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THE EFFECT OF SIMPLE FRUSTRATION, VIOLATED
EXPECTANCY, AND REACTANCE ON
THE INSTIGATION TO AGGRESSION

by

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Date: August 13, 1971

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Edward E. Jones

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in the Department
of Psychology in the Graduate School of Arts and
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ABSTRACT

(Psychology-Social)

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Preventing an individual from obtaining a goal may have three effects on him. It may frustrate him, violate an expectancy of goal attainment, and eliminate his freedom to obtain the goal. Three theories, each focusing on a different aspect of the thwarting, offer the hypothesis that aggression is likely to follow thwarting. Frustration and aggression theory predicts that simple frustration will instigate aggression; expectancy theory predicts that the violation of an expectancy resulting from a thwarting will instigate aggression; reactance theory hypothesizes that the elimination of behavioral freedom, which results in the arousal of reactance, may instigate aggressive responses. The present study was performed to test the hypotheses on aggression offered by these three theories.

Subjects were told that there were three incentives being offered for participating in the experiment. Some subjects were told that an experimental assistant would assign them an incentive, others were told that they would

receive the incentive they had rated most attractive on a pre-measure, and a third group of subjects was informed that they would have their choice of the incentives. The experimental assistant then assigned subjects either the most, second most or least attractive incentive. Subjects' ratings of the assistant served as the measure of aggression.

The results supported reactance theory in that when the assignment of incentives by the assistant eliminated subjects' freedom of choice they expressed more aggression than when the assignment did not eliminate the behavioral freedom. Further, when the assignment eliminated freedom, the less attractive the assigned incentive, the greater was the resulting aggression. Some support was found for the hypothesis that a violation of expectancy will result in aggression. When subjects expected to obtain the most attractive incentive and were assigned the least attractive item, they were more aggressive than when they held the same expectancy and received the second most attractive item. However, when their expectancy was violated by receiving the second most attractive incentive, they were not more aggressive than subjects who did not have their expectancy violated. There was no support for the hypothesis that simple frustration is a sufficient condition to instigate aggression. From the results indicating that, regardless of the incentive assigned the subject, there was more aggression exhibited when this assignment eliminated freedom than when the assignment resulted only in a violated expectancy or simple frustration, the speculation was offered that the arousal of reactance may be a necessary condition if a thwarting is to instigate aggression.

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THE EFFECT OF SIMPLE FRUSTRATION, VIOLATED EXPECTANCY,
AND REACTANCE ON THE INSTIGATION TO AGGRESSION

Chapter I
INTRODUCTION

Over the last thirty years a voluminous body of literature attempting to demonstrate that a thwarting can instigate aggression and to explain why this relationship should occur has developed. This literature has demonstrated that a thwarting or frustration can instigate aggression. However, a convincing explanation as to why this relationship should exist has not been offered. There is still a great deal of question as to exactly what aspect of a thwarting is the instigator of aggression. The present research represents an attempt to examine the relationship between three components of thwarting--simple frustration, violation of expectancy, and elimination of freedom--and the instigation to aggression.

Simple Frustration

Dollard, Doob, Miller, Mowrer, and Sears (1939) developed one of the

first comprehensive theories about the relationship between thwartings and aggression. Their basic postulate was that "aggression is always a consequence of frustration (p. 1)." Frustration was defined as an "interference with the occurrence of an instigated goal-response at its proper time in the behavior sequence (p. 7)," and it was further stated that in order for a frustration to exist one must be able to specify two conditions: (1) that the organism could have been expected to perform the designated acts, and (2) that these acts have been prevented from occurring. Finally, aggression was defined as "an act whose goal-response is injury to an organism (or organism-surrogate) (p. 11)." In other words, all that is necessary to instigate an individual to aggress is to block him from obtaining a goal he would like to have and is in the process of attempting to obtain. No distinction was made as to the type of goal, although Dollard et al. (1939) did predict that the strength of the instigation to inflict injury would vary directly with "(1) the strength of the instigation to the frustrated response, (2) the degree of interference with the frustrated response, and (3) the number of frustrated response sequences (p. 28)."

There were critics of the frustration and aggression theory (Dollard et al., 1939). Maslow (1941) believed that only frustrations of responses whose "goal represents love, prestige, respect, or achievement" would result in the instigation to aggression. A number of investigators (Britt & Janus, 1940; Levy, 1941; Morlan, 1949; Rosenzweig, 1935, 1938, 1944; Sargent, 1948) pointed out that aggression is not always the response

exhibited after frustration. However, while these authors did offer important amendments to the theory, the basic tenet that whatever aggression was instigated by thwarting was due to the mere blocking of goal-directed activity was still accepted.

A number of early investigations supposedly demonstrated that aggression was the result of blocking the subject from obtaining a desired goal. Miller and Bugelski (1948) reported that when their subjects were not allowed to go to the theater on bank night they reacted aggressively by displacing their hostility onto minority groups. Haslerud (1938) reported that when hungry chimpanzees were blocked from obtaining food by a barricade they became violent and assaulted the barrier between them and the desired goal. Barker, Dembo, and Lewin (1941; in Lawson, 1965) demonstrated that children became slightly more aggressive when they were not allowed to play with certain attractive toys.

Thus, the frustration and aggression theory (Dollard et al., 1939) and some of the early investigations offered the hypothesis that not allowing an individual to have something he wants and is trying to get is a sufficient condition to instigate him to aggress. The two important ingredients of a thwarting which incite aggression are the wish to have a goal and the denial of the attainment of that goal.

Violation of Expectancy

Soon after the introduction of the frustration-aggression theory, a number of researchers began to take exception with the basic premise of the theory; i. e. people aggress when a goal they want is refused them. These dissenters argued that it is not merely the denial of a wanted target that instigates aggression, but it is the denial of a goal whose attainment is both wanted and expected that motivates individuals to aggress. These authors believed that the aggression-instigating ingredient in a frustrating situation is the blocking of an expected outcome.

Bateson (1941) pointed out that "we never at any time saw a Balinese annoyed because he was interrupted in the course of some series of acts (p. 353)." He attributed this to the fact that the Balinese child is "not driven to expect or look for climax in his acts." The point Bateson was attempting to argue was that aggression is not merely the result of any frustration, but of a frustration of an expected outcome.

Zander (1944) echoed this belief by stating "that a situation cannot be frustrating unless it is within the field of aspiration of the individual (p. 32)." "Field of aspiration" was defined to include the expectations of the individual. While his experiment itself was not aimed at comparing the effects of simple frustration (blocking the attainment of a wanted goal) against violation of expectancy (blocking the attainment of an expected goal), Zander took pains to explain his manipulation of frustration: "the unsolvable problem is a form

of frustration for the subject only if he believes he can succeed in the task (p. 6)." Finally, he concluded his article by stating: "Frustration is that condition which exists when a response toward a goal believed important and attainable [italics added] by a given person suffers interference . . . (p. 32)."

Pastore (1950, 1952) also took the position that only frustrations that violated expectancies would lead to aggression. He (1950) subjected a group of six college students to a number of ordeals such as going without sleep, forced silence, and denial of food for a prolonged period. Subjects had signed up for the experiment believing the experimenters would provide them with food and games. During the study, the experimenters renumerated these promises, but the experimenter who promised food failed to return after "going for the food" and the one who promised games announced that he had forgotten the games. The subjects became hostile toward the experimenters. Pastore believed that this hostility was the result of the experimenters' violating the subjects' expectancies. He argued that, had subjects not been led to believe they would receive food and games, the withholding of these would not have evoked hostile responses from the subjects. Pastore (1952) attempted to demonstrate his hypothesis that only frustrations which violated expectancies and were seen as arbitrary in nature would instigate individuals to aggress, while nonarbitrary thwartings would not. He gave subjects a description of ten frustration situations; some arbitrary (i. e. "You're waiting on the corner for a bus, and the driver intentionally passes

you by"), and some nonarbitrary ("You're waiting on the corner for a bus. You notice that it is on its way to the garage."). Subjects were asked to indicate how they would respond to these situations. The results suggested that people will react violently to violations of expectancies or arbitrary thwartings but that they will not react so aggressively to nonarbitrary thwartings.

Cohen (1955) replicated Pastore's (1952) results employing similar hypothetical incidents, although he hypothesized that the reasonableness or the justifiability of the thwarting may be the factor which determines whether or not people respond aggressively to frustration. However, Kregarman and Worchel (1961) offered some evidence that violation of expectancy and not necessarily the reasonableness of the thwarting was the ingredient of frustration that seemed to instigate aggression. Subjects in their study were led to believe that they would either be distracted and insulted by an experimenter or would not and were given either a justifiable reason for this frustration or were not. Subjects who did not expect the thwarting directed significantly more aggression toward the experimenter than those expecting the thwarting, whereas there was no difference in the amount of hostility expressed as a function of whether subjects believed the thwarting to be justifiable or not. While there were indications that the justifiability variable was not well manipulated, these results offered suggestive evidence that it is not so much not receiving what one wants that leads to aggression, but not acquiring what one expects.

Exactly why a violation of expectancy should lead to more aggression than simple denial was not explained until Berkowitz (1962) published his comprehensive book on aggression. Berkowitz (1962) stated that violation of expectancy should lead to a greater experiencing of thwarting and offered two reasons why this should be true. First, a person who expects to obtain a goal will often make anticipatory responses in preparing to experience the attainment of that goal. Thus, the thwarting of the expected attainment of a goal is likely to frustrate more response sequences than the denial of a non-expected goal. Referring to Pastore's (1952) example earlier cited of the individual being passed by the bus, Berkowitz (1962) suggested:

The sight of the bus . . . might well be a cue setting off a chain of preliminary response sequences; he (the waiting individual) readjusts his packages, reaches into his pocket for the fare, and begins to think of the martini awaiting him at home. A similar set of responses would not have been in operation in the man who had not expected the bus to stop, and therefore this latter person would have been subjected to less thwarting (p. 67).

The second reason offered by Berkowitz as to why an unexpected thwarting should be felt as more severe than a more expected one was that of assimilation and contrast. Berkowitz believed that an individual expecting a thwarting might assimilate the actual frustration to that expected and result in the actual thwarting being felt as less severe than it actually was. Someone not expecting the thwarting would contrast the actual frustration with his high expectancy and that frustration could be perceived as more severe than it actually was.

While no experiments specifically dealing with frustration in its formal

sense have demonstrated that violation of expectancy leads to more aggression than simple denial of a goal or that a frustration that violates an expectancy is experienced as more severe than one which does not violate expectations, Berkowitz (1960) did offer evidence that an attack which is not expected results in a more stringent counterresponse than an attack that could have been anticipated. Subjects in the study received an initial note which was supposedly written by their partner. One half the subjects received a friendly one and the other half received a hostile one. Subjects' impressions of their partner were recorded and the subject was then given another note from the partner which was either hostile or friendly. A significantly greater proportion of subjects changed their evaluation of their partner in the direction of the second note when this note contrasted the first in tone.

Some investigators (Berkowitz, 1962) believe that violation of expectancy differs from pure denial only in the strength of frustration which is experienced, while others (Pastore, 1950, 1952) believe that denial and violation of expectancy represent qualitatively different types of frustration. Nevertheless, violation of expectancy and simple denial of a goal are two features of thwarting, both of which have been dubbed the necessary ingredient for the instigation to aggression. No careful investigation has conclusively determined which, if either, is actually required if a thwarting situation is to instigate an individual to aggress.

Reactance Theory

There is another aspect of many thwarting situations that, until recently (Brehm, 1966), has been ignored. In addition to denial and violation of expectations, the blocking of the attainment of a goal may eliminate an individual's freedom to have that goal. Brehm (1966) postulated that, for any given person, there exists a number of behaviors in which that person feels he could engage either at the moment or at some time in the future. This set of behaviors was labeled the individual's "free behaviors." It is not difficult to see that a blocking of a response sequence or a thwarting that violates an expectancy could also serve as a threat to or elimination of the freedom to behave in certain ways. For example, if a man were waiting in line for a hot dog, expected to get that hot dog, and believed that purchasing and eating that hot dog were one of his free behaviors, and if this man were to be told by the cook that he could not have his hot dog because he was a Negro, this would constitute simultaneously a denial of a want, a violation of an expectancy, and an elimination of a free behavior. If that man were then to punch the cook in the nose, to which of these aspects of the situation would he be reacting?

How would one expect the thwarted individual to act if he were reacting to the threat to or elimination of a free behavior? Brehm (1966) stated that a threat to or elimination of freedom will motivationally arouse the individual and that this arousal will instigate the individual to restore his freedom and

to insure against any further loss of it. This arousal state was named "psychological reactance" and its magnitude was said to be a direct function of the importance to the individual of the threatened behavior, the proportion of free behaviors threatened or eliminated, and the strength of the threat. A number of behavioral effects were predicted to follow the arousal of reactance and which would be evident should depend on the type of threat, the threatening agent, and other characteristics of the situation and the threatened individual.

Three reactions have been demonstrated to occur with some regularity following the arousal of reactance by eliminating or threatening an individual's freedom to have one of several alternatives. First, the threatened or eliminated behavior or goal increases in attractiveness. Brehm, Stires, Sensenig, and Shaban (1966) showed that when a subject believed he was free to choose any one of four records and the freedom to choose the third most attractive record was eliminated by telling him it was not available, the attractiveness of the record increased. Hammock and Brehm (1966) and Worchel and Brehm (in press) also demonstrated that following the elimination of or threat to the freedom to choose an alternative that alternative will increase in attractiveness. This increase in attractiveness is supposedly due to the increased drive to regain the threatened or eliminated free behavior.

Secondly, when a free behavior has been threatened (not eliminated), the individual will often attempt to exercise that freedom by carrying out the

behavior in question. Wicklund and Brehm (1968) and Worchel and Brehm (in press) obtained results indicating that, when a subject's freedom to choose one of two alternatives was threatened by another person's demanding that he take the other alternative, the subject reacted by choosing opposite to the demand. This presumably reflected the subject's attempt to demonstrate that he did have the freedom to choose the threatened alternative.

Finally, a threat to or elimination of freedom may instigate the individual to react hostilely toward the thwarting agent. By injuring the threatening agent, the individual may succeed in restoring his freedom and/or insuring that this agent will not attempt to encroach on his freedom in the future. Worchel and Brehm (in press) reported that subjects evaluated a person who had threatened their freedom of choice more negatively than a person who had not threatened their freedom. Thus, it may be predicted that one or more of the following reactions will follow the arousal of reactance: increase in the attractiveness of the threatened or eliminated behavior, attempt to exercise the threatened behavior, expression of hostility toward the threatening agent.

Comparison of the Three Theories

There are, thus, three "theories" that offer the prediction that aggression may follow thwarting. There are a number of similarities in the three.

All predict that the strength of the instigation to aggress will vary directly with (1) the importance of the thwarted behavior, (2) the number (or proportion) of freedoms or behavioral responses threatened, and (3) the strength of the threat or degree of interference with the behaviors in question. All three predict that the strongest motivation will be to attack the thwarter rather than some other target.

Because the predictions of the theories are so similar and because the differences in what each views as the necessary ingredient for thwarting to incite aggression are difficult to pinpoint, the previous experiments in the area of frustration and aggression have generally failed to take these differences into account. Lawson (1965) listed seven types of manipulations that have been employed to frustrate subjects in the laboratory. These seven are listed below with short explanations as to how they may confound simple frustration, violation of an expectancy, and threat to freedom:

1. "Nonreinforcement after a history of reinforcement (p. 41)."

Simple frustration should be aroused by the fact that the organism would be motivated to be reinforced and was not. The history of reinforcement should have led the organism to expect to be reinforced again, and nonreinforcement would violate this expectancy. A history of reinforcement may have implied to the organism that being reinforced was one of his free behaviors and nonreinforcement could result in reactance as it would eliminate this freedom.

2. "Preventing a reinforced response sequence (p. 43)."

Blocking a response that the organism is motivated to perform should result in simple frustration. If the organism had been reinforced for a particular response in the past, blocking this response should violate the expectancy that he could carry out that response. Reactance would be aroused if the individual believed that carrying out that response were one of his freedoms as would be implied by the occurrence of previous reinforcements.

3. "Preventing a response aroused by a goal (p. 43)."

Frustration would occur as a goal-instigated response sequence is blocked. If the organism expected to be able to carry out the goal-instigated response sequence, the blocking would also result in violating his expectancy. Also, if the organism believed that the particular response were one of his free behaviors, the thwarting should arouse reactance.

4. "Delayed reinforcement (p. 43)."

If the organism wanted and expected immediate reinforcement, a delay in time would result in both frustration and violation of the expectancy. A delay in reinforcement could arouse reactance by eliminating the freedom of being immediately reinforced and also implying a threat to the freedom of receiving any reward at all.

5. "Changes in the incentive condition (p. 44)."

If the organism were motivated to obtain one type reinforcement, the substitution of another should prove frustrating and it should, further, violate an expectancy if the organism had expected a different reward than that obtained. The freedom of having a particular alternative would be eliminated by the substitution of another and this should arouse reactance.

6. "Failure (p. 44)."

