correct.

RESULTS

Two experimental outcomes had seemed plausible at the time this experiment was designed. Previous research had, without exception, found a progressive divergence in choice alternatives once a decision had been made. If this experiment simply replicated previous ones, one would expect the outcome depicted in solid lines in Fig. 1.

If regret preceded dissonance reduction, however, one would expect a different outcome. Soon after the decision, *Ss*' liking for the chosen alternative would be expected to decrease, while their liking for the rejected alternative increased or remained unchanged. After this period of regret, choice alternatives

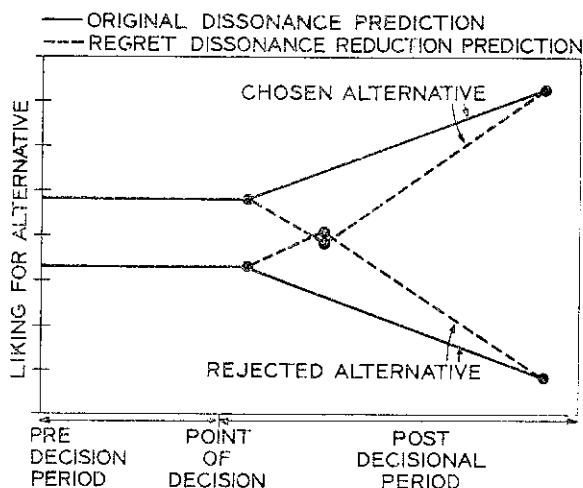


FIG. 1. The predicted effect of time on the post-decisional re-evaluation process

would be expected to diverge as *Ss* succeeded in reducing their dissonance. This prediction is diagrammed in dashed lines in Fig. 1.

When we examined our results (see Table 1), we were quite surprised. The Chosen or Assigned alternatives and the Rejected or Not-assigned alternatives are rated similarly by *Ss* in both the Control and Immediate conditions ($F_s = .09$ and 1.13, with 1 and 149 *df*, respectively). This finding is consistent with other research which indicates that little change occurs in *Ss*' liking for the choice alternatives in the period *immediately* after decision.

TABLE 1
RATINGS OF CHOICE ALTERNATIVES BY *SS* IN VARIOUS CONDITIONS

Condition	N	Liking for Own Experiment*	Liking for Other Experiment	Confidence in Choice†
Control	38	7.61	10.39	4.22
Immediate	39	7.85	11.22	3.38
4-Min.	37	8.03	10.84	4.47
16-Min.	39	9.51	11.92	4.45
36-Min.	8	10.38	11.75	3.63

*The *lower* the number, the more attractive *S* judges the experiment to be.

†The *lower* the number, the more confident *S* is that the chosen experiment is the best one.

When we examine the way liking for the choice alternatives changes after the point of decision, however, we do not find expected results. It is evident that with the passage of time, *Ss* become increasingly dissatisfied with *both* choice alternatives. Liking for the chosen alternative deteriorates significantly

over time ($F = 6.22$, $df = 1/149$, $p < .01$). The deterioration in Ss' liking for the rejected alternative is not quite significant ($F = 2.40$, $p = .12$). The impression that choice alternatives are converging in attractiveness as well as becoming increasingly negative, is heightened by the data from the few Ss in the 36-min. condition. By 36 min. the chosen alternative has continued to deteriorate in attractiveness while liking for the rejected alternative has begun to increase.

