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The Effect of Level of Provocation and Attributions About the Provoker on Aggression and Anger

John F. Kremer
Loyola University Chicago

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**THE EFFECT OF LEVEL OF PROVOCATION AND
ATTRIBUTIONS ABOUT THE PROVOKER
ON AGGRESSION AND ANGER**

by

John F. Kremer

**A Dissertation Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy**

September

1975

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VITA

The researcher, John Francis Kremer, is the son of John Thomas Kremer and Frances (Kirschner) Kremer. He was born on November 28, 1944 in Cincinnati, Ohio. He was married to Marty Whitsett on June 2, 1974.

He received his elementary education in Cincinnati, Ohio, and St. Peters, Indiana. He went to high school at St. Meinrad, Indiana, where he was graduated in 1962. He also attended St. Meinrad College where he was awarded the Bachelor of Arts degree in philosophy with a minor in chemistry in June, 1966. He also received the degree of Master of Science in chemistry with a minor in mathematics from the University of Notre Dame in August, 1969. In June, 1974 he was awarded the degree of Master of Arts in psychology from Loyola University of Chicago.

From 1969 to 1971, he taught high school chemistry and mathematics at the Latin School of Indianapolis and Our Lady of Grace Academy. He also did his clinical internship at Indianapolis, at the Indiana University Medical School from September, 1973 to September, 1974. Presently, he is a member of the department of psychology at Indiana University, Purdue University, Indianapolis and a member of the department of psychiatry at the Indiana University Medical School with the rank of assistant professor.

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REVIEW OF THE RELATED LITERATURE

The plethora of theories on aggression have emphasized many differing causes of aggression, such as: innate, unlearned aspects (Ardrey, 1966; Freud, 1920/1965; Lorenz, 1966); situational determinants (Berkowitz, 1965; Dollard, Doob, Miller, Mowrer, & Sears, 1939); learned habits (Berkowitz, 1965); fantasy (Feshbach, 1955); modeling (Bandura & Walters, 1963); and reinforcement (Buss, 1971). Researchers have constructed as many different definitions of aggression as they have hypothesized causes of aggression. Most theorists' definitions of aggression are directly related to their causes of aggression. For example, Lorenz, who supports an innate, unlearned position, made the following statement regarding his book, On Aggression. "The subject of this book is aggression, that is to say the fighting instinct in beast and man which is directed against members of the same species" (p. ix). Buss (1971), who believes that people aggress because they were rewarded for aggressing, described an aggressor as a behavior modifier. He stated, all varieties of aggression "share a single property: one individual delivers noxious stimuli to another. This definition of aggression makes it nearly equivalent to punishment" (p. 9). Since there is a relationship between theorists' causes of aggression and their definitions, it is not surprising to find that no one definition has had very wide appeal.

An excellent point was made by Johnson (1972) and Tedeschi, Smith, and Brown (1974) that researchers haven't been able to agree

on a definition of aggression because aggression is not a unitary concept. There is no single process or concept of aggression. The above discussion suggests that there are many different types of aggression which possibly correspond to the different causes of aggression. There is some general agreement in the literature (Berkowitz, 1969; Buss, 1971; Tedeschi et al., 1974) for at least two different aggression mechanisms: angry and instrumental aggression. Angry aggression "is initiated by any anger-inducing stimuli: insult, attack, of the presence of annoyers. These are cues for anger, which is followed by aggression, the intent of which is to make the victim suffer" (Buss, 1971, p. 10). Inherent in this discussion of angry aggression, there is the implicit assumption that increases in attack also lead to increases in anger (Berkowitz & Geen, 1966; Geen, 1968, 1970).

Instrumental aggression "is initiated by either competition or a desired reinforcer's being possessed by another person. These are cues for cold-blooded (non-angry) aggression, the intent of which is to win the competition or acquire the reinforcer" (Buss, 1971, p. 10). Angry aggression is the focus for the remainder of this paper.

Dimensions of Angry Aggression

Within the research on angry aggression, definitions of aggression vary on three dimensions: (a) Is the behavior which is considered aggressive broad or narrow; (b) Is intent to harm another person essential or nonessential; (c) Is the action illegitimate or antinormative or unjustified or is this feature not important. (These dimensions are based on the work of Tedeschi et al., 1974.)