Failure should arouse frustration if the organism were motivated to succeed and violate expectancies if he expected to succeed. Reactance would be aroused by simple failure if the organism believed that performance of the behavior were within its range of ability.

7. "Hypothetical frustrating situations (p. 46)."

These are usually written stories involving one or more of the above situations and the subject is asked how he would respond to them. As pointed out, the above situations may involve simple frustration, violation of expectancy, and/or elimination of freedom; and it is difficult to ascertain to which of these the subject may be responding.

It would be possible to review a number of the experiments that have been carried out in this area and show how they have confounded these three variables. However, the list of types of variations should be sufficient to

make the point that traditional manipulations of frustration have been confounding. The question arises as to why this has been. Are the three variables only semantic distinctions that cannot be operationally separated?

The answer to this question is "no." To further understand how they can be separated, it is helpful to examine the necessary conditions for the arousal of each.

According to Cofer and Appley (1964), there are two necessary conditions for the existence of simple frustration. They are "(1) the presence of a previously aroused and unrequited drive or motive and (2) some form of interference with or thwarting of its means for gratification (p. 415)." In other words, both privation and thwarting are necessary. The individual must be motivated to perform a specific response (X) and the thwarting must occur while he is still motivated to do so.

The conditions necessary for violation of expectancy are the same as that for simple frustration with the additional requirement that the individual must expect to obtain the goal of his drive. That is, the individual must be motivated to obtain a goal, he must expect to obtain it, and he must be thwarted while his instigation and expectation are operating. For both simple frustration and violation of expectancy, then, the failure to obtain a goal serves as the trigger for aggression.

The situation for the arousal of reactance is different. The necessary conditions for the arousal of reactance are (1) that the individual feel that he has the freedom to perform a certain behavior (X) and (2) that the freedom

to perform that behavior (X) is being threatened or eliminated. This threat may come in a variety of ways, one of which may be the actual blocking of the performance of that behavior (X).

Three important differences in the conditions necessary for the arousal of frustration and reactance can be found. First, in order for frustration (either denial or violation of expectancy) to occur, the organism must be motivated to perform the specific behavior at the time of the thwarting. No such motivation is required for the arousal of reactance, though the motivation to perform the behavior is in no way excluded by reactance theory. The example of four-year-old James (Dollard et al., 1939) can be used to highlight this difference. James heard the bell of an ice cream vendor and was instigated to purchase an ice cream cone. He went to his mother for money and his mother told him he could not have an ice cream cone. This constituted a frustration of an instigated goal-response (James' obtaining an ice cream cone). However, it also would be predicted that this incident could arouse reactance in James since a freedom may have been threatened--the freedom to obtain an ice cream cone. In this case, frustration and reactance could have occurred simultaneously. However, if James had not thought of buying an ice cream and his mother had simply told him that he could not have an ice cream cone, reactance could be aroused, but not frustration. The freedom to buy an ice cream cone would have been threatened; but since James was not instigated at the time to buy a cone, there would be no frustration. Thus, one difference between reactance and frustration is that a

necessary condition for the occurrence of frustration is the instigation to a response at the time of its thwarting, while this instigation is not necessary for the arousal of reactance.

Besides the difference in requirements of motivation, reactance and frustration theories differ in predicting the aspect of the thwarting that initiates the hostile drive. It is the blocking of the completion of an instigated response or the attainment of a desired reward that is seen as the necessary ingredient for the arousal of frustration, while it is the threat to the freedom to perform an act that arouses reactance. In other words, reactance can be reduced by restoring the freedom of the individual to perform an act even if he does not carry out the act at the time of the restoration of freedom. To reduce frustration, the individual must complete the instigated response once the barrier has been removed.

A third difference between the two theories is that, in order for reactance to occur following the blocking of an act, the individual must feel free to perform the act. In other words, he must believe that the behavior in question is one of his "free behaviors." For the arousal of simple frustration, there is no requirement that the individual believe that he should or will be able to carry out the behavior in question. For violation of expectancy to occur, the individual need merely expect to carry out the response--not feel that he should necessarily be allowed to do so or that he is really free to act in the desired manner. For example, a child may know that he has the ability to bite through a lamp cord and he may begin gnawing with the ex-

pectation of completing his mission. If he has been told many times before that chewing on the lamp cord is not allowed, an interruption of his ongoing act could violate his expectancy without arousing reactance. But, if he believed that he was free to bite the cord, an interruption of this activity could also arouse reactance. Thus, while violation of expectancy and the arousal of reactance may be similar, one distinction involves the individual's perception of his freedom concerning the thwarted activity.

Thus, there are some important differences between frustration and reactance theories with regard to prior motivation, importance of the act itself versus the importance of the freedom to perform the act, and the effect of prior expectancy of freedom. There are possible situations in which frustration and reactance can occur simultaneously, situations in which frustration can occur without reactance, and situations in which reactance can occur without frustration.

An experiment by Horwitz (1958) offers suggestive evidence that the reduction of freedom may be an important ingredient if a thwarting is to instigate people to aggress. He led one group of students to believe that they would have the final word in deciding whether the teacher should repeat the instructions for completing a complicated task (student power). The second group of students believed the teacher would have the greatest weight in deciding the course of the class (teacher power). In all cases, and supposedly against the students' wishes, the teacher decided not to repeat the instructions. The results showed that students expressed more hostility in the

former condition (student power) than in the latter one (teacher power).

An examination of the manipulations indicates that, in both cases, there was a denial of the students' wishes. Frustration and aggression theory (Dollard et al., 1939) cannot account for the differences in the amount of hostility in the two conditions since the thwarting was of the same wish and to the same degree in both conditions. However, it is evident that telling the subjects that they were to have the greater power in deciding on the course of action led them to expect to be able to have the teacher repeat the instructions and also led them to believe that choosing whether to have the instructions repeated was one of their "free behaviors." Thus, when the teacher arbitrarily decided not to repeat the instructions, he was not only denying the wishes of the subjects, but also violating an expectancy and eliminating a freedom. In the condition where the subjects were informed that the teacher had the power of decision, his decision not to repeat the instructions may not have violated any strong expectations on the part of the subjects or may not have eliminated any behavioral freedom. Since greater hostility was exhibited in the former condition, it would seem that violated expectancy or the arousal of reactance or both are the necessary ingredients if a thwarting situation is to instigate aggression. Which of these two is responsible cannot, however, be determined from the experiment.

The Research Problem

A glance at the literature in the area of frustration and aggression reveals that there are only a few studies (Horwitz, 1958) that compare aggression resulting from manipulations that should arouse reactance with those that should arouse only frustration and no one study that investigates the individual role of simple frustration, violation of expectancy, and reactance in the instigation of aggression. The present research is an attempt to study aggression resulting from these three potential sources. The experiment was designed so that all subjects met first with an experimenter who explained the purpose of the study to them and introduced three different incentives, one of which the subject was to receive for participating in the study. After the subject had rated the attractiveness of each reward, the experimenter led some to believe that they would have the freedom to choose one after the experiment was completed (Choice). Other subjects were assigned to receive the reward they had rated most attractive (Expectancy), and a third group of subjects was informed that the assistant who instructed them through the study would assign them a reward (No Expectancy). Before the subjects left this first experimenter, he enlisted their promise that they would return to his office and rate the assistant on a number of dimensions. The rating was to be used in deciding whether the assistant should be hired for an important and desirable position. The subjects were next sent to an assistant who instructed them in the completion of two innocuous tasks.

Then, regardless of what the subject had been led to believe, he was given the most attractive, second most attractive, or least attractive reward. Finally, subjects returned to the experimenter and filled out the questionnaire rating the assistant.

The Choice manipulation was included so as to give subjects freedom; the freedom of choosing which alternative they wanted. The expectation of receiving the most attractive alternative was created in the Expectancy conditions and the expectation of receiving this reward was probably held by subjects in the Choice conditions. The No Expectancy conditions should have left subjects with no expectation as to the reward which was to be received or the illusion of any freedom to decide which alternative they would have. The assignment of any of the alternatives by the assistant in the Choice conditions should have aroused reactance as the assistant's determination of a reward eliminated the subject's freedom of choice, regardless of the reward received. A frustration involving a violation of expectancy should have occurred in the Expectancy cells when the assistant forced the second or least attractive reward on the subject. There should have been no frustration nor violation of expectations when the most attractive reward was given since that was the one assigned by the experimenter and that was the incentive that the subject expected. Simple frustration should have been felt by the subjects in the No Expectancy conditions when they were given the second or third rated alternative, but no frustration should have been involved when they were assigned the most attractive object. Since no expectation of

receiving one particular reward was created in these conditions, there should have been no violation of expectancy created by the assistant's assignment, and no reactance should have been involved since no freedom of choice was given the subjects.

Predictions of the Theories

Since this experiment was devised to test predictions from frustration and aggression (Dollard et al., 1939), violation of expectancy (Berkowitz, 1962), and reactance (Brehm, 1966) theories, it should be of interest to examine the hypotheses which can be drawn from each with regard to the present design. Simple frustration theory (Dollard et al., 1939) offers the same predictions regardless of what the experimenter leads the subject to believe. The theory would predict that there should be more aggression expressed toward the assistant when he assigns the subject the second most attractive incentive than when he gives him the first, and there should be the greatest instigation to aggress when the subject is saddled with the least attractive object. This follows from the theory as it may be assumed that the subject would be motivated to obtain the most attractive reward and the second most attractive alternative more nearly equals the first in desirability than does the least. Thus, the assignment of the least attractive reward should constitute a greater degree of frustration than the delegation of the second, and Dollard et al. (1939) predicted that the greater the degree of frustration, the greater the instigation to aggression. Thus, in the Choice,

Expectancy, and No Expectancy conditions, frustration and aggression theory (Dollard et al., 1939) can be employed to predict that the less attractive the alternative which the assistant assigns the subject, the greater should be the aggression expressed against the assistant.

Expectancy theory (Berkowitz, 1962) makes the identical predictions as those advanced by simple frustration theory except that the expectancy hypotheses include only the Choice and Expectancy conditions. Only in these conditions is the subject given the expectation that he will receive the most attractive alternative. The less attractive the reward he is assigned by the assistant, the more severe is the violation of this expectancy. The prediction, then, is that within the Choice and Expectancy conditions, the less attractive the reward given the subject, the greater should be the instigation to aggress. Further, if violation of expectancy is the crucial ingredient for the instigation to aggression as Berkowitz (1962) seems to imply, there should be significantly more aggression when the assistant assigns the second or third most attractive reward in the Choice and Expectancy conditions than in these matching cells of the No Expectancy condition. Following expectancy theory, there should be no aggression in any condition where the subject receives the most attractive reward as neither violation of expectancy nor frustration should be involved.

The predictions from reactance theory (Brehm, 1966) are generally confined to the Choice conditions as only in these cells is the subject allowed to believe that he has the freedom to choose his reward. Reactance theory

(Brehm, 1966) is concerned with the behaviors that an individual feels he is free to perform. The theory can be used to predict that when one or more of these "free behaviors" is threatened or eliminated the individual may be instigated to aggress against the thwarting agent. It is, therefore, important in discussing reactance theory predictions with regard to this experiment to be clear as to exactly what "free behaviors" are involved. By announcing to the subject that he is free to choose which of the incentives he would like, the experimenter has actually given the subject a set of six "free behaviors" that he may exercise. They are the freedom (1) to choose the most attractive alternative, (2) to choose the second most attractive alternative, (3) to choose the least attractive alternative, (4) to reject the most attractive alternative, (5) to reject the second most attractive alternative, and (6) to reject the least attractive. While these "freedoms" may vary in importance to the individual and be related in certain ways to each other, this is the set of "free behaviors" in this experiment.

The specific prediction that can be gleaned from this theory is that, within the Choice conditions, the less attractive the assistant's assignment, the more aggressive should be the subject's response. This follows from the hypothesis that the more important the freedom which is threatened or eliminated, the greater should be the reactance. And the more the reactance, the greater should be the tendency to aggress. Thus, the less attractive the reward assigned by the assistant, the more important are the freedoms that are eliminated, and, consequently, the greater the arousal of reactance.

Reactance theory (Brehm, 1966) can be applied to make one further prediction that cannot be made using simple frustration (Dollard et al., 1939) or expectancy theories (Berkowitz, 1962).¹ As stated, one of the behaviors that has been observed following the elimination of the freedom to choose between alternatives is that the eliminated alternatives tend to increase in attractiveness and the forced alternative decreases (Brehm, Stires, Sensenig & Shaban, 1966; Hammock & Brehm, 1966). Thus, it could be predicted that when the assistant arouses reactance by assigning a reward (Choice conditions) the assigned alternative will decrease in attractiveness while the others will increase.

In summary, the present experiment was designed to examine the effect of simple frustration, violation of expectancy and reactance on aggression.

1. A number of other theorists (Amsel, 1958; Brown & Farber, 1951) have hypothesized that frustration increases the drive to obtain the blocked goal rather than simply to instigate aggression. From this view, it is possible to make the prediction that the increased drive to obtain the goal should lead to its increase in attractiveness. Thus, if the individual is motivated to obtain the most attractive object, frustration should lead to its increased attractiveness and no change or a decrease in the value of other available objects (Knott, Nunnally & Duchnowski, 1967).

Chapter II

METHOD

Design Overview

The experimental design was a 3 X 3 factorial. The experimenter manipulated the first variable as he led subjects to believe either that they would have a choice in deciding which of three incentives they would receive for participating in the experiment (Choice), that they would definitely receive the reward they rated most attractive (Expectancy), or that an assistant would assign them one of the three alternatives (No Expectancy). The assistant¹ controlled the second independent variable as he assigned subjects either the incentive they had rated first, second, or third most attractive. The main dependent variable was subjects' ratings of the assistant on a number of dimensions.

Each subject was met by the experimenter who explained that the purpose of the experiment was to test the effects of certain types of incentive on

1. John D. Joslin served as the assistant.

people's performance. He told the subject that there were three different incentives being used in this experiment--one hour experimental credit, five dollars cash, or a bottle of men's cologne. After the subject had rated the attractiveness of the three alternatives, the experimenter gave the instructions that assigned him to either the Choice, Expectancy, or No Expectancy condition. The subject was further informed that an assistant would instruct him on completing the two experimental tasks--motor coordination and reading skills. Finally, the experimenter elicited a promise from the subject that he would return after the experiment and rate the assistant on a number of dimensions. This rating would help the experimenter in deciding whether or not to hire the assistant for an important job.

Upon arriving at the assistant's office, the subject was guided through the motor coordination and reading skills task by the assistant. After this, the assistant gave the subject the first (Most Attractive Item), second (Second Most Attractive Item), or third most attractive item (Least Attractive Item). The subject then returned to the experimenter's office, completed the main dependent measure (rating of the assistant), and rerated the attractiveness of the incentives.

Thus, the design consisted of Choice, Expectancy, and No Expectancy conditions, each subdivided into Most Attractive Item, Second Most Attractive Item, and Least Attractive Item conditions.

Experimental Materials

There were three incentives utilized in the study. One was an hour experimental credit which was represented to the subjects by a pile of experimental "credit slips" in front of the assistant. Five dollars cash was another of the incentives and subjects were allowed to see a stack of five dollar bills on the assistant's table. Cologne was the third incentive, and subjects were shown boxes of "OLD SPICE Cologne for Men" (retail value approximately \$1.79) by both the experimenter and assistant.

Subjects performed two tasks. The first, presented as a motor coordination task, involved the turning of pegs. The peg board consisted of a black base (14 in. X 18 in.) with 48 pegs (1 in. square) arranged in six rows of eight pegs. The pegs were painted black on two sides and silver on the other two sides and were set one inch apart from each other. The second task was reading skills and required the subject to read a five-page essay and circle mistakes in grammar or sentence construction. The essay, entitled "The Impact of Lutheranism," was extracted from Of Man and Politics (Butz, 1964, pp. 81-85) and contained a number of mistakes in grammar and spelling, purposely inserted.

Subjects

One hundred twenty-three undergraduate males enrolled in introductory psychology courses at Duke University served as subjects in this experiment. Participation in a certain number of experiments is a course requirement, although subjects are free to choose in which studies they will participate. Subjects in this study signed up for an experiment entitled "Motivation and Performance." Also on the sign-up sheet was the following note: "One hour experimental credit--money--or a gift will be given for participation in this experiment." Subjects were run individually with a session lasting about forty minutes.

Fourteen subjects were assigned to each of the Choice and Expectancy conditions and ten were placed in each of the No Expectancy conditions. This inequality was due to the fact that the No Expectancy conditions were not begun until two subjects had been run in each of the other conditions and because the experimenter was most interested in the comparisons between the Choice and Expectancy conditions. Since there were no differences in the data obtained from subjects in the Choice and Expectancy conditions who were run before and after the institution of the No Expectancy condition, their results were combined. With this exception, subjects were randomly assigned to conditions.