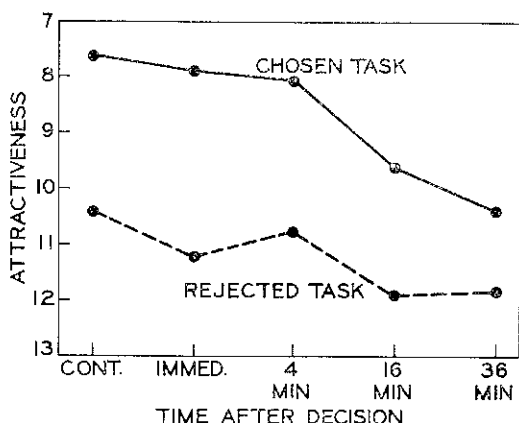


FIG. 2. The actual effect of time on the post-decisional re-evaluation process

Although liking for the chosen alternative *appears* to deteriorate somewhat more than does liking for the rejected alternative, the statistical evidence indicates that the slopes of the two curves are *not* different (F for difference = 1.42, $df = 1/149$, $p = .24$).⁴ (Our statistical tests, of course, did not include the eight Ss run in the 36-min. condition.) Since this statistical interaction is nonsignificant, our results cannot properly be labeled "increasing regret over time." (Our operational definition of "regret" requires that the chosen alternative and rejected alternative show a significant convergence.) Whether or not one believes Ss are experiencing regret, however, it is certainly evident that dissonance is not being reduced by Ss in our experiment. If anything, there is less dissonance reduction at 36 min. than earlier.

Our second index of dissonance reduction was Ss' confidence that they had made the right choice. If Ss are reducing dissonance, their confidence that they made the best possible decision should steadily increase over time. An examination of the means shows that confidence is decreasing, rather than increasing over

⁴The correct way to test this hypothesis is with the following contrast: $\Gamma_1 = -1(\mu_{control}) - 1(\mu_{immediate}) + 0(\mu_{4-min.}) + 2(\mu_{16-min.})$. We tested the hypothesis $H_0: \Gamma_1 = 0$ against the alternative $H_a: \Gamma_1 \neq 0$. An explanation of this procedure is available in Hays (1963).

time, although this decrease does not quite reach statistical significance ($F = 3.06$, $df = 1/149$, $p = .08$).

How did we account for these unexpected results?

(1) In spite of the fact that the trend toward increasing regret over time was not significant, our best guess from the data, and from Ss' reports, was that Ss were regretting their decisions more at 36 min. than at 4 min. after decision. We think we failed to detect this increasing regret with our dependent measure, in part because Ss tended to become increasingly regretful that they had ever made the decision to "get themselves in this mess" instead of focusing entirely on the specific choice alternatives. As one of the more poetic Ss noted: "There's small choice in rotten apples."

Thus we envisioned our problem as explaining increasing regret and total lack of dissonance reduction. The explanation which seemed most plausible to us was that the regret period was prolonged because the choice alternatives were overwhelmingly negative. Specifically, we hypothesized that (1) S's focus is predominantly on the chosen alternative once a decision is made and (2) the more negative the chosen alternative the more intense and long-lasting the regret period.

In all previous decision research, the alternatives between which S was to choose were entirely positive (see Brehm & Cohen, 1959, 1962; Brock, 1963). According to our hypothesis, when entirely positive choice alternatives are employed in a choice, the regret period should be very fleeting (if, in fact, regret ever occurs) and dissonance reduction should be rapid. The data seemed consistent with this notion since "regret" had never been detected in an experiment involving positive alternatives. When choice alternatives were almost entirely negative (as they were in this experiment) and S had nothing positive on which he could focus in order to reduce dissonance, the regret period should be prolonged and dissonance reduction might occur very slowly or not at all.⁵

On the basis of this reasoning we designed a second set of experiments. We hypothesized that the regret-dissonance reduction sequence could best be discerned when Ss were given a choice between two alternatives, each of which possessed equal proportions of both positive and negative elements. Two experiments were designed in which the choices offered to Ss appeared to meet this criterion. Both experiments have been reported in detail elsewhere (Walster, 1962; Festinger, 1964) so there is no need to describe them here. In these experiments, regret occurred soon after the decision and was eventually replaced by dissonance reduction.

At the time the two subsequent studies were conducted, we were concerned only with discovering whether or not regret did in fact commonly follow de-

⁵At some point when choice alternatives become too negative (i.e., a choice between death by hanging vs death by fire), it is plausible to argue that Ss may no longer expend very much energy to reduce dissonance and that even if they did expend the necessary energy they might not be successful.

cisions. By now, however, subsequent research has often demonstrated the existence of the regret phenomenon. Several competing theories now account easily for the existence of the regret phenomenon.

Thus, our research interests are now drastically different from our interest in 1962. We are no longer interested in demonstrating the existence of a phenomenon; rather, we wish to determine precisely why this phenomenon occurs. In making such a determination, the data in this paper gain a new importance. The preceding study is the only one conducted with predominantly negative alternatives and as we shall soon see, we believe that how negative the choice alternatives are will be of crucial importance in distinguishing between alternative explanations of the regret phenomenon.