Kane, Doerge, and Tedeschi (1973) determined that in considering

the necessary prerequisites for labeling an act as aggression, experimenters and subjects utilize different information when they label behavior. The definition of aggression will be subdivided into two sections: information used by experimenters and information used by subjects to define aggression.

Experimenter's labeling. In regards to the first dimension, there has been a wide range of behavior which has been labeled aggression. Dollard et al. (1939) adopted a narrow definition. They stated, "Verbs such as destroy, damage, torment, retaliate, hurt, blow up, humiliate, insult, threaten, and intimidate refer to actions of an aggressive nature" (p. 10). Olweus (1973), on the other hand, believed that any type of discomfort caused by another's action should be called aggression. Tedeschi et al., (1974) presented an even broader definition. Aggression "involves constraint of another's behavioral alternatives."

For the second dimension, intent, researchers have generally agreed that the intent to harm is necessary for an act to be considered aggression. The intent of a subject's aggressive behavior cannot be definitely determined. However, researchers feel assured that in certain controlled situations, subjects were acting with intent. In everyday situations it is generally agreed that intent cannot be as clearly identified.

There are two common situations which are especially troublesome for researchers. First, it is generally acknowledged that accidents should not be defined as aggression. This could involve an additional determination of whether an event is an accident or not. Secondly,

most theorists do not label as aggressive the delivery of noxious stimuli when it is part of a social role, e.g., fixing a tooth or passing a sentence. But there are ambiguous situations. Is a father spanking his child because he is angry or because he feels it is his duty as a parent?

For the third dimension, Kane et al. (1973) noted that experimenters consider an act to be aggression even if there was no indication that a subject was acting illegitimately. In fact, experimenters label an act as aggression even if the subject was treating another person just as the other person had treated the subject.

Subjects' labeling. Tedeschi et al. (1974) maintained that any act which constrains another's behavior alternatives and is perceived as intentionally detrimental and as illegitimate will be labeled aggression by subjects. The question is not whether the confederate really has the intent to do harm; rather it is whether the subject believes the confederate intends to do harm; and whether the subject judges the action to be illegitimate or antinormative. Kane et al. (1973) found that subjects must judge an act to be illegitimate (not justified by the situation) before they will label an act as aggressive and in this regard subjects differ from experimenters in their labeling process.

Definition of terms. For the purposes of this study, "provocation" is the word used to describe the experimenter's perception of the confederate's behavior toward the subject. In order for it to be labeled a provocation, two judgments are necessary: (a) the experimenter considered that the confederate's behavior limited the

subject's behavioral alternatives or caused the subject some discomfort and (b) the experimenter judged that the confederate intended to harm the subject. "Attack" will describe the subject's perception of the confederate's behavior toward the subject. In this case three judgments are necessary for the subject to label the confederate's behavior as an attack. The subject judged (a) that the confederate limited his behavioral alternatives or caused him some discomfort; (b) that the confederate intended to harm him; and (c) that the confederate's behavior was illegitimate or unfair. "Aggression" will be used to describe the experimenter's perception of the subject's behavior towards the confederate, and again the experimenter must make the same two judgments noted above in order for the label, aggression, to apply. The experimenter believed (a) that the subject's action constrained the confederate's behavioral alternatives or caused him discomfort and (b) that the subject intended to harm the confederate. These three judgments occur in the following order: the provocation occurs first, then the subject may perceive the provocation as an attack or not, and the subject may or may not aggress against the confederate (see Figure 1).

There are three groups of factors which determine whether or not a subject will label the provocation as an attack. These factors are environmental information, internal cues, and personality styles or traits (see Figure 1). This study will focus on environmental information as a determinant of aggression and of the subject's labeling of attack. Two pieces of information which influence a subject's judgments about illegitimacy of harm-intending acts are level of prior