The data from nine subjects were not included in the analyses for the following reasons: five subjects were suspicious (one each in the Choice--

Second Most Attractive Item, Choice--Least Attractive Item, Expectancy--Second Most Attractive Item, Expectancy--Least Attractive Item, and No Expectancy--Second Most Attractive Item cells), one subject failed to return to fill out the assistant rating (Choice--Most Attractive Item condition), two subjects refused to take the incentive offered by the assistant (Choice--Least Attractive Item condition), and one subject had been told of the experimental manipulations beforehand (No Expectancy--Most Attractive Item cell). In all, the data from 114 subjects were analyzed.

Procedure

When the subject arrived at the experimenter's office, the experimenter explained that he would not actually be instructing the subject in the work on the experimental tasks, but that he would tell him the purpose and the history of the study. He began by stating that there had been a large number of psychological studies performed in an attempt to understand the relationship between different types of incentive and motivation and performance, but that the data from these studies were of little value, since the majority of the experiments had lacked experimental control. The subject was told that this area of research had a great deal of potential in solving some problems in industry and education but, because of the poor quality of studies in this area, the results obtained from them yielded a confused and unclear picture of the

effect that different types of incentives have on motivation and performance.

The experimenter continued, saying that Duke University "along with nine other colleges and universities has been given a fairly large grant to do a series of systematic studies in the area of motivation and performance. The aim of these experiments is to specifically answer the question: What is the best type of incentive to give people so that they will perform certain tasks well?" He explained to the subject that the reason for having so many schools in the research program was to enable the experimenters to check the validity and reliability of their results.

The subject was informed that the experiment in which he was participating was the first and simplest study in the research program, but that the experimenters were very interested in it for two reasons. First, they were interested in the relationship between the incentives used and people's performance on the tasks; and, secondly, they were interested in seeing if they could obtain the same results at Duke University as were obtained at the other schools involved in the research program. The experimenter continued to outline the experiment, telling the subject that he would have to perform two tasks. The first would be a motor-coordination task which was chosen to simulate the job of an assembly-line worker, and the second was a reading skills problem which was included to mimic the work of a student. This extensive introduction of the study was included in order to involve the subject in the experiment and to lessen the probability that the manipulations pertaining to the incentives would arouse suspicions.

The experimenter told the subject that three different incentives were being used in the study and that he would receive only one. He then introduced the incentives by naming each (one hour experimental credit, five dollars cash, and a bottle of men's cologne), showing the subject a bottle of cologne, a stack of five dollar bills, and a number of credit slips, and injected: "We felt these were fairly liberal since it should not take you more than 15 or 20 minutes to complete the tasks." At this point, the experimenter handed the subject a questionnaire asking him to rate how attractive the three incentives were to him. The experimenter explained that this questionnaire would help in analyzing and comparing the results of the subject's performance on the tasks to that of other subjects.

The questionnaire (Appendix B) was entitled "Research in Motivation and Performance," and in the top right-hand corner was a space marked "Experimental Number." The instructions explained that the subject would only receive one of the incentives but that he was to rate each by circling the dot which most approximated his attitude. The question "How attractive are the following rewards?" followed the instructions, and each alternative was listed with an 18-point scale running from "Very attractive" to "Not at all attractive" below each name. As the subject completed the questionnaire, the experimenter glanced over his shoulder to see how the subject rated the incentives. Until this juncture of the experiment, the instructions to each subject were exactly the same. While the subject was busy with the questionnaire, the experimenter checked a prearranged schedule to determine

in which condition the subject was to be included.

Choice Conditions

After the subject returned the questionnaire, the experimenter made it clear to the subject that he would be free to choose which incentive he wanted by saying:

The experiment is arranged so that subjects will have a free choice as to which reward they would like. So, when you get upstairs you'll be free to choose which one of the incentives you'd like to have. Merely indicate to the assistant at the proper time which one you would like to have. Do you have any question about the experiment?

Expectancy Conditions

After the subject returned the questionnaire, the experimenter assigned the subject to receive the incentive he had rated most attractive by "randomly" drawing from a box of envelopes in front of him an envelope with the name of this alternative. The subject was shown the box containing a number of envelopes, each marked "Motivation and Performance Gift," and the experimenter stated the following:

The experiment is arranged so that subjects are randomly assigned one of the incentives. The secretaries put slips of paper with the name of an incentive on each inside these envelopes. They then scrambled them up and I've been reaching into the box and pulling out an envelope. You'll get the incentive indicated by the paper inside the envelope.

You'll get the _____ (most attractive incentive). I hope that's satisfactory for you. So, you'll receive for participating in the experiment the _____ (most attractive incentive). Do you have any questions about the experiment?

The envelopes in the box were arranged so that those on top of the

stack assigned five dollars, those in the middle assigned the cologne, and those on the bottom assigned an hour experimental credit. The subject was shown the box and envelopes and then the experimenter replaced the box on his desk for the drawing. The sides of the box were high enough so that the subject could not see from where the experimenter pulled the envelope. The envelope was opened in front of the subject and he was allowed to read the assignment at the same time the experimenter read it.

No Expectancy Conditions

Upon receiving the completed questionnaire, the experimenter made it clear to the subject that the assistant would be responsible for assigning him an incentive. The subject was told:

The experiment is arranged so that the assistant will assign you one of the incentives. When you get upstairs, he'll explain more about the experiment to you and he will assign you the incentive you will receive for being in this experiment. Do you have any questions about the experiment?

Introduction of Main Dependent Measure

Before the subject was allowed to leave the experimenter's office, the experimenter explained to each subject that there were actually three people who wanted to be the research assistant for this study and who wanted to be in charge of the project next year. The experimenter confided that he would be happy to hire all three but that the "Duke Faculty Research Council" had decided that for purposes of experimental control it was best to have only

one person run all the experiments in the program. It was further explained to the subject that because of this decision the experimenter himself was not allowed to supervise subjects in the present study, since he would not be at Duke University the following year to continue the project. The experimenter thus informed the subject that only one of the three assistants could be hired and attempted to recruit his help in the following manner:

They all want the job a great deal, but I've got to decide which one to hire. I've got background information on each of them and I've watched them run the experiment. However, since they will have to be dealing closely with subjects not only this year, but next year too, it's important that subjects see them as competent experimenters. So, I felt that maybe one of the best sources of information I could use in deciding which one to hire would be the subjects' impression of them as experimenters. In line with this, I've been asking subjects to return here after the assistant has run them through the experiment and fill out this questionnaire on their impression of the assistant. (Hands subject the Assistant Evaluation form.) You can see that I've listed the four or five traits I felt might be important for a good experimenter to have. I wonder if you would return here and fill out this questionnaire about the assistant after the experiment?

The subject was shown an example of the Assistant Evaluation Form (Appendix C) and his promise to return and complete the questionnaire was obtained. At the top of the Assistant Evaluation Form were the words, "DO NOT INCLUDE IN DATA ANALYSIS," and there was a line entitled "Assistant being evaluated" where the experimenter had penciled in the name of the assistant. After a paragraph of instructions which asked the subject to circle the most appropriate dot on the scales, there were five 31-point scales on which the subject was to rate the assistant on the following dimensions: efficiency, conducting experiment smoothly, pleasantness of manner,

likeability, and whether this assistant should seriously be considered for the job. Finally, the subject was asked to note any "relevant points which should be considered" in deciding whether or not to hire this assistant.¹ The subject was told that the form would be on the desk in the office adjacent to the experimenter's and that he should return there and complete it. The reason for this procedure, it was explained, was that there was an overlap in the scheduling of subjects and the experimenter would probably be occupied with the next subject when the first one returned to fill out the questionnaire. A general reason for this procedure, which was not explained to the subject, was to prohibit the subject's complaining to the experimenter about the incentive he had received before the evaluation form was completed.

The experimenter then penciled the subject's name on a Code Slip which read: "Mr. _____ has been briefed as to the purpose of the experiment on Motivation and Performance." The subject was told that the purpose of this slip was to inform the assistant that the experimenter had briefed the subject about the experiment and that the subject should give the assistant this slip upon arriving at his room. The actual purpose of the Code Slip was to cue the assistant as to which incentive he should assign the subject.

Subjects were then instructed as to how to get to the assistant's room

1. Due to a mistake in the printing, the assistant was referred to as a female in this last question. This apparently was one of the reasons that a number of subjects did not answer this question.

in order to continue the experiment. Finally, the experimenter reminded each subject of the procedure which would be employed in assigning him an incentive by saying:

Choice Conditions

Remember, you're free to choose whichever incentive you'd like to have for participating in the experiment.

Expectancy Conditions

Remember, you're to receive the _____ (most attractive incentive) for participating in the experiment.

No Expectancy Conditions

Remember, the assistant will assign you an incentive for participating in the experiment.

Rank of Item Assigned by Assistant Manipulation

The assistant met the subject when he arrived at his office, received the Code Slip from the subject (although he did not look at it), and asked the subject to be seated at a table. The purpose of the assistant's not reading the Code Slip was so that he could remain blind regarding in which condition the subject was to be. After asking the subject if he had any questions about the experiment, the assistant carefully explained how the subject was to perform the "motor-coordination" task. The subject was told that he was to

turn each of 48 pegs on the form board one-quarter turn, using only one hand. The order he should follow in turning the pegs was outlined and the subject was informed that he should continue until the assistant stopped him. After ascertaining that the subject understood the procedure, the experimenter started a stopwatch and told the subject to begin. The subject continued this task for eight minutes, during which time the assistant appeared to be taking careful notes on the performance.

After completing this task, the subject was allowed a two-minute rest period. Then the experimenter began explaining the "reading skills" task in the following way:

The next task is a reading skills task. I want you to read this passage and pick out any mistakes you find in it. These mistakes may be in the form of misspelled words, incomplete sentences, badly phrased sentences, or other mistakes like this. You are to circle the mistakes you find. Don't bother to correct the mistake--just circle it and go on. Work as quickly as possible. I will be timing you. Do you have any questions? O.K., you may start.

The subject was handed a five-page essay entitled "The Impact of Lutheranism" (Butz, 1964, pp. 81-85) which had been liberally sprinkled with errors in grammar, sentence construction, and spelling. While the subject was occupied with the essay, the assistant read a book and at one point began to drum his fingers noisily on the table in an attempt to slightly distract the subject. When the subject had been reading for nine minutes or when he began reading the last page, the assistant announced that the time was up for this task. Then after glancing at his stopwatch, the assistant exclaimed that there was actually one minute left for the subject to read. Finally, after the

subject had read another two minutes, the assistant stopped him and collected the essay.

In his performance, the assistant acted somewhat nervous and unsure of himself. He also read a book during part of the time the subject was reading the essay. These and the mistakes he made in administering the tasks were purposely included in order that he not appear so smooth that the subject would find it extremely difficult to rate him low on the Assistant Evaluation Form.

While the subject had been reading, the assistant glanced at the Code Slip to determine which alternative he would assign the subject. After the subject had completed the last task, the assistant glanced at the three different incentives which had been lined up in front of the subject as he performed the two tasks and at a list he had in his hand, and said:

This completes the experiment. You will get the _____ (incentive named in Code Slip). I've decided to try and give out equal numbers of each incentive, so you'll get this one.

The assistant then handed him the designated alternative and thanked the subject for being in the experiment. If the subject protested, the assistant told him this was the way he had decided to run the experiment and then ushered the subject out of his office. Thus, the rank of incentive assigned variable was manipulated by the assistant giving the subject either the first, second, or third rated item.

Collection of Assistant Evaluation

The subject then went to the office adjacent to the experimenter's where he found the Assistant Evaluation Form and a pencil on a desk. After he had worked on this form, the experimenter entered the office and handed the subject a second questionnaire (Appendix D) and asked him, for purposes of "further control," to fill this out after he had completed the Assistant Evaluation. This second questionnaire, entitled "Research in Motivation and Performance," asked the subject to rate how enjoyable he found the two experimental tasks on a 10-point scale ranging from "Very enjoyable" to "Not at all enjoyable" and to rate the attractiveness of the three incentives on the same 18-point scale employed in the first rating of these alternatives.

After the subject had completed the questionnaires, the experimenter entered the office, took the questionnaires, and began carefully exploring any suspicions or hypotheses the subject had developed about the experiment. After he was satisfied that the subject had not been suspicious of the experimental manipulations, the experimenter disabused the subject by explaining the true nature of the experiment. Finally, the subject was given a choice as to whether he wanted one hour experimental credit or five dollars for participating in the experiment. A bottle of cologne was not offered because it could be obtained easily and the cost was much less than five dollars.

Summary of Design

The experiment was a 3 X 3 factorial design including the following

conditions: Choice--Most Attractive Item, Choice--Second Most Attractive Item, Choice--Least Attractive Item, Expectancy--Most Attractive Item, Expectancy--Second Most Attractive Item, Expectancy--Least Attractive Item, No Expectancy--Most Attractive Item, No Expectancy--Second Most Attractive Item, No Expectancy--Least Attractive Item. Fourteen subjects were assigned to each of the Choice and Expectancy conditions and ten were assigned to each of the No Expectancy cells. Subjects were first confronted with an experimenter who either told them they would have a choice as to which of three incentives they wanted, assigned them the incentive they rated most attractive, or told them an assistant would assign them one of the incentives. An experimental assistant then instructed them on the completion of two tasks and assigned them one of the three incentives (Most, Second, or Least Attractive). In all, subjects filled out three questionnaires: incentive attractiveness rating, assistant rating, and task and incentive rating. The assistant rating constituted the main dependent measure of aggression.

Chapter III

RESULTS

All subjects completed three questionnaires. There were pre- and post-measures of the attractiveness of the three incentives, a rating of the enjoyableness of the motor coordination and reading skills tasks, and an evaluation of the assistant.

Before subjects were told of the procedure which would be used in assigning them an incentive, the experimenter asked them to rate the attractiveness of each alternative on an 18-point scale (1 = "Very attractive," 18 = "Not at all attractive"). Three incentives (experimental credit, five dollars, men's cologne) were included in this experiment so that it would be possible to vary systematically the strength of frustration or reactance experienced by the subject. It was important, therefore, that there be significant differences in attractiveness between the first, second, and third rated items. Further, since subjects were randomly assigned to conditions, there would be no reason to expect differences between the Choice, Expectancy, and No Expectancy conditions in the absolute attractiveness of each of the

ranked items. A 3 (Method of Item Assignment) X 3 (Rank of Item Assigned by Assistant) X 3 (Rank of Item Being Rated) repeated measures analysis of variance was computed to test the comparability of subjects' ratings across conditions and the hypothesis that there were no systematic differences in the initial attractiveness of the first, second, and third rated incentives. From a glance at the mean ratings of the incentives presented in Table 1 and the analysis of these results in Table 2, it can be seen that the hypothesis of no difference in the ratings between the three incentives was rejected at well beyond the .001 level of confidence ($F = 985.75$, $df = 2, 210$)¹ and that there seemed to be no systematic differences in the ratings of the alternatives between experimental conditions. The overall average ratings of the ranked incentives were: Most Attractive = 2.91, Second Most Attractive = 6.66, Least Attractive = 14.70. The difference between the first and second rated incentive was highly significant ($F = 190.57$, $df = 1, 210$, $p < .001$), as was the difference between the second and third rated incentives ($F = 878.99$, $df = 1, 210$, $p < .001$). One further difference is evident in the data. There was a greater difference in the attractiveness ratings between the second and third ranked alternatives than between the first and second ranked items ($F = 83.85$, $df = 1, 210$, $p < .001$). Of further interest is the fact that when given a choice of incentives after the study over 93% of the subjects in the No Expectancy conditions, over 92% of the subjects in the Expectancy, and

1. Two-tailed tests have been used on all tests of significance.

Table 1
Mean Initial Ratings of the Attractiveness of Items

Method of Item Assignment	Rank of Item Assigned by Assistant	Rank of Item Being Rated		
		Most Attractive	Second Most Attractive	Least Attractive
Choice ^a	Most attractive	2.93 ^b	6.86	14.64
	Second most attractive	2.86	6.21	14.50
	Least attractive	2.93	7.50	15.36
Expectancy ^a	Most attractive	3.00	6.71	14.00
	Second most attractive	2.71	6.93	14.64
	Least attractive	2.64	6.29	15.00
No Expectancy ^a	Most attractive	3.40	8.00	14.50
	Second most attractive	3.20	6.10	14.60
	Least attractive	2.50	5.30	15.10

a. Fourteen subjects in each of the Choice and Expectancy cells and ten in each of the No Expectancy cells.

b. 1 = "Very attractive, " 18 = "Not at all attractive. "

Table 2
Summary of Analysis of Variance Performed on
Initial Ratings of Incentives

Source	SS	df	MS	F
<u>Between subjects</u>				
A (method of item assignment)	2.34	2	1.17	< 1
B (rank of item assigned by assistant)	3.56	2	1.78	< 1
A x B	26.63	4	6.66	1.08
Subjects within group	648.85	105	6.18	
<u>Within subjects</u>				
C (rank of item being rated)	8,063.45	2	4,031.72	985.75 ^a
A x C	3.21	4	.80	< 1
B x C	27.50	4	6.88	1.68
A x B x C	22.19	8	2.79	< 1
B x C x subjects within group	859.45	210	4.09	

a. $p < .001$.

over 88% of the subjects in the Choice cells chose the incentive they had rated most attractive on the pre-measure.