Alternative Explanations

(1) *Festinger*.—According to Festinger (1964), regret is nothing more than post-decisional salience of dissonance. Thus, the same factors that increase the dissonance in making a decision should increase the magnitude of the regret S experiences immediately after making a decision. The more important the alternatives involved in the decision, and the more similar these alternatives are in attractiveness, the more regret one should experience and the more dissonance he should subsequently reduce.

Since the total amount of dissonance one experiences after a decision is simply the ratio of Dissonant elements/Total elements in the choice (with elements weighted for importance), it should *not matter* whether the elements involved in the choice were predominantly positive, predominantly negative, or mixed. The magnitude of dissonance, and thus regret, should depend entirely on amount of dissonance in the situation.

(2) *Modified hypothesis*.—In attempting to explain the data from this experiment, it was necessary to modify Festinger's analysis somewhat. We argued that after making a decision one focuses primarily on the chosen alternative.

No matter how familiar one feels he is with the available alternatives before he makes a decision, the assets and liabilities of the chosen alternative will have increased psychological impact on S the moment he makes his decision.

In the pre-decision period, one is preoccupied with the task of making a decision. One must focus on the *relative* merits of the alternatives. Once the decision is made, one must begin living with his decision.

Once one is committed to a single choice alternative, the *relative* merits of the alternatives are no longer of primary interest; of primary importance are the consequences that the chosen alternative will have for the individual.

In addition, the positive and negative elements of the chosen alternative are bound to have a greater emotional impact after the decision, when they are definite consequences, than they did before the decision, when they were only hypothetical consequences.

On the basis of the above reasoning, we are led to expect that once a decision is made, the subject's focus will shift from both choice alternatives to primarily the chosen alternative.

In addition, the positive and negative elements of the chosen alternative will have a greater impact post-decisionally than they had pre-decisionally.

If one accepts the argument that an individual focuses primarily on the chosen alternative, while accepting the remainder of Festinger's formulation (namely that the dissonant elements of the choice become salient as soon as a decision is made), one is led to make different predictions than does Festinger. If one varies the negativeness of the alternatives involved in the choice (while holding the amount of dissonance involved in the decision constant), the post-decisional regret should vary. The more negative the chosen alternative, the more post-decisional regret *S* should experience.

(3) *Brehm*.—Berscheid (in Walster & Berscheid, 1968) and Brehm, *et al.*² argue that regret can be explained by Brehm's theory (1966) of reactance in which Brehm postulates that individuals value behavioral freedom and that any elimination of this freedom will arouse a motivational state (called Psychological Reactance) directed toward re-establishment of the freedom. Brehm, *et al.* argue, . . . when a person selects one alternative, he gives up freedom to reject it and the freedom to select the other, rejected, alternative . . . the selected alternative should tend to become less attractive because freedom to reject it has been eliminated, and the rejected alternative would tend to become more attractive because freedom to have it has been eliminated. In short, immediately after he has made a decision, a person should experience what has been called 'regret' (Festinger, 1964). Of course, even though there may be initial regret, once the individual has committed himself, dissonance reduction processes may eventually be expected to occur.

According to Brehm, *et al.*'s³ formulation, the negativeness of choice alternatives should affect regret in a way still different from those proposed previously. According to Brehm's interpretation, individuals are primarily concerned with limitations of their freedom. They tend to express displeasure at having their freedom reduced, by increasing the attractiveness of the restricted alternative and by decreasing the attractiveness of the chosen alternative. The more negative the choice alternatives, the less *S* should mind having his freedom limited. Thus, Brehm would expect to detect *more* reactance (or regret) after a decision when *positive* alternatives were involved in the choice than when *negative* alternatives were involved. See Brehm, *et al.*³ (p. 16) and Brehm (1966, pp. 42, 46, 122).

In further contradiction to Festinger's theory, Brehm, *et al.*³ propose that it should be easier to detect regret when *little* dissonance is aroused by the choice than when a great deal of dissonance is aroused.