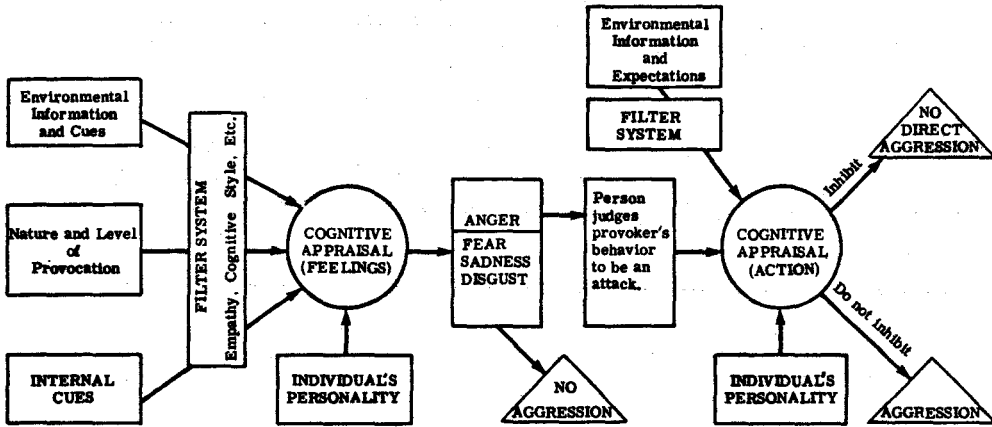


Figure 1. A Schematic of Inputs Used in Making Judgments about Aggression.

provocation and the causes or reasons for the provoker's behavior. These two factors and their interrelation will be the primary focus for the remainder of this paper.

Provocation Causes Angry Aggression

An extensive list of causes of angry aggression would include rude and unpleasant persons; threats to satisfaction of basic needs; arbitrariness of a frustrator's behavior; maliciousness of a frustrator; frustrations in an effort to gain status, security, and/or reputation; unreasonable demands; inability to retaliate; threat of provocation; insults; and despair (Fawcett, 1971; Singer, 1971). However, most of the research has centered on frustration and provocation as the two most important external or environmental causes of aggression.

In the late 30's Dollard et al. (1939) put together a reactive conception of aggression. Initially, they stated, "The occurrence of aggressive behavior always presupposes the existence of frustration and, contrariwise, that the existence of frustration always leads to some form of aggression" (p. 2). Only two years later one of the authors (Miller, 1941) changed this initial formulation and stated that frustration can potentially produce a variety of different responses, one of which is aggression. It is now generally accepted that there are many different responses that people can make to frustration (Hilgard, Atkinson, & Atkinson, 1971).

In the subsequent research on the frustration-aggression hypothesis, there has been a wide range of operational definitions of frustration. Frustration has been defined as an interruption of an ongoing task (Gentry, 1970), losing when in competition with another

person (Epstein & Taylor, 1967), a person's failure at teaching (Thompson, 1972), and provocation (Berkowitz, 1962). Considering these divergent definitions of frustration, it is understandable that there have been some studies which have supported the frustration-aggression hypothesis and others which contradict it.

There has been some clarification regarding the operational definition of frustration. As early as 1966, Buss maintained that frustration was a weak antecedent of aggression. He claimed that other researchers (Berkowitz, 1962) confounded frustration with provocation and this is the reason these studies supported a frustration-aggression hypothesis. Buss believed that it was the provocation which produced the aggression and found that verbal provocation led to aggression and frustration did not.

Other studies have shown similar results. Gillespie (1961) and Geen and Berkowitz (1967) found that frustrated and insulted subjects aggressed more than frustration-only subjects; and Geen (1968) found that insulted subjects (provocation) aggressed more than frustrated subjects. The definitive study was done by Gentry (1970). He tested the effects of pure frustration, pure provocation (insult), and a combination of frustration plus provocation on subsequent aggression. Pure provocation produced more aggression than did a combination of frustration plus provocation which in turn resulted in more aggression than pure frustration. From the above research there seems to be a consistent finding that attack or frustration plus attack lead to increases in angry aggression.

One study suggests that increases in pure frustration may lead

to increases in instrumental aggression. Thompson (1971) found that stronger frustration led to more aggression when aggression was effective in overcoming the frustration. Aggression in this experiment could be more specifically called instrumental aggression.

There is some question in the literature over the type of relationship that exists between provocation and aggression. Buss (1961) assumed that the tendency to aggress varied curvilinearly with the intensity of provocation. He believed that this was especially true for physical provocation. Knott and Drost (1972) tried to test this hypothesis. They gave subjects a small, medium, or large number of shocks. The subjects were then given an opportunity to aggress by administering shock. They found a linear relationship between intensity of provocation and intensity of aggression. They believed that the large number of shocks was intended to be a high level of provocation but was actually a moderate level. Epstein and Taylor (1967) and Taylor (1967) also found a linear relationship between intensity of provocation and intensity of aggression. The evidence supports the hypothesis that there is a linear relationship between provocation and aggression. Thus, hypothesis 1 is that high provocation will result in more aggression than low provocation. However, experimenters do not and, naturally, will not deliver high provocation. Thus, the relationship appears linear for the range of provocations acceptable in laboratory research.