Measures of Hostility

After subjects had completed the experimental tasks and had been assigned an incentive by the assistant, they returned to the office of the experimenter to complete a questionnaire rating the assistant on a number of dimensions. This questionnaire constituted the main dependent measure in the experiment and was regarded to be a measure of aggression, not just hostility, since subjects believed they could "injure" the assistant by keeping him from being hired for a very attractive job. There were five dimensions (efficient, conducts experiment smoothly, pleasant manner, likeable, should be considered for the job) on which subjects were to rate the assistant on 31-point scales and an open-ended question where subjects could list further "relevant points" which they felt should be considered in hiring the assistant.

Before offering the data obtained from this questionnaire, two points need to be discussed. The first pertains to the questionnaire itself. It was felt that the question stating "Everything considered, do you think this person would make a good experimenter and should be seriously considered for the job of research assistant?" and followed by a 31-point scale running from

"Very definitely yes" (1) to "Very definitely no" (31) would be the most relevant item since it allowed the subject to state directly that the assistant should not be hired and it asked the subject to consider everything about the person. It was felt that, while the other four questions would not be as sensitive as this one, they would all offer opportunities for the subjects to express aggression. However, several subjects commented that they did not think that how likeable or how pleasant a manner the assistant had should be, or would be, taken into account in hiring him. Therefore, it is difficult to label the results from these two questions as aggression. At best, they may merely reflect gross feelings of hostility against the assistant.

The second point that needs to be discussed deals with the presentation of the data. There are a number of alternative ways in which the data from the Assistant Evaluation could be analyzed and presented. However, for purposes of clarity and in order to make the most meaningful comparisons, data from the Choice and No Expectancy conditions will be compared separately with those from the Expectancy conditions. This is because the clearest test of the reactance theory predictions calls for comparisons between the Choice and Expectancy conditions as the main difference between these conditions is that subjects believed they would have the freedom to decide on an alternative in the Choice conditions, but not in the Expectancy cells. In both Choice and Expectancy conditions, the subjects expected they could have the most attractive reward. Since the Choice manipulation involved both expectancy and freedom of choice, differences between these cells and corre-

sponding ones in the No Expectancy condition would be difficult, if not impossible, to interpret. In order to test the expectancy theory hypothesis that aggression is the result of a violated expectation and not merely a simple frustration, the comparison must be made between Expectancy (involving both violated expectancy and frustration) conditions and the No Expectancy (frustration only) cells. Thus, two sets of 2 (Method of Item Assignment) X 3 (Rank of Item Assigned) analyses of variance will be reported for each question on the Assistant Evaluation questionnaire with the Expectancy conditions being common to both tests. First, the data concerning the comparisons of the Expectancy and No Expectancy conditions will be presented.

No Expectancy and Expectancy

If simple frustration is a sufficient condition for the instigation to aggression, frustration and aggression theory could be used to predict:

Within the No Expectancy conditions, there should be significantly more aggression expressed by subjects in the Second Most Attractive Item condition than by those in the Most Attractive Item condition and significantly more aggression should be found in the Least Attractive Item cell than in the Second Most Attractive Item condition.

If a violation of expectancy is necessary for the instigation to aggression, expectancy theory would predict:

There should be more aggression in the Expectancy--Second Most Attractive Item cell than in the No Expectancy--Second Most Attractive Item condition and more aggression in the Expectancy--Least Attractive Item condition than in the No Expectancy--Least Attractive Item condition.

"Everything considered, do you think this person would make a good experimenter and should be considered for the job of research assistant?"

Subjects were asked to answer this question on a 31-point scale ranging from "Very definitely yes" (1) to "Very definitely no" (31) and, as stated, it was felt that scores on this item would offer the best measure of direct aggression.

The overall analysis of the data obtained on this question indicated no significant effects for the method of item assignment, rank of item assigned, or the interaction between these two variables (Table 3). Further comparisons showed no differences between any of the cells within the No Expectancy conditions. Thus, there was no support obtained on this measure for the predictions advanced from simple frustration and aggression theory.

Support for predictions from expectancy theory was equivocal. There was no reliable difference between the Expectancy--Second Most Attractive Item cell and the corresponding No Expectancy condition, although the difference between Expectancy and No Expectancy cells obtained the accepted level of significance when the least attractive item was assigned the subject ($F = 4.81, df = 1, 66, p < .05$).

Ratings of the efficiency of the assistant and how smoothly he conducted the experiment. In the instructions on the Assistant Evaluation, subjects were asked to "Circle the dot which best indicates your impression of the assistant." Below this and numbered one was a 31-point scale running from "Very efficient" (1) to "Very inefficient" (31) with point 16 being

Table 3a

Means of Data from "Should Seriously Be Considered"
Question from Expectancy and
No Expectancy Cells

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Expectancy ^a	10.50 ^b	10.00	14.36
No Expectancy	11.40	9.50	10.50

a. Fourteen subjects in Expectancy cells and ten subjects in No Expectancy cells.

b. 1 = "Very definitely yes," 31 = "Very definitely no."

Table 3b

Summary of Analysis of Variance Performed on Data from
 "Should Seriously Be Considered" Question from
 Expectancy and No Expectancy Cells

Source	SS	df	MS	F
A (method of item assignment)	23.52	1	23.52	1.29
B (rank of item assigned by assistant)	84.79	2	42.40	2.33
A x B	70.32	2	35.16	1.93
Within cell	1,202.12	66	18.21	

labeled "neutral point." Following this was a second 31-point scale with the end points labeled "Conducts experiments smoothly" (1) and "Does not conduct experiments smoothly" (31). These questions were not felt to be as sensitive to aggression as the one discussed above since these dealt with a more limited area of behavior. However, it was expected that these questions would reflect aggression and the same predictions made for the "should be considered" question were made for the results from these two queries.

The means and overall analyses of variance performed on these data are presented in Tables 4 and 5. Again, no significant differences were found for the Method of Item Assignment and Rank of Item Assigned by Assistant variables. However, a significant interaction ($F = 4.21$, $df = 2, 66$, $p < .05$) was found on the "conducts experiments smoothly" question and a trend for interaction was obtained on the "efficient" item ($F = 2.48$, $df = 2, 66$, $p < .10$). However, because the form of the interactions was different on the two questions and because neither could have been predicted by the two theories, it is difficult to interpret the meaning of these interactions.

There was no support obtained for the simple frustration and aggression theory predictions on either of the questions. There were no significant differences within the No Expectancy cells and the order of the means within the cells was not even as predicted.

As with the "should be considered" question, the only support garnered for expectancy theory was the finding that there was more aggression in the Expectancy cells when the least attractive item was assigned than in these

Table 4a
 Means of Data from "Efficient" Question from
 Expectancy and No Expectancy Cells

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Expectancy ^a	9.57 ^b	10.36	13.29
No Expectancy	11.00	9.60	9.70

a. Fourteen subjects in Expectancy cells and ten in No Expectancy cells.

b. 1 = "Very efficient," 31 = "Very inefficient."

Table 4b

Means of Data from "Conducts Experiments Smoothly" Question
from Expectancy and No Expectancy Cells

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Expectancy ^a	9.86 ^b	8.21	14.36
No Expectancy	9.70	10.80	9.30

a. Fourteen subjects in Expectancy cells and ten in No Expectancy cells.

b. 1 = "Conducts experiments smoothly," 31 = "Does not conduct experiments smoothly."

Table 5a

Summary of Analysis of Variance Performed on Data
from "Efficient" Question for Expectancy
and No Expectancy Cells

Source	SS	df	MS	F
A (method of item assignment)	16.82	1	16.82	1.12
B (rank of item assigned by assistant)	30.34	2	15.17	1.01
A x B	74.32	2	37.16	2.48 ^a
Within cell	990.01	66	15.00	

a. $\underline{p} < .10$.

Table 5b

Summary of Analysis of Variance Performed on Data from
 "Conducts Experiments Smoothly" Question for
 Expectancy and No Expectancy Cells

Source	SS	df	MS	F
A (method of item assignment)	13.52	1	13.52	1
B (rank of item assigned by assistant)	75.85	2	37.92	1.81
A x B	176.64	2	88.32	4.21 ^a
Within cell	1,383.10	66	20.96	

a. $p < .05$.

No Expectancy conditions (efficient, $F = 5.50$, $df = 1, 66$, $p < .05$; conducts experiments smoothly, $F = 7.19$, $df = 1, 66$, $p < .01$). There were no significant differences between these cells when the second ranked item was given to the subjects.

How pleasant and likeable was the assistant? Item three was a 31-point scale running from "Has a very pleasant manner" (1) to "Has a very unpleasant manner" (31) with the middle of the scale being marked "neutral point." The fourth scale was similar to the third except that the end points were labeled "Very likeable" (1) and "Very unlikeable" (31). It was first believed that these items would be as direct a measure of aggression as the "efficient" and "conducts experiments smoothly" items and that the results would, therefore, be similar. However, throughout the experiment several subjects commented, even before being debriefed, that they did not think these two items on pleasantness of manner and likeability should enter into the decision of whom to hire, and further a few subjects believed that these two items were merely "catch" items to see if the subject was discriminating and careful in rating the assistant. If subjects did perceive these items as unimportant and not to be considered in the decision about the assistant, responses to these would not represent true aggression. At best, they may be taken as crude measures of general hostility.

Since interpretation of the results from these two questions is difficult, only a cursory glance will be given at the data. The means and summaries of analyses performed on these data are given in Appendixes E and F. There

were no statistically significant main effects or interactions on either of these questions. Support for simple frustration theory was totally lacking as there were no within No Expectancy condition differences. In fact, the order of the means for the "pleasant manner" question was exactly the reverse of that expected by the theory. The only support for expectancy theory was a significant difference between Expectancy--Least Attractive Item cell and the corresponding No Expectancy cell on the "pleasant manner" question ($F = 4.42$, $df = 1, 66$, $p < .05$). This difference did not reach significance on the "likeable" question.

Additional points (about the assistant) which should be considered.

The last item on the Assistant Evaluation Form read "Please note any relevant points about this person which should be considered in employing her as an experimenter and describe your impression of her." Following this there was a blank space for the subject's response. The answers to this question were categorized along with the following dimensions: (1) favorable comments about the assistant, (2) negative comments about the assistant's personality, (3) comments about mistakes the assistant made in the experiment, and (4) comments about the incentive assigned. Examples of each of these categories are given in Appendix G.

Predictions about how subjects would answer this question are difficult to make from the theories. On the whole, however, it would be expected that there would be fewer positive and more negative comments about the assistant or his performance in the experiment in those conditions which

contained the necessary aspect to incite aggression. Thus, if violation of expectancy is responsible for the instigation to aggression, there should be more negative and fewer positive comments in the Expectancy conditions than in the No Expectancy ones.

Because less than half the subjects answered this last question, it was not feasible to compare within the Method of Item Assignment. Therefore, only comparisons between the combined Method of Item Assignment conditions were made (Expectancy conditions vs. No Expectancy conditions). Though somewhat fewer subjects in the Expectancy conditions answered this question, the difference was not significant and should not affect the analysis of these results. There were, however, no significant differences in the answers supplied by people in the Expectancy and No Expectancy conditions on any of the dimensions. Nine of fourteen subjects in the Expectancy condition gave positive comments about the assistant, while seven of fourteen subjects in the No Expectancy condition gave these comments ($X^2 < 1$, $df = 1$, $p = n. s.$). Four of fourteen subjects mentioned negative personality traits about the assistant in the Expectancy condition and the same number followed suit in the No Expectancy condition. There was no difference in the number of subjects in the two Method of Item Assignment conditions who remarked about mistakes the assistant made in administering the tasks (Expectancy 4/14, No Expectancy 6/14). Thus, differences between the Expectancy and No Expectancy conditions which would have supported the hypothesis that violation of expectancy is the crucial aspect for instigation to

aggression were not found in the data.

In all, the data from all the aggression questions offered no support for frustration and aggression theory and only slight support to expectancy theory predictions. The next set of comparisons which are of interest are those involving the Expectancy and Choice conditions.

Expectancy and Choice

Expectancy theory can be utilized to make the following prediction:

1. Within the Expectancy conditions, there should be significantly more aggression exhibited by subjects in the Second Most Attractive Item condition than by subjects in the Most Attractive Item cell and most aggression should be expressed by subjects in the Least Attractive Item condition.

If the arousal of reactance can instigate aggression, reactance theory can be invoked to make the following predictions:

1. Within the Choice conditions, there should be more aggression expressed by subjects in the Second Most Attractive Item condition than by those in the Most Attractive Item cell and most aggression should be expressed by subjects who are assigned the least attractive item.
2. There should be more aggression found in the Choice conditions than in the Expectancy conditions as reactance should only be aroused in the Choice cells.

"Everything considered, do you think this person would make a good experimenter and should be considered for the job of research assistant?"

The means of subjects' responses to the main dependent measure of aggression and the analysis of these means are presented in Tables 6 and 7. From the overall analysis of variance it is evident that subjects in the Choice

Table 6

Means of Data from "Should Seriously Be Considered" Question
from Choice and Expectancy Conditions

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Choice ^a	13.57 ^b	17.07	22.21
Expectancy	10.50	10.00	14.36

a. Fourteen subjects in each cell.

b. 1 = "Very definitely yes," 31 = "Very definitely no."

Table 7

Summary of Analysis of Variance Performed on Data from
 "Should Seriously Be Considered" Question from
 Choice and Expectancy Conditions

Source	SS	df	MS	F
A (method of item assignment)	756.00	1	756.00	44.50 ^b
B (rank of item assigned by assistant)	596.17	2	298.08	17.54 ^b
A x B	92.21	2	46.10	2.71 ^a
Within cell	1,325.43	78	16.99	

a. $\underline{p} < .10$.

b. $\underline{p} < .001$.

conditions were more aggressive than subjects in the Expectancy conditions ($F = 44.50$, $df = 1, 78$, $p < .001$). Apparently the loss of the freedom of choice played an important role in the instigation of aggression. The significant difference ($F = 17.54$, $df = 2, 78$, $p < .001$) obtained on the Rank of Item Assigned variable indicates that the attractiveness of the reward which the assistant assigned the subject also had a strong effect in determining the strength of the resulting aggression.

The support for the expectancy theory prediction of more aggression the less attractive the reward given by the assistant in the Expectancy conditions was equivocal. There was no significant difference in the amount of aggression found in the Expectancy--Most Attractive Item condition and the Expectancy--Second Most Attractive Item condition, although there was significantly more aggression expressed by subjects in the Expectancy--Least Attractive Item condition than by subjects in the Expectancy--Second Most Attractive Item condition ($F = 7.82$, $df = 1, 78$, $p < .01$).¹

1. Caveat emptor. A number of individual comparisons on the data obtained in the various cells have been made. The significance value reported for these comparisons may be somewhat inflated as no attempt has been made to correct for the overall probability of the occurrence of committing a type I error. There seems to be disagreement, even among statisticians, as to when a correction is necessary and exactly what steps should be employed when attempting such a correction (Miller, 1966; Winer, 1962). Because of this and because the methods for correction are conservative and reduce the power of the statistical tests, no corrections for the probability of committing the type I error have been made. One method which has been used to correct for the possible inflation of the probability of committing a type I error when a number of comparisons are run on the same data would require an F value around 8.00 to reject the null hypothesis if a set of 10 simultaneous comparisons were computed for the same set of data (Dunn & Massey, 1965).

On the other hand, the reactance theory prediction of increasing aggression within the Choice conditions as the item assigned by the assistant became less attractive received strong support as there was more aggression displayed by subjects in the Choice--Second Most Attractive Item condition than by those in the Choice--Most Attractive Item cell ($F = 5.05$, $df = 1, 78$, $p < .05$) and significantly more aggression was displayed by subjects in the Choice--Least Attractive Item condition than individuals in the Choice--Second Most Attractive Item condition ($F = 10.90$, $df = 1, 78$, $p < .01$). The slight trend for an interaction ($F = 2.71$, $df = 2, 78$, $p < .10$) between the Method of Item Assignment and Rank of Item Assigned variables further points out this difference in the strength of the support found for the predictions derived from the two theories. While aggression within the Choice conditions increased as the attractiveness of item assigned by the assistant became less attractive, this effect was not as strong within the Expectancy conditions.

One further relationship was evident in the data. Not only was there overall more aggression displayed in the Choice conditions than in the Expectancy cells ($F = 44.50$, $df = 1, 78$, $p < .001$), but there was also more aggression displayed in each of the Choice cells than in the corresponding Expectancy conditions (Most Attractive Item, $F = 3.89$, $df = 1, 78$, $p < .10$; Second Most Attractive Item, $F = 20.60$, $df = 1, 78$, $p < .001$; Least Attractive Item, $F = 25.44$, $df = 1, 78$, $p < .001$). This finding could not have been predicted by expectancy theory and casts some doubt on the proposition that

violation of expectancy is an important factor in determining the strength of the instigation to aggression following thwarting.