It is rare for two theories to make predictions so diametrically opposed that a crucial experiment can be conducted to test between them. This situation is such a case. One can decide among the three alternative formulations in the following way: Three groups of *Ss* must be run. In all three groups *Ss* will be given a choice between two alternatives of specified discrepancy. The importance of the choice will be held constant in all groups. The positiveness of the

two choice alternatives must then be systematically varied: one-third of the Ss should be asked to choose between two very positive alternatives. One-third of the Ss should be asked to choose between two alternatives intermediate in attractiveness. The remaining Ss should choose between predominantly negative alternatives. All Ss should then rate their liking for the two alternatives at various periods after their decision.

Brehm, *et al.*³ would predict that the more *positive* the alternatives involved in the decision, the more post-decisional regret one should detect. Festinger (1964) should predict that negativeness of choice alternatives should have *no impact* on the amount of post-decisional regret Ss experience. On the basis of our assumption that Ss focus predominantly on the chosen alternative after making a decision, we would predict that the more *negative* the choice alternatives, the more post-decisional regret one should detect.

We feel most confident in the last prediction. The study reported in this paper, previous research, and the fact that this latter reasoning has led to two successful demonstrations of the regret-dissonance reduction phenomenon (Walster, 1962; Festinger & Walster, 1964) leads us to this conclusion. This evidence is certainly far from compelling, however, and a crucial experiment needs to be conducted to settle the dispute.

REFERENCES

- BREHM, J. W. Post-decision changes in the desirability of alternatives. *Journal of Abnormal and Social Psychology*, 1956, 52, 384-389.
- BREHM, J. W. *A theory of psychological reactance*. New York: Academic Press, 1966.
- BREHM, J. W., & COHEN, A. R. Re-evaluation of choice alternatives as a function of their number and qualitative similarity. *Journal of Abnormal and Social Psychology*, 1959, 58, 373-378.
- BREHM, J. W., & COHEN, A. R. (Eds.) *Explorations in cognitive dissonance*. New York: Wiley, 1962.
- BROCK, T. C. Effects of prior dishonesty on post-decisional dissonance. *Journal of Abnormal and Social Psychology*, 1963, 66, 325-331.
- FESTINGER, L. *A theory of cognitive dissonance*. Evanston, Ill.: Row Peterson, 1957.
- FESTINGER, L. (Ed.) *Conflict, decision, and dissonance*. Stanford: Stanford Univer. Press, 1964.
- FESTINGER, L., & WALSTER, E. Post-decision regret and decision reversal. In L. Festinger (Ed.), *Conflict, decision, and dissonance*. Stanford: Stanford Univer. Press, 1964. Pp. 100-112.
- HAYS, W. L. *Statistics for psychologists*. New York: Holt, Rinehart, & Winston, 1963.
- JAMES, W. *The principles of psychology*. Vol. II. New York: Holt, 1908.
- JANIS, I. L. Motivational factors in the decisional conflicts. In M. R. Jones (Ed.), *Nebraska Symposium on Motivation*, 1959. Vol. 8. Lincoln, Nebraska: Univer. of Nebraska Press, 1959. Pp. 190-232.
- KNOX, R. E., & INKSTER, J. A. Post-decision dissonance at post time. *Journal of Personality and Social Psychology*, 1968, 8, 319-323.
- LEWIN, K. *The conceptual representation and the measurement of psychological forces*. Durham, N. C.: Duke Univer. Press, 1938.
- MARTIN, A. H. An experimental study of the factors and types of voluntary choice. *Archives of Psychology*, 1922, No. 51, 40-46.

- WALSTER, E. Post-decisional re-evaluation of alternatives: regret and dissonance reduction. Unpublished Ph.D. dissertation, Stanford Univer., 1962. [Summarized in L. Festinger (Ed.), *Conflict, decision, and dissonance*. Stanford: Stanford Univer. Press, 1964. Pp. 112-127.]
- WALSTER, E., & BERSCHIED, E. The effects of time on cognitive consistency. In R. Abelson, et al. (Eds.), *Theories of cognitive consistency: a source book*. Chicago: Rand McNally, 1968. Pp. 599-608.
- WICKLUND, R. A. Regret as a result of threat to decision freedom. Unpublished Ph.D. dissertation, Duke Univer., 1968.

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