As was mentioned above, the hypotheses regarding the causes of aggression are directly related to the operational definitions of provocation and aggression. Therefore, techniques of inducing

provocation and measuring aggression will be examined.

Techniques for Inducing Provocation and Measuring Aggression

Buss Machine. In a typical experiment using the Buss Machine (Geen & Berkowitz, 1966), the experimenter outlined the experiment as designed to measure performance in a problem solving task. The subject was told that he would be given a difficult problem to solve and his solution would then be judged by another subject (actually an accomplice or confederate), who communicated his evaluation by supposedly giving the subject a number of electric shocks ranging from 1 to 10. The confederate actually gave the subject one or seven shocks, no provocation and high provocation respectively. The subject was later given a chance to shock the confederate. These shocks were administered at the subject's discretion. One shock indicated that the subject judged the accomplice's solution to be very good and 10 indicated that he judged the solution to be very poor. The amount of aggression was measured by the number and intensity of shock which the subject administered.

Ethically, the Buss model has come under heavy criticism because the pain administered is a noxious stimulus and because a high degree of deception is necessary. In regards to the former, it is clear that subjects incur some physical and psychological stress. The degree of stress which is ethically tolerable is open for debate. There are no clear answers. Almost everyone agrees (Crano & Brewer, 1973) that no potentially permanent physical or psychological harm is permissible to human subjects. Gergen (1973) has called on psychologists to use their mental energy to do research on the harmful effects of various

strategies. Until it can be established that questionable research strategies are not harmful, other potentially less harmful methods to study aggression should be examined.

Sullivan and Deiker (1973) pooled the opinions of psychologists and students in universities on the use of deception and pain in psychological experiments. They gave students and professors four experiments. All experiments were described by an identical cover story in which subjects were asked to volunteer for an experiment that would involve learning a list of nonsense syllables. They were then told the true nature of the experiment. One of the experiments examined pain endurance and was described as one in which the volunteers would receive electric shocks that other students had said were "definitely uncomfortable, but by no means unbearable." Seventy-two percent of psychologists and 51% of the students said that the deception in this study was unethical. Forty-seven percent of psychologists and 18% of students thought that it was unethical to use shock. Fifty-seven percent of psychologists and 56% of students thought that the use of shock was not justified. Although this hypothetical experiment differs from the Buss-type experiment, there are many similarities in the degree of deception and the degree of pain endured. Thus, the opinions of the professors and students should be considered in ethically evaluating the Buss-type paradigm.

Crano and Brewer (1973) stated that the deliberate misrepresentation of the details of an experiment which is implicit in a cover story is "undeniably" a violation of interpersonal trust and respect. Whether this is justified for the sake of science is also open for

debate. From another standpoint, Orne (1962), Kelman (1967), Argyris (1968), and Schultz (1969) argued against the use of deception because the behavior of the subject is not normal since it is a well known fact that psychologists use deception in experiments. They recommend that scientists enlist the cooperation and collaboration of the subject rather than fooling or manipulating him. The above comments suggest that research on aggression should utilize other behavioral measures in order to limit the use of deception and the use of pain as a noxious stimulus until it is proven nonharmful.

Prisoner's Dilemma Game. A partial review of the literature on aggression produced only one strategy to measure aggression which substantially differed from the Buss model, which did not use shock, which minimized deception, and which could be used with adults. Berger and Tedeschi (1969) used a modified version of the Prisoner's Dilemma Game as a behavioral measure of aggression with children. Anchor and Cross (1974) revised this strategy slightly for use with adults. This game is a conflict situation in which each of two players must select one of two strategies (cooperation or competition) without any knowledge of the other player's selection. The goal for a person playing this game is to win as much money or as many points as he can. By choosing one option a person is generally cooperating with the other player; and by choosing the other option, he is competing. The Prisoner's Dilemma Game is a non-zero-sum or mixed-motive game. In constant-sum games, which the Prisoner's Dilemma Game is not, the total payoff to the two players is always a constant. The larger the payoff to one player, the smaller is the payoff to the other. In nonconstant-sum or mixed-motive

games, the payoff varies. One combination of moves has a high payoff for both players. Another combination has the highest payoff for one player and the lowest payoff for the other player. The players have partially common and partially opposed interests.