Thus, the results obtained from the central item offer support for the reactance theory predictions that elimination of freedom can lead to aggression and, while offering support for some predictions derived from expectancy theory, they raise questions which cannot easily be answered by this theory. These questions involve the lack of increase in aggression between the Expectancy--Most Attractive Item and Expectancy--Second Most Attractive Item conditions and the finding that, regardless of the ranking of the incentive assigned, there was more aggression displayed in the Choice than Expectancy cells.

Ratings of the efficiency of the assistant and how smoothly he conducted the experiment. As was pointed out in a previous section, a score of 1 on these two questions signified that the subject believed the assistant was extremely efficient and conducted the experiment very smoothly, while a score of 31 meant that the assistant was extremely inefficient and did not conduct the experiment smoothly. The means and summary of the analyses made on these means are presented in Tables 8 and 9.

The results of the analyses on the data from the two questions were quite similar. Significantly more aggression was displayed by subjects in the Choice conditions than by individuals in the Expectancy cells (efficient, $F = 47.54$, $df = 1, 78$, $p < .001$; conducts experiments smoothly, $F = 27.84$, $df = 1, 78$, $p < .001$). The rank of incentive assigned by the assistant also

Table 8a

Means of Data from "Efficient" Question from
Choice and Expectancy Conditions

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Choice ^a	13.71 ^b	16.71	21.07
Expectancy	9.57	10.36	13.29

a. Fourteen subjects in each cell.

b. 1 = "Very efficient," 31 = "Very inefficient."

Table 8b

Means of Data from "Conducts Experiments Smoothly"
Question from Choice and Expectancy Conditions

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Choice ^a	13.29 ^b	15.57	21.50
Expectancy	9.86	8.21	14.36

a. Fourteen subjects in each cell.

b. 1 = "Conducts experiments smoothly," 31 = "Does not conduct experiments smoothly."

Table 9a

Summary of Analysis of Variance Performed on
Data from "Efficient" Question from Choice
and Expectancy Conditions

Source	SS	df	MS	F
A (method of item assignment)	780.19	1	780.19	47.54 ^a
B (rank of item assigned by assistant)	443.31	2	221.66	13.51 ^a
A x B	47.17	2	23.59	1.44
Within cell	1,280.14	78	16.41	

a. $p < .001$.

Table 9b

Summary of Analysis of Variance Performed on Data from
 "Conducts Experiments Smoothly" Question from
 Choice and Expectancy Conditions

Source	SS	df	MS	F
A (method of item assignment)	750.01	1	750.01	27.84 ^a
B (rank of item assigned by assistant)	718.17	2	359.08	13.33 ^a
A x B	68.31	2	34.16	1.27
Within cell	2,101.07	78	26.94	

a. $\underline{p} < .001$.

had a significant effect in determining the strength of the instigation to aggression (efficient, $F = 13.51$, $df = 2, 78$, $p < .001$; conducts experiments smoothly, $F = 13.33$, $df = 2, 78$, $p < .001$). Further, the interaction between the Method of Item Assignment and Rank of Item Assigned variables was not significant for either of the questions.

The support for the expectancy theory predictions of more aggression as the assigned item became less attractive in the Expectancy cells was mixed. More, though not significantly more, aggression was found on the "efficient" question in the Second Most Attractive Item condition than in the Most Attractive Item cell. However, there was a nonsignificant reversal on the "conduct experiment smoothly" question as there was more aggression in the Most Attractive Item cell than the Second Most Attractive Item condition. While this finding is damaging to the theory, expectancy theory was supported by the finding of more aggression in the Least Attractive Item condition than in the Second Most Attractive Item cell (efficient, $F = 3.66$, $df = 1, 78$, $p < .10$; conducts experiments smoothly, $F = 9.80$, $df = 1, 78$, $p < .005$).

The data obtained from these questions offered support for the reactance prediction that in the Choice conditions there should be more aggression in the Second Most Attractive Item cell than the Most Attractive Item condition and most aggression should be displayed in the Least Attractive Item cell. The means from these three cells fell in the predicted order for both questions, but the differences between the Most and Second Most

Attractive Item scores did not obtain the 5% significance level (efficient, $F = 3.84$, $df = 1, 78$, $p < .10$; conducts experiments smoothly, $F = 1.36$, $df = 1, 78$, $p = n.s.$). The difference between Second Most Attractive Item and Least Attractive Item conditions did obtain an acceptable level of significance (efficient, $F = 8.10$, $df = 1, 78$, $p < .01$; conducts experiments smoothly, $F = 9.13$, $df = 1, 78$, $p < .005$).

Finally, as with the "should be considered for the job" question, it was found that there was more aggression in each of the Choice conditions than the corresponding Expectancy cells. The difference between the Most Attractive Item conditions reached the traditionally acceptable level of significance on the "efficient" question ($F = 7.32$, $df = 1, 78$, $p < .05$) and was in the same direction on the "conducts experiments smoothly" item ($F = 3.06$, $df = 1, 78$, $p < .10$). The differences between the Second Most Attractive Item cells (efficient, $F = 17.24$, $df = 1, 78$, $p < .001$; conducts experiments smoothly, $F = 14.06$, $df = 1, 78$, $p < .001$) and the Least Attractive Item condition (efficient, $F = 25.86$, $df = 1, 78$, $p < .001$; conducts experiments smoothly, $F = 13.26$, $df = 1, 78$, $p < .001$) were found to be highly significant for data from both questions.

The results obtained on these two questions lend further support to the predictions derived from reactance theory. Where the predicted differences did not obtain the traditional 5% significance level, they were in predicted directions. As with the results on the central item on the Assistant Evaluation, the data from these two questions offer only slender support for

expectancy theory. The lack of difference in the amount of aggression between the Expectancy--Most Attractive Item and Expectancy--Second Most Attractive Item conditions and the significant differences between the corresponding cells of the Choice and Expectancy conditions are difficult to explain utilizing expectancy theory.

How pleasant and likeable was the assistant? From subject reports, it was decided that responses to these two questions would not reflect aggression but may indicate a general attitude of hostility. Scores of 1 on the questions would signify that the assistant was rated as having a very pleasant manner and as being very likeable and scores of 31 would mean that the assistant was seen as having a very unpleasant manner and as being very unlikeable. Because these scores were not believed reflective of aggression, the means and analyses of the data on these questions are given in Appendixes H and I. The results from the overall analysis of variance for these two questions were quite similar to those obtained from the other three questions on the Assistant Evaluation Form. There was significantly more hostility in the Choice conditions than in the Expectancy cells (pleasant manner, $F = 18.96$, $df = 1, 78$, $p < .001$; likeable, $F = 19.38$, $df = 1, 78$, $p < .001$) and the rank of item assigned had a significant effect on the amount of hostility (pleasant manner, $F = 5.42$, $df = 2, 78$, $p < .05$; likeable, $F = 4.26$, $df = 2, 78$, $p < .05$). The interaction between the two variables did not attain significance on either of the questions.

While the overall analyses were similar to those on the other three

questions, the pattern of results in the Choice conditions was not. Slightly more hostility was found in the Choice--Most Attractive Item condition than in the Choice--Second Most Attractive Item cell on the "pleasant manner" question, while the difference between this latter condition and the Choice--Least Attractive Item cell was in the predicted direction ($F = 2.87$, $df = 1, 78$, $p < .10$). The data from the "likeable" question were in the predicted direction within the Choice conditions, although only the difference between the Most and Second Most Attractive Item cells approached significance ($F = 3.24$, $df = 1, 78$, $p < .10$). Within the Expectancy conditions, there was significantly more hostility manifested in the Least Attractive Item condition than in the Second Most Attractive Item cell for the "pleasant manner" question ($F = 6.04$, $df = 1, 78$, $p < .05$), although not on the "likeable" question. Differences between the Most and Second Most Attractive Item conditions did not approach significance.

There was, however, more hostility expressed on both questions in the Choice conditions than in the corresponding Expectancy cells (pleasant manner: Most Attractive Item, $F = 8.30$, $p < .01$; Second Most Attractive Item, $F = 7.35$, $p < .01$; Least Attractive Item, $F = 3.80$, $p < .10$; likeable: Most Attractive Item, $F = 4.39$, $p < .05$; Second Most Attractive Item, $F = 10.68$, $p < .01$; Least Attractive Item, $F = 5.12$, $p < .05$). Besides this finding, little else from the data on these two questions resembled those from the other three questions. In all, the results from these two questions offer very mixed support for both theories.

Additional points about the assistant which should be considered. It

has been demonstrated that there were no significant differences in the number of positive or negative comments given about the assistant by subjects in the Expectancy and No Expectancy conditions. The prediction can be made that if reactance were necessary for the instigation to aggression, there should be fewer positive and more negative comments in the Choice conditions than in the other conditions.

There were significantly more favorable comments ($X^2 = 6.01$, $df = 1$, $p < .05$) in the Expectancy conditions (9/14) than in the Choice conditions (4/22). Although not reaching an acceptable level of significance ($X^2 < 1$), there were more negative comments about the personality of the assistant in the Choice conditions (11/22) than in the Expectancy conditions (4/14) and the same difference in the number of subjects mentioning mistakes the assistant made in administering the tasks was found. When negative comments about the personality of the assistant and comments about his mistakes in administering the tasks were combined, it was found that 21 of 22 subjects in the Choice conditions commented on one or both of these aspects, while 8 of 14 subjects in the Expectancy conditions made such comments. This difference was significant at greater than the 5% level ($X^2 = 5.76$, $df = 1$).

In summary, subjects were more willing to make negative and less willing to make positive comments about the assistant in the Choice conditions than the Expectancy conditions. In other words, subjects expressed more aggression by making comments that would damage the assistant's chance of

being hired when their freedom had been eliminated by him than when he only violated an expectancy. This supports the notion that the arousal of reactance can serve to instigate an individual to aggress.

Experiment II

A second experiment was designed to highlight further the point that the loss of freedom, and not merely the loss of a particular object, will lead to aggression. The hypothesis tested in the second study was that subjects who were led to believe that they would have the freedom to choose one of the incentives and had this freedom eliminated by the assistant assigning them the most attractive reward would be more hostile toward the assistant than subjects who were allowed to exercise their freedom of choice and choose one of the incentives themselves.

Procedure. Twenty-four male students enrolled in introductory psychology courses were employed in this study. The data from 22 of the subjects were included in the analyses as one subject in each condition reported being suspicious of the manipulations. There were two conditions in the study: Choice--Most Attractive Item and Choice--Choice of Item. The Choice--Most Attractive Item was a replication of the Choice--Most Attractive Item condition from the first experiment with the major difference being that a different confederate played the role of assistant.¹ The Choice--

1. Millard Mann served as experimental assistant in Experiment II.

Choice of Item condition was run exactly as the Choice--Most Attractive Item condition except that instead of assigning the subject the most attractive incentive after he had completed the tasks the assistant allowed him to choose the incentive he wanted by saying:

This completes the experiment. You will get to choose which of the incentives you would like. I've decided to allow subjects to choose between the incentives.

Results. As in the first study, there were highly significant differences between subjects' rating of the attractiveness of the incentives depending on their rank. There was a main effect for the Rank of Item being Rated variable ($F = 76.22$, $df = 2, 40$, $p < .001$) and no effect for condition or interaction. The mean ratings and summary of the analysis of these means are presented in Appendix J.

The mean scores of subjects' ratings of the assistant and results of the t tests examining the magnitude of these differences are presented in Table 10. It can be seen that on all five questions subjects in the Choice--Most Attractive Item condition gave more hostile ratings to the assistant than subjects in the Choice--Choice of Item condition. The differences on each of the questions except the "has a pleasant manner" query reached the 5% level of significance.

There were slightly more positive and less negative remarks about the assistant in the Choice--Choice of Item condition than in the Choice--Most Attractive Item cell. Three remarks were scored as positive in the Choice--Choice of Item cell and two were scored negative, while in the

Table 10
 Mean Responses Given by Subjects on the Assistant
 Evaluation Form in Experiment II

	Choice-- Choice of Item (N = 10)	Choice-- Most Attractive Item (N = 12)	<u>t</u>
	Mean	Mean	
How efficient? ^a	9.60	16.75	2.68 ^b
How smooth experi- ment conducted?	9.70	16.75	3.10 ^c
How pleasant a manner?	13.00	14.75	.91
How likeable?	11.00	15.42	2.22 ^b
Should he be consid- ered for the job of research assistant?	12.20	17.75	3.11 ^c

a. Range of scores from 1 to 31 with 1 being most benovolant rating and 31 being most hostile rating.

b. $\underline{p} < .05$.

c. $\underline{p} < .01$.

Choice--Most Attractive Item condition there was one positive remark and five negative comments. One further piece of data of interest is the fact that everyone in the Choice--Choice of Item condition chose the incentive they rated most attractive on the pre-measure and 11 of the 12 subjects in the Choice--Most Attractive Item condition chose this incentive at the end of the experiment.

Summary of Aggression Results

In general, subjects who had their freedom to choose an incentive eliminated by the assistant were more hostile and aggressive than subjects who only had an expectancy violated or who were allowed to exercise their freedom of choice. In the Choice conditions subjects were less willing to say that the assistant should be seriously considered for the job, more willing to state that the assistant was not efficient and did not run the experiment smoothly, more willing to rate him as having an unpleasant manner and as being unlikeable, more prone to point up his mistakes, and less willing to say something good about him than were subjects in the corresponding Expectancy conditions. Within the Choice conditions, there was a consistent trend for the assistant to be rated lower on all dimensions the more important were the freedoms which he eliminated (i. e., the less attractive the reward he assigned). Lack of support for the theory came in the failure to find significantly greater aggression in the Choice--Second Most Attractive Item condition than in the Choice--Most Attractive Item cell for the "efficient" and

"conducts experiments smoothly" questions, although these differences were in the predicted direction. This difference did reach the 5% level of significance on the main question (should seriously be considered for the job). The support for reactance theory predictions, then, was quite strong.

Evidence that violation of expectancy is an important or sufficient condition if aggression is to follow thwarting was not strong. The predicted order of greater aggression the greater the violation of expectancy (i. e., the less attractive the assigned incentive) was not found on all the questions. The Expectancy conditions, in general, were not marked by more aggression than the corresponding No Expectancy conditions as would be predicted, and the finding of significantly more aggression in the Choice conditions than the corresponding Expectancy cells is difficult to handle with expectancy theory. Rays of supporting evidence for the theory came in the form of the consistent finding of significantly more aggression in the Expectancy--Least Attractive Item condition than in either Expectancy--Second Most Attractive Item or No Expectancy--Least Attractive Item conditions.

The support for the frustration and aggression theory prediction that simple frustration is a sufficient condition to instigate aggression was generally nonexistent in the present study. There were none of the predicted differences within the No Expectancy conditions, and the mean amounts of aggression did not even order in the predicted sequence.

Effect on Item Attractiveness

It has been pointed out that an analysis of subjects' first ratings of the incentives revealed that there were significant differences between items ranked first, second and third most attractive. There were no other differences between conditions or interactions that approached significance; and the most attractive item was given an average rating of 2.91, the second most attractive received an average rating of 6.66, and the least attractive item was rated 14.70 on an 18-point scale. After subjects had completed the tasks and been assigned an alternative, they were asked to re-rate the three incentives. Only reactance theory makes any firm predictions about how the attractiveness ratings should be affected by the subject being forced to accept one of the alternatives. The prediction is that if the assignment of an item reduces the subject's freedom of choice the item he is assigned will decrease in attractiveness and the other two items will tend to increase. This is because the assignment eliminates the subject's freedom to reject the assigned item and choose the denied ones. He is therefore motivated to re-establish his freedom by taking the denied items and rejecting the assigned one, and this change in motivation should be reflected in the attractiveness ratings of the three items. This effect should be evident only in the Choice conditions since it is here where the subject was led to believe he had the freedom of choice at the beginning of the experiment.

To test this prediction of change in item attractiveness, the pre- and

post-assignment ratings of the items were compared. A minus (-) was given the difference if the ratings indicated that the denied items had increased in attractiveness or the assigned item had decreased in attractiveness. A plus (+) was placed on differences when the denied items decreased in attractiveness or the assigned item increased in value. Thus, reactance would supposedly be represented by a negative score and a positive score could represent an attempt by subjects to establish an unequivocal behavior orientation (Jones & Gerard, 1967) toward the assigned alternative.

Table 11 shows the mean changes in item attractiveness and the analysis of these results. The main effect for the method of item assignment variable was due to significant differences between the Choice and Expectancy conditions ($F = 19.97$, $df = 1, 105$, $p < .001$) and the Choice and No Expectancy conditions ($F = 17.18$, $df = 1, 105$, $p < .001$). There was no difference in the magnitude of change scores for the Expectancy and No Expectancy conditions. It is further of interest to note that the magnitude of change in each of the Choice conditions is reliably different from the corresponding Expectancy conditions (Most Attractive Item, $F = 10.69$, $p < .005$; Second Most Attractive Item, $F = 6.75$, $p < .05$; Least Attractive Item, $F = 3.88$, $p < .06$). These changes in the attractiveness of the items offer strong support to the reactance theory predictions. While the denied items increased in attractiveness and the assigned one decreased in value in the Choice conditions, quite the opposite effect was observed in Expectancy and No Expectancy conditions.

Table 11a

Mean Changes in the Attractiveness of the Three Items

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Choice ^a	-2.71 ^b	-2.50	- .71
Expectancy	+2.50	+1.63	+2.43
No Expectancy	+ .20	+3.10	+3.40

a. Fourteen subjects in Choice and Expectancy cells and ten in No Expectancy cells.

b. 1 = "Very attractive, " 18 = "Not at all attractive."

Table 11b

Summary of Analysis of Variance of Attractiveness
of the Three Items

Source	SS	df	MS	F
A (method of item assignment)	425.75	2	212.88	11.72 ^a
B (rank of item assigned by assistant)	45.74	2	22.87	1.26
A x B	64.24	4	16.06	<1
Within cell	1,908.26	105	18.17	

a. $p < .001$.

There is one aspect of the results which, though not statistically significant, is somewhat puzzling at first glance. Reactance theory would predict that there should be greatest reactance aroused in the Least Attractive Item condition, followed by the Second Most Attractive Item condition and least reactance in the Most Attractive Item cell. Following this line of reasoning, it would seem logical that predictions of item attractiveness change should be in line with the amount of reactance generated in the conditions, that is, a greater negative score in the Least Attractive Item condition than in the Second Most Attractive Item one, and the smallest negative score in the Most Attractive Item cell. However, the order found was exactly the reverse of what would be predicted. How can this be reconciled?

The mean changes within the Choice conditions are somewhat misleading. In the Least Attractive condition, the prediction is that the least attractive item will decrease in attractiveness and the two others will increase. Since the most attractive and least attractive items were rated so close to the ends of the scale (see Table 1, p. 44), only 13.07 points of change in the direction predicted by reactance theory were possible in this condition. In the Second Most Attractive Item condition, there were 29.15 points of possible change, and in the Most Attractive Item condition 36.57 points of change were possible. Thus, when per cent of possible change is examined, it is found that nearly equal per cent change is exhibited in the three conditions with over 5% in the Least Attractive Item condition, over 8% in the Second Most Attractive Item cell, and over 7% in the Most Attractive

tive Item cell. However, whether examining the average amount of change or per cent of change, there were no significant differences in amount of change within the Choice conditions.

In summary, the data on change in incentive attractiveness generally support reactance theory. In the Choice conditions, the assigned item decreased and the denied items increased in attractiveness, while the reverse pattern was found in the Expectancy and No Expectancy conditions where subjects should not have been experiencing reactance.

Experiment II

The mean item attractiveness change scores were computed in the same way for the two conditions of the second experiment. The results of this computation added further support to the reactance theory predictions as the scores indicated that in the condition in which reactance should have been present (Choice--Most Attractive Item) there was a tendency for subjects to decrease the value of the assigned incentive and increase that of the denied incentive (-1.75). However, the reverse pattern was found in the Choice--Choice of Item condition (+1.30) and the difference between the change scores in the two conditions was highly significant ($t = 2.69$, $df = 20$, $p < .05$).

Enjoyment of Tasks

After subjects had completed the tasks and the Assistant Evaluation Form, they were asked to rate how enjoyable they found the two tasks on 11-point scales ranging from "Very enjoyable" (.50) to "Not at all enjoyable" (10.50). While no predictions about these ratings can be garnered from the three theories, it might be argued that subjects may have displaced their aggression from the assistant to the tasks themselves. However, an analysis of the results revealed that the only significant finding ($F = 31.78$, $df = 1, 105$, $p < .001$) was that the reading skills task (6.11) was enjoyed more than the motor coordination task (7.70).

Experiment II

The results on the ratings of the two tasks were somewhat different in the second experiment from those obtained in the first study. There was no main effect for task or for condition, but the interaction between these two variables reached the 5% level of significance ($F = 5.51$, $df = 1, 20$, $p < .05$). The interaction took the form of greater liking for the motor coordination task than the reading skills task in the Choice--Choice of Item condition and the reverse being found in the Choice--Most Attractive Item condition. It is, however, difficult to see how this interaction could have had an effect on the hostility scores and no explanation for the difference between the results of the two studies can be offered.

Chapter IV
DISCUSSION

Frustration and Aggression Theory

If the frustration and aggression hypothesis (Dollard et al., 1939) that simple frustration always leads to the instigation to aggression were correct, it would be predicted that within the No Expectancy condition there should have been more aggression in the Second Most Attractive Item and Least Attractive Item cells than in the Most Attractive Item condition. Further, if their (Dollard et al., 1939) prediction that the more severe the frustration, the greater the instigation to aggression were adequate, there should have been more aggression in the Least Attractive Item cell than in the Second Most Attractive Item condition. One of the most consistent findings in the present study was a total lack of support for these two extensions of frustration and aggression theory. On none of the five measures of aggression was there a difference in the amount of hostility expressed depending on the rank of item assigned the subject by the assistant within the No Expectancy conditions. Further embarrassment to frustration theory arose in the finding that,

on four of the five items aimed at gauging aggression and hostility, subjects in the No Expectancy condition were most aggressive when the assistant assigned them the most attractive item! While these differences were not significant, the finding of most aggression in the Most Attractive Item cell is exactly opposite that expected by the theory.

A further difficulty for frustration-aggression theory (Dollard et al., 1939) would be to explain why, on four of the five aggression-measuring items, there was more aggression expressed by subjects in the Expectancy--Least Attractive Item condition than in the No Expectancy--Least Attractive Item cell. From the basic postulates of the frustration and aggression theory, it would be difficult to anticipate this difference.

Thus, in line with the findings of Pastore (1950, 1952) and Buss (1966), the results of this present study cast serious doubt on the proposition that simple frustration is a sufficient condition for the instigation to aggression. None of the predictions that would be advanced by simple frustration and aggression theory were supported in the No Expectancy conditions.

There is, however, an alternative explanation that could be used to salvage frustration and aggression theory. In order for frustration to exist, the individual must be instigated to obtain the goal at the time of thwarting. In the present experiment, there was no measure of the subjects' instigation to obtain the most attractive incentive at the time of the incentive assignment. This was merely assumed. It is possible that subjects in the No Expectancy conditions were not instigated to obtain the most attractive incentive at the

time of thwarting and were, therefore, not frustrated by the item assignment. If this were the case, the present manipulations in the No Expectancy conditions would not constitute a proper test of the frustration and aggression hypothesis (Dollard et al., 1939).

Violation of Expectancy

The theory that, in addition to simple thwarting, a violation of an expectancy must be involved before frustration will result in aggression (Berkowitz, 1962; Pastore, 1952) received some support from the results of the present study. The predictions that within the Expectancy condition there should have been more aggression in the Second Most Attractive Item condition than in the Most Attractive Item cell and still more aggression in the Least Attractive Item condition than the Second Most Attractive Item condition can be advanced from the hypothesis that the greater the violation of expectancy, the greater should be the instigation to aggression. Further, if a violation of expectancy is a necessary condition for the instigation to aggression, there should have been more aggression in the Expectancy conditions where the second most attractive and least attractive items were assigned to the subject than in the corresponding No Expectancy cells as violation of expectancy should have occurred only in the two former conditions.

Support for the theory was obtained in the consistent finding of signifi-

cantly more aggression in the Expectancy--Least Attractive Item condition than in the Expectancy--Second Most Attractive Item condition. Further, the consistent finding of greater aggression in the Expectancy--Least Attractive Item condition than in the No Expectancy--Least Attractive Item condition bolsters the prediction that a violation of an expectation is important if a thwarting is to lead to aggression.

While these results do offer support for the hypothesis that a violation of expectancy is a necessary condition if a thwarting is to lead to aggression, other results from the study do not uphold this proposition. Within the Expectancy condition, there were no significant differences between the amount of aggression exhibited in the Most Attractive Item and Second Most Attractive Item cells. In fact, on three of the assistant evaluation items, there was slightly more aggression displayed by subjects in the Most Attractive Item condition than by those in the Second Most Attractive Item condition. This finding is damaging to the theory as there was definitely a violation of expectancy in the Second Most Attractive Item condition and no violation was involved in the Most Attractive Item cell.

Extrapolating from the results, it would seem that a very strong violation of expectancy by thwarting can motivate an individual to aggress. However, the violation must be strong and the magnitude of the resulting aggression is not necessarily great. Milder, though certainly frustrating, violations do not seem to result in the instigation to aggress.

Reactance Theory

The reactance theory (Brehm, 1966) view is that a threat to or elimination of freedom can instigate an individual to aggress. Aggression may be aimed at restoring the lost freedom or insuring against future loss of freedom. The theory can be employed to postulate further that the greater the importance of the freedom which is threatened or eliminated, the greater should be the resulting aggression since it becomes more imperative to regain the freedom. With regard to the present experiment, reactance theory predictions pertain mainly to the Choice conditions as it was here where the freedom of choice was given to the subjects by the experimenter and eliminated by the assistant. If the elimination of freedom is sufficient to instigate an individual to aggress, there should have been more aggression exhibited in the Choice--Most Attractive Item condition than in the Expectancy--Most Attractive Item condition. While in both of these conditions the subject received the most attractive reward, his freedom to choose this alternative was eliminated by the assistant in the Choice condition. The second prediction that can be derived from reactance theory is that within the Choice conditions there should have been an inverse monotonic relation between the attractiveness of the alternative assigned the subject and the strength of the resulting aggression, with more aggression in the Second Most Attractive Item cell than in the Most Attractive Item condition and most aggression in the Least Attractive Item condition.

The support for these two predictions was generally strong. On all five items on the Assistant Evaluation, subjects in the Choice--Most Attractive Item condition were more hostile than those in the Expectancy--Most Attractive Item condition (three of these differences reached an acceptable level of significance and the other two showed strong trends). Significantly greater aggression was exhibited by subjects in the Choice--Least Attractive Item condition than by subjects in the Choice--Second Most Attractive Item cell on the three most direct measures of aggression. While all differences did not reach the traditional 5% level of significance, there was more aggression displayed by subjects in the Choice--Second Most Attractive Item cell than those in the Choice--Most Attractive condition on all three items. The general pattern of results on the "likeable" and "pleasant manner" questions was the same as that found for the other three questions with the exception that there was slightly more hostility expressed on the "pleasant manner" question by subjects receiving the most attractive item than subjects receiving the second most attractive alternative. Thus, with this one exception, the results from this experiment offered support for the hypothesis that the elimination of freedom can result in the instigation to aggress against the thwarter.

There was another finding that was interesting and offers an opportunity to speculate about the relative importance of violation of expectancy and reactance for the instigation to aggression. Comparisons on all five items from the Assistant Evaluation between the Choice--Second Most Attractive

Item cell and Choice--Least Attractive Item conditions and the corresponding Expectancy conditions revealed that there was significantly more aggression expressed in each of the Choice conditions. If the assumption can be tendered that the expectancy of obtaining the most attractive item was generally the same for subjects in the Choice and Expectancy conditions and that the only difference made by the assistant's assignment of an alternative between the two conditions was the elimination of freedom in the Choice cells and not in the Expectancy ones, it may be postulated that a threat to or elimination of freedom resulting in reactance may be a very important condition if a thwarting is to lead to a significant amount of aggression. It has already been pointed out that those experiments that have reported aggression following frustration may have inadvertently included a threat to freedom in their manipulation of frustration.

If this postulation were valid, it would enable the results of the experiment to be more easily understood. The manipulations used in the Expectancy and No Expectancy conditions were designed not to arouse reactance in the subjects. If reactance were a very important condition for the instigation to aggress, little, if any, aggression would be expected in these cells. The results generally bore out this prediction as there was no difference in the amount of aggression displayed in five of the six Expectancy and No Expectancy conditions. Although somewhat more aggression was reported from subjects in the Expectancy--Least Attractive Item condition, the amount of this aggression was no greater than that displayed by subjects in the Choice

condition when they received the most attractive incentive. Thus, the speculation of reactance being a very important condition for the instigation to aggress following a simple thwarting received support from the present study and seems to be worth further scrutiny.

There are two arguments that could be offered to cast doubt on the assumption that the arousal of reactance in the Choice conditions was responsible for inciting the resultant aggression. The first is that subjects who had a choice were generally more aggressive than subjects who did not. In other words, simply offering subjects the freedom of choice may have increased their readiness to aggress. It is difficult to see why giving subjects the freedom to choose between incentives should increase their aggressive tendency, but, if it did, it might account for the general elevation of aggressive responses in the Choice conditions as compared to the Expectancy conditions. However, the results of Experiment II offered strong evidence that it is not the granting of freedom but rather the elimination of freedom that increases the likelihood of aggression. Not only was there significantly more aggression expressed in the Choice--Most Attractive Item condition than in the Choice--Choice of Item cell, but the ratings of the assistant in the Choice--Choice of Item cell was similar in magnitude to those ratings of the assistant in the Expectancy--Most Attractive Item condition in the first experiment (though the assistants were different in the two experiments). Further, when the magnitude of the differences between the two Choice conditions in the second experiment and between the Choice--Most Attractive Item and

Expectancy--Most Attractive Item conditions in the first experiment are compared, it can be seen that the difference is generally greater between the two choice conditions of the second experiment than between the Choice and Expectancy conditions. A visual examination of these differences seems to speak against the hypothesis that the mere granting of freedom is sufficient to increase an individual's instigation to aggress.

The second and more reasonable alternative explanation for the differences between the Choice and Expectancy conditions is that the promise of a choice between the incentives created for the subject a greater expectancy of receiving the most attractive one than did the assignment by the experimenter of the most attractive incentive. Thus, the eventual assignment by the assistant frustrated more responses in the Choice conditions than in the Expectancy ones. Two pieces of data, however, seem to cast doubt on this alternative. First, the experimenter went to great lengths to insure that subjects in the Expectancy condition did expect to receive the most attractive item. Subjects in the Expectancy cells were reminded at least three times that they would receive the most attractive incentive. From talks with the subject during the debriefing session, all subjects in both the Expectancy and Choice conditions reported that they felt they would be able to receive the most attractive incentive from the assistant. Secondly, the data on the change in item attractiveness scores offer fairly conclusive evidence against this explanation. It would be expected that, if subjects in the Choice conditions had a greater expectancy of obtaining the most attractive item or had

more responses frustrated by the assignment of an item than did subjects in the Expectancy conditions, their change in item attractiveness ratings would be similar to, but greater in magnitude than, the change scores obtained from the subjects in the Expectancy conditions. This clearly was not the case. Not only was the magnitude of item change scores not greater in the Choice conditions than in the Expectancy conditions, but the direction of the change scores was opposite in the two conditions. Where subjects in the Expectancy conditions tended to increase the attractiveness of the assigned item and decrease the attractiveness of the other two incentives, subjects in the Choice conditions tended to decrease the attractiveness of the assigned item and increase the attractiveness of the other two items. This is the pattern that would be predicted if reactance were aroused in the Choice conditions but not in the Expectancy cells, and these data seem to indicate that different phenomena were operating in the two conditions--not that there was merely a greater magnitude of one phenomenon in the two conditions. Thus, the alternative explanation of greater violation of expectancy in the Choice conditions than in the Expectancy ones does not seem to fit the procedure or the data.

Further Implications

If aggression results from the arousal of reactance in the thwarting situation, it is of interest to uncover the implications this has for reducing the motivation to aggress (catharsis). Presumably, if the reactance aroused

by a thwarting can be reduced or eliminated, there should be a reduction in the instigation to aggress. Frustration and aggression theory hypothesizes that the "occurrence of any act of aggression is assumed to reduce the instigation to aggression (Dollard et al., 1939, p. 50)." Why this relation should occur is not explained. It would follow from reactance theory, however, that if the instigation to aggress were due to the elimination of freedom and if the act of aggression serves to re-establish the freedom or insure against future loss of freedom, an act of aggression could reduce the amount of reactance and result in a reduction in the instigation to aggress further. Thus, reactance theory could posit the same relationship between the occurrence of aggression and the instigation to future aggression.

To demonstrate that two theories can make the same prediction is not satisfactory. It must be shown that one can more effectively explain existing results or make more valid predictions that can be corroborated. To decrease the instigation to aggress, frustration theory poses that it is necessary to remove the frustration (Dollard et al., 1939), allow for the expression of aggression (Dollard et al., 1939), or have another individual "complete" the act of aggression (Berkowitz, 1962). Based on reactance theory (Brehm, 1966), it can be predicted that the instigation to aggress will be reduced if the threat to freedom is removed by the individual or someone else. Brehm (1966) discussed restoration of freedom by implication, stating that it is possible that the acts of another can imply to the threatened individual that his freedom has been restored. Worchel and Brehm (in press) have

demonstrated that the behavior of a model acting under the same threat as a subject can imply to that subject that his own freedom has been restored.

According to reactance theory, it should be possible for an outside party to reduce the instigation of an individual to aggress by simply implying that his threatened freedom has been restored.