Since each player is given a choice between cooperating (C) and competing (D), this leads to four possible outcomes or payoff conditions, CC, CD, DC, DD. The payoffs are usually represented in a matrix (see Figure 2). The number in the upper half of the box refers to the payoff for person A and the lower half for person B. It can be readily seen that the highest payoff to both players is achieved when they both are cooperative. However, in many instances both people end up playing competitively which results in the lowest possible payoff for the two players. The cause and nature of this dilemma can be readily seen by looking at the analogy from which the game derived its name.

Two suspects are taken into custody and separated. The district attorney is certain that they are guilty of a specific crime, but he does not have adequate evidence to convict them at a trial. He points out to each prisoner that each has two alternatives: to confess to the crime the police are sure they have committed, or not to confess. If they both do not confess, then the district attorney states he will book them on some very minor trumped-up charge such as petty larceny and illegal possession of a weapon, and they will both receive minor punishment; if they both confess they will be prosecuted but he will recommend less than the most severe sentence; but if one confesses and the other does not, then the confessor will receive lenient treatment for turning state's evidence whereas the latter will get the book slapped at him (Luce & Raiffa, 1958, p. 95).

The best outcome for both prisoners results if neither confesses (CC). But the best possible outcome for one person is achieved if he confesses (DC or CD) and the other does not. If each one is motivated to maximize

Person A

	Cooperative Response (C)	Competitive Response (D)
--	-----------------------------	-----------------------------

9 (R)

10 (T)

Cooperative Response (C)		
-----------------------------	--	--

9 (R)

-1 (S)

Person B

-1 (S)

0 (P)

Competitive Response (D)		
-----------------------------	--	--

10 (T)

0 (P)

Payoff Labels

R = Reward

T = Temptation

S = Sucker

P = Punishment

Figure 2. An Example of a Payoff Matrix for the Prisoner's Dilemma Game. Person A's payoff is in the upper half of the box. Person B's is in the lower half.

his own gain, the lowest payoff results (DD).

In experiments using the Prisoner's Dilemma Game, one frequently used dependent measure is the percentage of competitive or cooperative choices. This measure was used by Berger and Tedeschi (1969) who also developed another dependent measure of aggression. After each seven trials of the game, they injected a zap option. One subject playing the game (actually, he was the only subject since the other player was a confederate) was given the opportunity to take \$10 of play money from the other person. A subject could not gain when he used the option because he was assessed a fee which ranged from \$2 to \$11. The subjects in this experiment were children and the money which they won was traded in for M & M candy at the end of the game. Anchor and Cross (1974) used the same procedure with adults except each dollar won could be redeemed for a penny. Berger and Tedeschi stated that the zap option was a "behavioral response that can be unambiguously interpreted as harm-intending aggression directed toward another person." The zap option restricts the outcome for the opponent by taking money away from him; and when the subject uses the option, he is intending to harm the opponent because there is no gain for the subject. Therefore, the zap option qualifies as an operational definition of aggression for experimenters.

The number of competitive responses is not clearly a measure of aggression as defined in this paper. The competitive response clearly causes the confederate harm (the lowest payoff). However, since the subject also obtains the highest possible payoff, the motivation of the subject cannot be clearly judged. Is he using the competitive

response to maximize his own gain (instrumental aggression) or to minimize the confederate's gain (angry aggression)?

It is necessary to present a short review of the research which pertains to the use of the Prisoner's Dilemma Game in the present experiment. In some studies one of the players' game strategy was determined by the experimenter. Such a predetermined strategy was used in this experiment in order to present each subject with the same situation. Various strategies have been used: a randomized strategy, a tit-for-tat strategy in which the experimenter selects the response which the subject gave on the previous trial, a progressively increasing cooperative strategy, etc. Since the strategy is not the area of concern for the present experiment, a randomized schedule was used. In this strategy the experimenter makes the same move for all subjects on the n th trial. The schedule is randomly predetermined according to a specified percentage of cooperative responses. Most studies employ a random schedule using a 50% cooperative and 50% competitive ratio. Summers, Peirce, Olen, and Baranowski (1972) reported that most studies in this area have found that the experimenter's overall strategy has had very little effect on subject's cooperative behavior. Oskamp (1971) in his review of the literature, found that big differences in strategy (80% cooperative compared to 20% cooperative) led to differences in cooperative behavior; but smaller differences (75% cooperative compared to 50% cooperative) did not. Thus within reasonable limits the percentage of cooperative responses which the experimenter uses in a randomized schedule is not a crucial variable in designing the experiment.