Here, then, is an area where the predictions of reactance theory and frustration and aggression theory differ. Suppose an individual (X) felt he had the freedom to aggress against another person (Y) and, further, that person (Y) angered X so that X was motivated to attack Y. Now suppose that Y acted in such a way to threaten or eliminate X's freedom to attack him. Frustration theory would predict that Y's blocking of X's aggression would further anger X and that the only ways in which X's instigation to aggress could be reduced, aside from displaced aggression or substitution, would be for X to actually attack Y, for Y to remove his blocking X's freedom to aggress, or for a third party (Z) to aggress against Y and complete X's intention to attack. Reactance theory could be utilized to make the same predictions as these three acts could also serve to restore, directly or indirectly, X's freedom to aggress. However, reactance theory can be employed to advance the further prediction that X's motivation to aggress could be reduced by the third party (Z) acting in such a way, not necessarily aggressive, to imply that X did have the freedom to aggress against Y. This restoration of freedom by implication could take the form of a simple statement from Z that X was free to aggress. Thus, an experiment could be designed to test

the reactance theory prediction that the restoration of freedom to aggress can be sufficient to result in catharsis and a decrease in the instigation to aggress.

This section points out the fact that, if a good understanding of the causes of aggression can be achieved, it becomes possible to posit methods for the control of aggression.

If a threat to freedom were an important ingredient of a thwarting to instigate aggression, reactance theory could be employed to make hypotheses about displaced aggression. Brehm (1966) stated that if freedom is eliminated an individual may be motivated to restore it through behavioral implication. This is described as the individual's acting in such a way as to imply that he has restored his freedom. Pertaining to aggression, reactance theory could predict that an individual who has had his freedom to aggress eliminated might be instigated to displace his aggression in form or target in order to imply that he actually did have the freedom to exercise the eliminated free behavior.

One further point about reactance theory. When the thwarting involves the denial of an alternative or alternatives and the forced acceptance of others, reactance theory can be employed to make very specific predictions not only about the instigation to aggression caused by this thwarting, but also about changes in the attractiveness of the alternatives. As predicted and supported by the data from the present experiment, reactance theory predicts that when an individual feels that he has a freedom of choice

and rejection and if this freedom is eliminated by the thwarting, the forced alternative should decrease in attractiveness and the denied ones should increase. As further pointed out, no predictions about the attractiveness can be gleaned from frustration and aggression or expectancy theory, although Knott, Nunnally, and Duchnowski (1967) have honed the prediction (based on Amsel's [1958] theory that frustration increases drive) that following the frustration of an individual's attempt to get an alternative there should be an increase in the value of the most attractive alternative and a decrease or no change in the attractiveness of the other alternative. It may be noted, however, that this prediction did not receive corroboration by the data obtained from the present study.

Conclusion and Summary

The present experiment has offered evidence that the elimination of freedom, which results in the arousal of reactance, can instigate an individual to aggress. Some support was garnered for the prediction that a thwarting resulting in the violation of an expectancy can also lead to aggression, but it was found that the violation must be severe and the resulting aggression of a mild degree. No support was found for the prediction that frustration alone is sufficient to incite an individual to aggress.

Because of the very consistent finding that the elimination of freedom

resulted in greater aggression than the violation of expectancy, regardless of the strength of the thwarting, the possibility that the arousal of reactance is a very important condition for the instigation to aggress following thwarting was introduced. While this was only speculation, the implications of this postulate for the catharsis of hostility and the displacement of aggression were examined.

Researchers who have tried to demonstrate that aggression is the result of frustration have themselves been severely frustrated in this endeavor. Attempt after attempt has been made to salvage the frustration and aggression theory proposed by Dollard et al. (1939) and, as yet, none of these attempts has been truly successful. Perhaps the relation between frustration and aggression is more complicated than has been anticipated or perhaps there is no relationship at all. Regardless, it seems time that researchers search elsewhere in trying to understand the causes of aggression. The present study is offered as one possible starting point.

No claim is made that the arousal of reactance due to threats to or eliminations of freedom is the sole cause of aggression or that aggression will always follow reactance. However, what seems evident from this study is that the loss of freedom can result in strong aggression and that people may be more sensitive to and angered by loss of freedom than by violations of expectancy or simple frustration.

APPENDIXES

Appendix A

THE IMPACT OF LUTHERANISM

Human action without the guidance of ideas would be impossible. Yet which of the many ideas available at any given time will be selected for guidance depends largely upon prevailing circumstances. If, for example, instead of being born in 1483, Martin Luther had been born a century earlier, his ideas would probably have attracted little attention. At worst, he might have been burned at the stake for heresy; at best, he would have been ignored. Appearing at a time of mounting tensions within the traditional Catholic order, his ideas provided the medium through which that order was at last formally disrupted.

Luther himself was little interested in secular affairs. His original and always primary concern was with other-worldly salvation. He objected to the Catholicism of his day because, he felt that through its concern with human institutions and its emphasis on various types of ritual it was encouraging this-worldliness, smugness, and an avoidance of true Christian humility. For Luther, in contrast, man was by nature an abject and hope-

less sinner; he should always bear this in mind; no priestly effort or formal religious practice could assure his escape from this condition; all he could do was humbly to contemplate his sinfulness and hope that God's love and grace might save him.

In Luther's original view, moreover, the Church was neither an institution nor a hierarchy; It consisted simply of the sum total of all individual Christian believers. And its final authority was not the pope, but the Word of God as written in the Scriptures and understood by each private conscience. Between man and God there was no institutional intermediary. Man was on his own, with nothing but his own understanding of the Bible to guide him and with no hope of salvation except through the promise of God's love and the doing of his inscrutable will. And politics? As far as Luther was concerned, the authority of the state was at best a necessary evil. Rather than resist it, one should, in order not to divert oneself from one's private preoccupation with salvation, merely submit to it and accord it obedience.

Why did these deeply subjective and apolitical ideas of Luther's exercise such a resounding impact? As already suggested, the reason lay less in the ideas themselves, than in the discontents of those who were ready to appropriate and apply them. For one thing, there had long been deep resentment throughout Northern Europe against the cultural and religious pre-eminence of Rome; here at last, in the ideas of Luther, was a medium in terms of which Europe's other cultural and ethnic groups could reject the age-old Roman tutelage. Second, Luther's ideas proved particularly useful

to the various German princes, whose tiny states, under the over-all rule of the "so-called" Holy Roman Emperor, at the time comprised the German cultural and political area. By endorsing Luther these authorities were able to strengthen their own local prestige and power at the expense of both the pope and the Catholic Holy Roman Emperor. Finally, the implied antitraditionalism of Luther's position strongly appealed to those who for one reason or another felt themselves at a disadvantage in the crumbling feudal order. Among these latter were chiefly two groups. One was the impoverished and exploited peasants. In these, Luther's ideas inspired a number of tragically unsuccessful outbreaks of revolt. The other was the new and growing urban commercial class. The members of this group saw in Luther's religious protest a larger and more meaningful rationale for their own social and economic discontents.

How did these variously motivated appropriations of Luther's ideas affect the West's subsequent historical development? Most immediately, they hastened the consolidation of the European nation-states. In some countries, as to a greater or lesser extent in Germany, the Netherlands, England, and Scotland, Protestantism became the unifying bond of the forces striving for nationstate centralization against internationalist Catholicism. Elsewhere, as in France, where the nation-state Monarch had allied himself with Catholicism, Protestantism became the religious cause of those who fought against national centralization. Yet here too the effect was to further nationstate development. For in rallying in the name of Protestantism, the

antcentralizers achieved greater solidarity, became more readily identifiable, and, in the final battles, proved the easier for the monarchists to eliminate.

Of even more fundamental importance than its ideological role in the building of European nation-states were the new emphasis and dimensions that Protestantism gave to the freedom and responsibilities of the individual conscience. For, although, the Protestant preoccupation with individual freedom and responsibility was in the first instance religious, it soon extended itself into a great many areas of secular life as well. Paradoxically, however, the expression of Protestant individualism in secular affairs took two quite different forms: it operated as a religious inspiration for economically and politically activist public individualism; and it became a religious influence encouraging private individualism in the spiritual realm but enjoining external passivity and obedience.

Lutheran Protestantism, particularly in Germany, tended from the very beginning to play this latter type of conservative role. In part, this resulted from the situation in which Luther found himself when he first expounded his message. Being exposed to the wrath of the Catholic Church it was only natural, that he gratefully accepted the protection of the local German princes. Yet once he had entered that alliance and had come to depend upon it, there was little he could do but pay its price. When the peasants, aroused by Luther's own ideas, broke out in revolt against the established secular order, Luther felt obliged not only to refuse them his support

but to urge their submission and, in the end, to condon their ruthless suppression. And in doing so, he unwittingly established a pattern of adjustment to life that has been associated with German Lutheran Protestantism ever since: an inclination to intense individualism in private and personal matters, accompanied by an equally pronounced tendency to suspend individual conscience in regard to public affairs.

In a larger sense, however, German Lutheranism's conservative impact is rooted less in historical circumstances than in its founder's theological outlook. Not that Luther himself was a conservative by intention. Indeed, his great stress on the inwardness of religious experience and his doctrine of the equality and personal priesthood of all believers mark him as at heart an almost anarchistic Christian utopian. Lutheran conservatism resulted, rather, by default: first, from the fact that Luther considered secular affairs of subordinate importance as compared with inner spiritual concerns; and second; from his failure to envisage any special religious institution by which his theories could be put into practice. He thereby discouraged his followers from active participation in public affairs and left the administration of religious matters in the hands of the state. Thus, as the German Lutheran theologian and philosopher, Ernst Troeltsch, pointed out almost half a century ago:

The passivity of Lutheranism involved the habit of falling back upon whatever power happened to be dominant at the time. When it was suggested that this attitude left Christians at the mercy of every rogeu and brutal tyrant, Luther replied that the Government ought to see that this did not happen, and that if it failed to prevent it, then certainly the Christian

must simply suffer for it. Thus everywhere Lutheranism came under the influence of the dominant authority. The yielding spirit of its wholly interior spirituality adapted itself to the dominant authority of the day. This meant, however, that the form Lutheranism took was controlled by the various forms of government with which it was connected.

Appendix B

QUESTIONNAIRE OBTAINING SUBJECTS' INITIAL RATINGS OF
ITEM ATTRACTIVENESS

Experimental
Number _____

Research in Motivation and Performance

Below are listed the three possible rewards for participating in this phase of the Psychology Department's research on the effects of motivation and performance. While you will only receive one of these incentives, it is of importance for the purpose of control for the Department to have your ratings of all three. Please consider the rewards carefully and circle the dot which best represents your evaluation of the reward.

How attractive are the following rewards?

1. One hour of experimental credit.

/ /
Very Not at
attractive all attractive

2. Men's cologne.

/ /
Very Not at
attractive all attractive

3. Five dollars.

/...../

Very	Not at
, attractive	all attractive

Appendix C

ASSISTANT EVALUATION QUESTIONNAIRE

DO NOT INCLUDE IN DATA ANALYSIS

Assistant Evaluation

Assistant being evaluated: _____

Please evaluate my assistant on the following scales. Give honest and frank answers as your ratings will be of great help in choosing the most qualified applicant for the job of research assistant. Your ratings will be kept strictly confidential and there is no need for you to include your name on this scale. Circle the dot which best indicates your impression of the assistant.

1. / /
Very efficient neutral point Very inefficient

2. / /
Conducts experiments smoothly Does not conduct experiments smoothly

3. / /
Has a very pleasant manner neutral point Has a very unpleasant manner

4. / /
Very likeable neutral point Very unlikeable

5. Everything considered, do you think this person would make a good experimenter and should be seriously considered for the job of research assistant?

/ /
Very neutral point Very
definitely yes definitely no

6. Please note any relevant points about this person which should be considered in employing her as an experimenter and describe your impression of her.

Appendix D ·

QUESTIONNAIRE OBTAINING SUBJECTS' FINAL RATINGS
OF ITEM ATTRACTIVENESS

Research in Motivation and Performance

Please answer the following questions as honestly and frankly as possible. The data provided from this questionnaire will aid in the study of motivation and performance. These questions are aimed at assessing subjects' perception of the experimental situation. It is hoped that this information can be used as a means of control and serve as a back-drop from which performance scores can be evaluated. Circle the dot which best represents your feelings.

1. How enjoyable did you find the:

a. Motor coordination task (peg turning):

/ _ / _ / _ / _ / _ / _ / _ / _ / _ / _ / _ /
Very Not at all
enjoyable enjoyable

b. Reading skills task:

/ _ / _ / _ / _ / _ / _ / _ / _ / _ / _ / _ /
Very Not at all
enjoyable enjoyable

2. How attractive are the following rewards?

a. one hour of experimental credit:

/ /
Very Not at all

b. men's cologne:

/ /
Very Not at all

c. five dollars:

/ /
Very Not at all

Appendix E

MEANS OF DATA FROM "PLEASANT MANNER"
QUESTION FROM EXPECTANCY AND
NO EXPECTANCY CONDITIONS

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Expectancy ^a	8.14 ^b	8.07	12.21
No Expectancy	9.80	8.70	8.60

a. Fourteen subjects in each of the Expectancy conditions and ten subjects in each of the No Expectancy conditions.

b. 1 = "Has a very pleasant manner," 31 = "Has a very unpleasant manner."

Appendix E (continued)

SUMMARY OF ANALYSIS OF VARIANCE PERFORMED ON
 DATA FROM "PLEASANT MANNER"
 QUESTION FROM EXPECTANCY
 AND NO EXPECTANCY
 CONDITIONS

Source	SS	df	MS	F
A (method of item assignment)	3.53	1	3.53	< 1
B (rank of item assigned by assistant)	50.92	2	25.46	1.46
A x B	91.61	2	45.81	2.64 ^a
Within cell	1,147.11	66	17.38	

a. $p < .15$.

Appendix F

MEANS OF DATA FROM "LIKEABLE" QUESTION FROM
EXPECTANCY AND NO EXPECTANCY CONDITIONS

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Expectancy ^a	9.29 ^b	10.36	12.64
No Expectancy	10.30	8.80	10.20

a. Fourteen subjects in each of the Expectancy conditions and ten subjects in each of the No Expectancy conditions.

b. 1 = "Very likeable," 31 = "Very unlikeable."

Appendix F (continued)

SUMMARY OF ANALYSIS OF VARIANCE PERFORMED ON DATA
 FROM "LIKEABLE" QUESTION FROM EXPECTANCY
 AND NO EXPECTANCY CONDITIONS

Source	SS	df	MS	F
A (method of item assignment)	17.52	1	17.52	< 1
B (rank of item assigned by assistant)	47.63	2	23.82	1.04
A x B	37.75	2	18.88	< 1
Within cell	1,514.58	66	22.95	

Appendix G

EXAMPLES OF SUBJECTS' COMMENTS ABOUT THE ASSISTANT ON ASSISTANT EVALUATION FORM

No Expectancy Conditions

Subject #30: "He seemed very likeable and would be able to get people to cooperate with him readily. When he was timing me for the reading, however, he stopped me when the time was not yet up and then said he was sorry--he was mistaken and that I still had a minute left."

Subject #32: "Experimenter did not seem as fluent as he should be, as I misinterpreted his instructions."

Subject #105: "Nervous habits he has could be annoying. I found his finger tapping somewhat distracting."

Subject #111: "Since I only met him for 20 minutes, I can't really make any sort of judgment about him. One thing, though, I don't believe he introduced himself which is a minus on his side."

Subject #114: "He simply conducts the experiment, ostensibly the way he should. My impression of him is one of doing a job, whether interested or not."

Expectancy Conditions

Subject #3: "He is somewhat nervous which tends to put the subject in the same frame of mind. However, since the experimenter took the time to

ask if he could explain anything else about the experiment, I got the impression that he was interested in the experiment and in putting the subject at ease."

Subject #7: "From the reward I got (which I did not want) I see that he wanted to do his job right, even if it meant leaving me unhappy."

Subject #12: "It's hard to rate the person because he had so little to do in such a short time, but overall, I found him likeable and believe he'll do well as a research assistant."

Subject #59: "I really don't think I could be of any help as a judge since I didn't communicate that much with the experimenter. He told me in a straightforward manner what I was to do and I did it. He was pleasant about it as I expected."

Subject #63: "Evaluation of this type is difficult because of limited exposure to the experimenter. The only reason I didn't give a higher rating is that the experimenter made a mistake in time keeping which appeared to be almost his only job. Otherwise, he was pleasant and quite adequate as an experimenter."

Subject #80: "Explains experiment well, willing to answer questions. Tight with money (small joke!)."

Choice Conditions

Subject #4: "I think the experimenter lacked the dominance (or atmosphere of dominance) over the experiment and situation necessary to make the experimentee feel comfortable and to realize that the experiment should be taken seriously and not with an indifferent attitude. In other words, did he know exactly what he was doing?"

Subject #8: "Made error in giving of rewards: did not allow subject to pick."

Subject #13: "No backbone---negative personality brought across during expt."

Subject #40: "Really unconcerned, not very accurate in the details of the experiment."

Subject #26: "Involved himself with some other material during the reading test and forgot time--stopped me too early."

Subject #65: "I'm pissed."

Subject #87: "Mr. Joslin was quite effective in his instructions and was quite pleasant. However, it should be noted that he slipped once while timing me, and found reading more interesting than watching the subject's behavior. I must admit that I was somewhat dismayed by receiving one hour's credit as opposed to five dollars."