It has also been found that the values in the matrix affect cooperative behavior. Rapoport and Chammah (1965) used the following terms to describe the different outcomes in the matrix: reward (R), punishment (P), temptation (T), and sucker (S). In Figure 2, R refers to reward, S to sucker, T to temptation, and P to punishment. The relative values of the four outcomes influence the participants' behavior. Rapoport and Chammah reported that the index $(R - P)/(T - S)$ positively correlated with cooperative behavior. Steele and Tedeschi (1967) developed 208 different indexes and found that the index $\log (T - S)/(R - P)$ had the highest correlation ($r = .64$) with the number of competitive responses. Steele and Tedeschi described more accurately the relationship between the index and the proportion of cooperative responses. As the value of the ratio $(R - P)/(T - S)$ increases, the rate of cooperation also increases. Jones, Steele, Gahagan, and Tedeschi (1968) suggested that if a treatment condition is hypothesized to raise the cooperative proportion, The Prisoner Dilemma Game will be more sensitive to this when the value of the ratio is low and when sucker and punishment have negative payoff values. The value of the ratio is an important determinant of cooperative behavior and needs to be set at a value such that changes in behavior can occur and can be measured.

In both studies which used the zap option as a measure of aggression, subjects redeemed the play money which they won for real money or M & Ms. There are conflicting results in the literature regarding the effect of money payoffs on the percentage of cooperative responses. Gumpert, Deutsch, and Epstein (1969) found no change in competitive responses when players were playing for real or imaginary

money. Oskamp and Kleinke (1970) found some evidence that real money payoffs actually decreased the percentage of cooperative behavior. On the other hand, Solomon and Kaufman (1972) found that real money increased cooperative behavior. Thus, the effect of real money payoffs is unclear. Regardless of the effect, real money is necessary for the zap option to be considered a measure of angry aggression. If money is not used, one of the main motives of subjects would be to beat the other player, and it would be a good game strategy to use the zap option. In this case the zap option might be a measure of instrumental aggression. By using money and by emphasizing in the instructions that the purpose of the game is to see how many points you can accumulate and how much money you can win, regardless of the other player's total, the use of the zap option is harm-intending and a measure of angry aggression rather than instrumental aggression.

Effect of Reasonableness of Provocation on Aggression

In the research on provocation, very little information was given to the subject about the confederate's action which might change or alter the subject's judgments. Other studies have found that the judgments by the subject regarding attack are affected by his value system (Blumenthal, Kahn, & Andrews, 1971), the characteristics of the provoker (Albert, 1973; Schlenker & Tedeschi, 1972), and the behavior of others with whom the subject has contact (Schachter & Singer, 1962). Recent findings in attribution research have focused on those variables that affect people's judgments and these results have been applied to the study of aggression. Researchers have manipulated the cognitions which the subject has about his level of arousal (Berkowitz, Lepinski, &

Angulo, 1969), the source of his arousal (Geen, Rakosky, & Pigg, 1972; Geen & Pigg, 1973), and the behavioral options which the subject has available (Geen & Pigg, 1973). But there has been limited work done on whether attributions about the reasons or causes of the provoker's actions will affect the subject's labeling of the provocation as attack and his arousal as anger.¹ Reasons or causes of the provoker's behavior pertain primarily to judgments about the third condition, illegitimacy, and possibly the second condition, intent to harm.

In the '50s and '60s, there was a group of studies which varied the arbitrariness, reasonableness, or justifiableness of situations and found that if a provocation occurred because of justifiable reasons, then the subject aggressed less. In the first experiment in this line of research, Pastore (1952) presented some subjects with 10 nonjustifiable events and other subjects with similar situations in which the provoker had some justification for his acts. An example of the former is "Your date phones at the last minute and breaks the appointment without an adequate explanation." In the justified condition, the statement was changed to "Your date phones at the last minute and breaks the appointment because she had suddenly become ill." The justified statements elicited considerably fewer self-report aggressive responses.

¹In the studies on the effect of provocation on aggression, it seems very likely that the subjects labeled the provocation as attack and, as a result, were angry and aggressed. In the remainder of this paper, the labeling of provocation as attack and arousal as anger will be viewed as similar processes which occur at the same time.

Cohen (1955) and Rothaus and Worchel (1960) also used statements about hypothetical situations and found that reasonable explanations reduced aggression.

Kregarman and Worchel (1961) experimentally manipulated two aspects of arbitrariness, reasonableness of a person's action and the unexpectedness of a person's action. Differences in reasonableness did not result in differences in verbal aggression (self-report), but unexpected events did lead to greater aggression. However, the authors stated that the instructions might not have been effective in inducing two sufficiently extreme degrees of reasonableness. Fishman (1965) experimentally varied the degree of justification. Subjects were promised \$2 if they succeeded at a task. Some subjects didn't succeed and were deprived of the \$2 (justified). Other subjects succeeded, but the experimenter refused to give them their money (non-justified). Subjects in the nonjustified condition expressed more aggression. These studies suggest that a reasonable explanation about a provocation will result in less aggression than a nonjustified or ambiguous explanation about a provocation (this line of reason will later be used to support hypothesis 3).

Interaction of Reasonableness and Provocation

The section on attack indicated that increased provocation resulted in increased aggression. The section on justification suggested that when a provocation is reasonable, people do not aggress as much as when the provocation is unreasonable, arbitrary, or ambiguous. Do these two factors interact or will the effect of one override the effect of the other? Research has not focused on this question directly;

however, some related research will be examined. Several studies have found that theories which explain behavior at low levels of provocation are not relevant at high levels. For example, Baron (1973) found that threatened retaliation reduced subsequent aggression when the subject was not previously angered, but did not reduce aggression if the subject was highly angered by the person who had threatened him. Baron (1974) stated that pain cues decreased aggression if the subject had not been previously angered; but when the subject was angered, pain cues possibly facilitated aggression. This literature provides the basis for hypothesis 5 which is that a reasonable explanation of a provocation will not reduce aggression as much with high provocation as with low provocation. More specifically, the difference in aggression between high and low provocation for a reasonable explanation about a provocation will be greater than the difference between high and low provocation for a nonjustified or ambiguous explanation about a provoker.

Effect of Unreasonableness of Provocation on Aggression

Previous studies have not investigated the effect of an unreasonable explanation of a provocation on aggression. Since the literature provided no indications of possible hypotheses relating unreasonable explanation to aggression, a pilot study was done to investigate the effect of an unreasonable attribution. Subjects were given a written description of the procedure involving the Prisoner's Dilemma Game and the zap option (see Appendix E). They were asked to imagine that they were participating in a psychology experiment with a hypothetical person named "Sam." They were told that Sam used the zap option on them six out of a possible ten times that he could have used

the option. It was also explained that before the experiment began, they overheard Sam commenting to the experimenter about his personal life. Ten different comments which Sam supposedly made to the experimenter, were presented. Five of the comments were designed to make Sam's behavior appear reasonable; five were designed to make Sam's behavior appear unreasonable; and an additional condition was included in which Sam didn't say anything to the experimenter. It should be noted that these studies were not direct explanations of the provocation, that is, Sam's behavior. Instead, the subjects had to make an attribution that the situations mentioned in the comments affected his behavior in the game. One of the purposes of the pilot was to determine whether the subjects believed that the stories made Sam's behavior in the game more or less reasonable.

Subjects were asked to do three things: to rate how reasonable or unreasonable was Sam's behavior based on each piece of information; to rank order the eleven situations placing first the situation which made Sam's behavior the most reasonable; and to indicate if they would feel hostile or concerned and if they would use the zap option (see Appendix E).

The information was pooled and the story that made Sam's behavior appear the most reasonable was chosen and called the reasonable attribution. The word "attribution" was used because the story did not directly explain Sam's behavior. Similarly, the comment that made Sam's behavior appear the most unreasonable was chosen and called the unreasonable attribution. Also, the most unreasonable story was compared to the no information or ambiguous situation. The results

indicated that there were no clear differences between these two situations on any of the measures. Thus, null hypothesis 2 suggests that there will be no significant difference in aggression between an unreasonable attribution about a provoker and no information about a provoker. It was also anticipated that there would not be an interaction effect between the effect of the attribution and the level of provocation. Specifically, it was anticipated that the difference in aggression between high and low provocation for an unreasonable attribution about a provoker will not be significantly greater than the difference in aggression between high and low provocation for no information about the provoker (null hypothesis 4).