Appendix H

MEANS OF DATA FROM "PLEASANT MANNER" QUESTION
FROM EXPECTANCY AND CHOICE CONDITIONS

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Choice ^a	13.00 ^b	12.64	15.50
Expectancy	8.14	8.07	12.21

a. Fourteen subjects in each condition.

b. 1 = "Has a very pleasant manner, " 31 = "Has a very unpleasant manner."

Appendix H (continued)

SUMMARY OF ANALYSIS OF VARIANCE PERFORMED ON DATA
FROM "PLEASANT MANNER" QUESTION FROM
EXPECTANCY AND CHOICE CONDITIONS

Source	SS	df	MS	F
A (method of item assignment)	377.19	1	377.19	18.96 ^b
B (rank of item assigned by assistant)	215.53	2	107.76	5.42 ^a
A x B	9.81	2	4.90	< 1
Within cell	1,551.17	78	19.89	

a. $p < .05$.b. $p < .001$.

Appendix I

MEANS OF DATA FROM "LIKEABLE" QUESTION FROM
EXPECTANCY AND CHOICE CONDITIONS

Method of Item Assignment	Rank of Item Assigned by Assistant		
	Most Attractive	Second Most Attractive	Least Attractive
Choice ^a	12.86 ^b	15.93	16.50
Expectancy	9.29	10.36	12.64

a. Fourteen subjects in each condition.

b. 1 = "Very likeable," 31 = "Very unlikeable."

Appendix I (continued)

SUMMARY OF ANALYSIS OF VARIANCE PERFORMED ON DATA
FROM "LIKEABLE" QUESTION FROM EXPECTANCY
AND CHOICE CONDITIONS

Source	SS	df	MS	F
A (method of item assignment)	394.33	1	394.33	19.38 ^b
B (rank of item assigned by assistant)	173.43	2	86.72	4.26 ^a
A x B	16.38	2	8.19	< 1
Within cell	1,587.43	78	20.35	

a. $\underline{p} < .05$.

b. $\underline{p} < .001$.

Appendix J

MEANS OF SUBJECTS' INITIAL RATING OF ATTRACTIVENESS
OF ITEMS (EXPERIMENT II)

	Rank of Item Being Rated		
	Most Attractive	Second Most Attractive	Least Attractive
Choice-- Choice of Item ^a	2.20 ^b	8.00	13.50
Choice-- Most Attractive Item	2.92	6.50	13.00

a. Ten subjects in Choice--Choice of Item condition and twelve subjects in Choice--Most Attractive Item condition.

b. 1 = "Very attractive, " 18 = "Not at all attractive."

Appendix J (continued)

SUMMARY OF ANALYSIS OF VARIANCE PERFORMED ON
SUBJECTS' INITIAL RATING OF ATTRACTIVENESS
OF ITEMS (EXPERIMENT II)

Source	SS	df	MS	F
<u>Between subjects</u>				
A (condition)	3.00	1	3.00	< 1
Subjects within group	261.40	20	13.07	
<u>Within subjects</u>				
B (rank of item being rated)	1,275.98	2	637.99	76.22 ^a
A x B	13.78	2	6.89	< 1
B x subjects within group	334.62	40	8.37	

a. $\underline{p} < .001$.

Appendix K

RAW DATA

Experiment I
No Expectancy - Most Attractive Item

Subject's Number	Assistant Evaluation				Ratings of Tasks		
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
29	10	10	4	4	8	7	3
33	19	11	10	11	10	5	3
50	8	7	7	8	6	9	8
61	13	6	16	10	9	10	5
71	9	11	6	7	12	10.5	3.5
81	12	14	7	9	11	7	6
90	10	8	9	9	17	10	8
101	11	13	12	12	13	5	6
109	11	12	14	21	11	7	8
114	7	5	13	12	17	5	5

No Expectancy - Most Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment			Ratings of Item Attractiveness after Assignment		
	One hour experimental credits	Men's colognes	Five dollars	One hour experimental credits	Men's colognes	Five dollars
29	4	16	9	2	14	7
33	11	4	15	7	4	15
50	3	16	4	10	17	2
61	3	14	5	3	14	5
71	2	10	5	2	12	6
81	5	11	6	6	15	6
90	3	16	8	3	16	7
101	6	16	3	11	15	2
109	5	15	10	4	17	11
114	2	16	16	2	17	17

Experiment I
No Expectancy - Second Most Attractive Item

Subject's Number	Assistant Evaluation				Ratings of Tasks		
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
32	10	20	10	11	8	9	8
35	9	9	1	1	8	6.5	1.5
44	5	7	8	5	11	7	8
54	6	7	11	8	3	10	4
67	10	12	10	11	12	7	7
75	8	7	9	5	8	9	1
86	11	8	13	10	10	7.5	8.5
96	11	14	5	11	6	2.5	6.5
105	18	12	12	14	16	6	7
111	8	12	8	12	13	4.5	7.5

No Expectancy - Second Most Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment			Ratings of Item Attractiveness after Assignment		
	One hour experimental credits	Men's cologne ^g	Five dollars ^g	One hour experimental credits	Men's cologne ^g	Five dollars ^g
32	4	17	7	5	17	7
35	4	17	1	1	18	1
44	7	15	6	3	16	8
54	4	15	5	4	16	3
67	3	11	8	2	15	3
75	2	15	5	4	16	2
86	7	17	2	7	14	2
96	4	14	6	2	15	4
105	7	15	5	7	14	4
111	1	10	5	1	12	1

Experiment I
No Expectancy - Least Attractive Item

Subject's Number	Assistant Evaluation				Ratings of Tasks		
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
30	9	16	3	3	7	8	7
36	16	9	9	7	11	8.5	2.5
38	6	4	9	16	4	10.5	10.5
53	6	7	7	6	10	7.5	7.5
68	14	6	3	3	4	7.5	3.5
79	11	12	12	10	13	8	9
88	13	13	7	7	11	8	4
97	6	5	12	16	13	10	10
107	9	14	10	15	16	7	6
113	7	7	14	19	16	10	7

No Expectancy - Least Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment	
	One hour experimental credits	Men's cologne\$ Five dollars\$	One hour experimental credits	Men's cologne\$ Five dollars\$
30	3	17	6	10
36	2	14	3	16
38	10	18	18	1
53	14	8	14	9
68	3	17	3	16
79	5	16	5	14
88	3	14	2	13
97	2	14	3	18
107	2	14	3	14
113	2	13	2	10

Experiment I
Expectancy - Most Attractive Item

Subject's Number	Assistant Evaluation			Ratings of Tasks			
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
10	12	8	10	17	13	6	5
15	10	2	7	5	13	4.5	9.5
17	8	11	7	7	10	7	8
11	4	4	2	2	3	8	2
28	6	8	4	9	8	8	9
41	9	11	8	12	9	8	4
49	13	16	12	11	11	9	6
59	11	13	6	5	11	7	5
66	9	11	10	14	11	4	6.5
76	10	7	10	13	10	10	7
84	11	15	14	12	10	7	8
92	13	12	8	12	12	8	7
102	5	2	2	2	5	2	6
110	13	18	14	9	21	8	5

Expectancy - Most Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment			
	One hour experimental credits	Men's colognes	Five dollars	One hour experimental credits	Men's colognes	Five dollars
10	4	13	9	4	14	8
15	8	17	2	15	17	2
17	4	14	7	2	16	9
11	2	14	5	2	15	5
28	3	15	6	1	17	10
41	4	15	5	3	15	5
49	2	15	7	2	16	8
59	5	10	3	6	11	2
66	3	14	5	5	13	5
76	15	5	17	15	2	16
84	9	12	2	14	15	2
92	6	15	3	8	17	2
102	4	15	3	4	12	3
110	3	10	2	5	9	5

Experiment I
Expectancy - Second Most Attractive Item

Subject's Number	Assistant Evaluation			Ratings of Tasks			
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
2	10	10	7	8	12	4	4
6	6	6	2	2	5	10	6
19	8	7	3	16	7	5	9
23	12	16	7	8	10	10.5	9.5
37	10	9	12	8	11	7	7
43	11	6	12	12	11	9	10
52	11	9	11	12	10	6	7
57	6	5	6	5	6	3.5	1.5
63	16	6	7	10	9	9	8
72	13	14	8	10	11	3	2
80	6	7	12	5	16	5	4
87	11	9	15	15	10	8	6
98	17	3	8	17	9	9.5	3.5
106	8	8	3	17	13	10.5	3.5

Expectancy - Second Most Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment		
	One hour experimental creditg	Men's cologneg	Five dollarsg	One hour experimental creditg	
		Men's cologneg	Five dollarsg	Men's cologneg	
				Five dollarsg	
2	5	10	3	8	3
6	4	17	2	17	2
19	4	15	7	17	4
23	10	16	1	15	3
37	5	15	3	16	4
43	2	17	13	17	11
52	5	17	6	15	5
57	3	15	5	15	4
63	2	16	5	16	3
72	3	15	4	14	4
80	6	10	4	10	2
87	6	12	4	14	4
98	1	16	15	18	11
106	6	14	1	15	2

Experiment I
Expectancy - Least Attractive Item

Subject's Number	Assistant Evaluation			Ratings of Tasks			
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination ^f (peg turning) ^f	Reading skills ^f
3	8	7	13	12	6	8	6
7	7	19	6	4	12	8	5
12	9	6	6	6	7	5.5	7.5
22	6	7	10	16	13	9	2
34	18	18	15	17	17	7	7
46	14	22	16	15	14	7	9
55	17	11	16	9	8	6	5
60	12	17	9	10	16	9	10
69	9	8	16	17	21	3	4
77	17	17	4	9	11	10.5	8.5
85	21	22	25	22	27	10.5	.5
94	12	8	10	17	14	3	8
100	24	23	14	13	23	5	7
112	12	16	11	10	12	8	6

Expectancy - Least Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment	
	One hour experimental creditg	Men's cologneg dollarsg	One hour experimental creditg	Men's cologneg dollarsg
3	2	17	2	15
7	3	14	2	17
12	5	13	4	12
22	3	15	2	8
34	3	15	8	11
46	2	16	4	13
55	3	14	5	10
60	10	14	9	14
69	3	14	3	12
77	9	17	9	17
85	1	18	1	18
94	7	15	6	12
100	6	15	6	15
112	6	13	7	12

Experiment I

Choice - Most Attractive Item

Subject's Number	Assistant Evaluation			Rating of Tasks			
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
1	16	14	18	15	19	6	7
4	13	5	16	17	8	10.5	8.5
14	20	11	13	13	14	8	4
20	7	6	11	9	10	8.5	7.5
25	11	12	11	11	15	7.5	5.5
39	16	18	15	15	16	8	3
47	7	17	15	11	14	9.5	8.5
56	17	16	16	11	14	8.5	3
64	14	11	14	14	14	10	8
73	17	18	10	17	14	10	2
82	10	13	15	16	13	9	10
89	13	15	14	14	12	8	7
95	14	11	6	8	13	10	5
104	17	19	8	9	14	9.5	8.5

Choice - Most Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment			Ratings of Item Attractiveness after Assignment		
	One hour experimental credits	Men's cologne	Five dollars	One hour experimental credits	Men's cologne	Five dollars
1	6	12	2	4	11	6
4	3	14	2	3	18	2
14	3	13	5	3	14	5
20	1	15	4	2	15	4
25	14	7	12	3	13	4
39	4	15	7	3	14	6
47	11	16	2	10	16	3
56	14	12	3	14	11	3
64	3	11	2	2	8	2
73	2	17	4	2	17	2
82	4	16	5	9	16	13
89	18	14	1	18	16	1
95	5	15	4	4	15	3
104	4	15	5	4	10	5

Experiment I

Choice - Second Most Attractive Item

Subject's Number	Assistant Evaluation			Rating of Tasks			
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
5	17	16	10	10	18	8	6
9	14	12	10	17	17	4	7
16	16	12	16	19	18	8	9
24	20	17	10	14	14	10	7
31	16	22	17	17	12	9	1
42	14	19	9	15	21	7	6
45	13	19	20	17	13	5	7
51	13	13	17	14	15	8.5	7.5
62	20	21	16	11	20	7	7
70	17	11	2	14	17	9.5	8.5
78	16	10	13	17	14	9	4
87	18	9	9	15	17	6	3
93	24	26	12	21	23	10	8
103	16	11	16	22	20	10	10

Choice - Second Most Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment	
	One hour experimental credits ^g	Men's cologne ^g Five dollars ^g	One hour experimental credits ^g	Men's cologne ^g Five dollars ^g
5	4	15	1	15
9	7	15	10	8
16	2	16	2	13
24	10	17	15	17
31	9	17	8	16
42	2	11	3	11
45	2	12	2	9
51	7	13	7	13
62	2	16	2	12
70	5	10	5	8
78	6	14	7	15
87	5	14	5	13
93	5	16	3	16
103	3	17	1	17

Experiment I
Choice - Least Attractive Item

Subject's Number	Assistant Evaluation			Rating of Tasks			
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
8	23	26	11	7	19	9	7
13	26	20	17	23	26	6	3
18	16	24	6	12	24	5	4
26	21	25	12	17	25	10.5	7.5
27	11	22	16	16	24	7.5	8.5
40	27	30	21	24	21	7	8
48	24	22	21	20	24	8	7
58	23	24	13	15	22	8	7
65	27	25	22	24	23	8	3
74	18	7	16	15	10	10	6
83	17	12	9	17	24	10.5	5.5
91	19	15	12	9	25	10	6
99	17	21	20	23	15	9	8
108	26	28	21	9	29	10.5	2.5

Choice - Least Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment			
	One hour experimental credits	Men's cologne\$	Five dollars\$	One hour experimental credits	Men's cologne\$	Five dollars\$
8	9	17	3	11	16	3
13	3	15	4	4	16	5
18	3	15	3	4	16	4
26	4	17	2	5	17	2
27	3	17	5	3	17	4
40	2	18	6	2	17	5
48	5	16	3	2	17	3
58	8	15	2	7	16	2
65	12	14	5	12	15	5
74	2	14	9	2	15	7
83	10	14	4	12	14	5
91	17	16	5	16	15	5
99	2	15	5	2	17	3
108	2	11	9	2	17	11

Experiment II
Choice - Most Attractive Item

Subject's Number	Assistant Evaluation			Rating of Tasks			
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
2	20	20	15	15	23	4	3
5	12	15	16	17	14	8	5
7	13	16	7	11	18	6	4
9	22	13	12	16	20	10.5	2.5
11	24	22	16	16	17	9.5	7.5
14	5	16	22	16	17	10	4
15	14	14	13	17	16	9.5	9.5
17	12	12	12	12	12	10.5	10.5
19	26	26	16	16	22	10	6
20	16	12	13	11	13	5	6
22	23	26	20	21	28	7	4
23	14	9	15	17	13	8	3

Choice - Most Attractive Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment	
	One hour experimental credits	Men's cologne dollars	One hour experimental credits	Men's cologne dollars
2	1	13	5	11
5	4	13	4	14
7	9	13	6	15
9	6	7	5	8
11	8	6	5	9
14	2	17	5	17
15	1	17	1	16
17	2	15	2	15
19	2	14	2	15
20	3	13	4	13
22	3	13	3	15
23	6	13	6	13

Experiment II
Choice - Choice of Item

Subject's Number	Assistant Evaluation				Rating of Tasks		
	Efficient ^a	Conducts experiments smoothly ^b	Pleasant manner ^c	Likeable ^d	Should be considered for the job ^e	Motor coordination (peg turning) ^f	Reading skills ^f
1	21	16	10	14	13	3.5	8.5
4	9	14	3	4	10	7	8
6	17	10	11	6	13	10.5	10.5
8	11	16	16	16	16	5	6
10	3	3	9	7	6	9.5	7.5
12	2	2	21	21	14	10	4
13	11	12	16	14	13	9	9
16	9	9	16	16	8	3.5	3.5
18	11	9	11	10	13	6	4
21	2	6	17	2	16	1	10

Choice - Choice of Item (continued)

Subject's Number	Ratings of Item Attractiveness before Assignment		Ratings of Item Attractiveness after Assignment	
	One hour experimental creditg	Men's cologneg Five dollarsg	One hour experimental creditg	Men's cologneg Five dollarsg
1	6	12	7	14
4	18	18	18	17
6	3	15	5	17
8	5	9	2	10
10	6	16	6	16
12	2	17	2	17
13	4	6	8	5
16	1	13	2	16
18	3	12	3	10
21	4	17	2	17

Notes for Appendix K

- a. 1 = "Very efficient, " 31 = "Very inefficient."
- b. 1 = "Conducts experiments smoothly, " 31 = "Does not conduct experiments smoothly."
- c. 1 = "Has a very pleasant manner, " 31 = "Has a very unpleasant manner."
- d. 1 = "Very likeable, " 31 = "Very unlikeable."
- e. 1 = "Very definitely yes, " 31 = "Very definitely no."
- f. .5 = "Very enjoyable, " 10.5 = "Not at all enjoyable."
- g. 1 = "Very attractive, " 31 = "Not at all attractive."

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