Comparison of Two Theories of Aggression

Many of the studies discussed above have been interpreted as supporting two divergent theories of aggression: inhibition theory and differential cognitive appraisal. According to inhibition theory, low aggressors are angry and have labeled the provocation as attack but do not exhibit overt aggression because they inhibit the response. A differential cognitive appraisal theory predicts that low aggressors are not angry and have not labeled the provocation as attack. This point of confusion may be clarified by comparing the anger ratings of high aggressors and low aggressors. Inhibition theory predicts that there will be no difference in anger between the two groups and differential cognitive appraisal does predict a difference.

Inhibition theory maintains that when a person is inhibiting aggression, his original instigation to attack (anger) is present, but he refrains from aggressing. Dollard et al. (1939) maintained that

fear of punishment is the inhibitor. "The strength of inhibition of any act of aggression varies positively with the amount of punishment anticipated to be a consequence of that act" (p. 37). Berkowitz (1962) agreed that fear of punishment was an inhibitor, and he also added that a person will inhibit an aggressive act if he believes his hostile act will violate the standards of conduct which he wants to uphold. Staub (1971) elaborated on Berkowitz's second inhibitor and stated that a person feels anxiety or guilt when he anticipates violating a standard of conduct. Staub also recognized one other, neglected inhibitor of aggression, empathy. Most writers have defined empathy as the ability to know how another person feels and to have, to some degree, those same feelings within oneself. None of the authors cited have discussed how inhibition works. Each of the examples of inhibition seem to involve an unpleasant emotion, such as fear, anxiety, guilt, pain, sorrow, etc. A person anticipates that he will feel one of these emotions if and when he aggresses. If the anticipated experience is sufficiently uncomfortable, inhibition theory predicts that the person will usually inhibit an aggressive response. In summary, inhibition theory states that low aggressors will be ready to counteraggress but will not aggress because they believe it is not appropriate or it is immoral to aggress. They most likely anticipate the anxiety and guilt that they would feel if they aggressed and this anticipation prevents them from aggressing.

Other theorists (Arnold, 1960; Lazarus, 1968; Schachter, 1964) have emphasized that people make a cognitive appraisal of the situation which then determines their emotions and their actions. Geen (1968) found that subjects label their arousal as anger and are more aggressive

if an aggressive cue, e.g., a gun, is present. Schachter and Singer (1962) specifically found that people use information given by another person to form their labels for their emotional states. All three of these cognitive theorists maintain that a person cognitively evaluates the information at hand to determine his emotion and/or action tendency. These theorists suggest that low aggressors show less aggression because they have not labeled their arousal as anger (Schachter, 1964), or have not evaluated the situation as threatening (Lazarus, 1968), or have not decided that attack is the appropriate response tendency (Arnold, 1960; Lazarus, 1968). On all three cases, differential cognitive appraisal predicts that low aggressors not only exhibit less aggression but also feel less angry than high aggressors.

STATEMENT OF PURPOSE

This experiment was designed to determine whether provocation and attributions about provocations result in differences in subject aggression and in self-reported anger. In addition, the interaction of provocation and attributions can be examined. Provocation was manipulated by varying the number of times (one or six) that the confederate will use the zap option of the Prisoner's Dilemma Game in the first 10 opportunities. The zap option takes money away from the opposing player at a cost to the player using the option. The zap option has been considered to be a response which can be "unambiguously interpreted as harm-intending aggression" (Berger & Tedeschi, 1969). The subjects overheard three different conversations between the confederate and the experimenter about the causes of the confederate's behavior. Thus a 2 x 3 randomized group design with two levels of provocation and three different attribution conditions was employed. Aggression was measured by the number of times that the subject uses the zap option. Anger was measured by means of a self-rating.

This experiment extended the work of previous studies in three ways. First, this study investigated directly the effect of attributions about provocations at different levels of provocation. Secondly, anger ratings were used to compare the predictions from inhibition theory and differential cognitive appraisal. Thirdly, it was determined whether subjects label the confederate's provocation in this experiment as an attack, as subjects did the confederate's

provocation using the Buss Machine as the vehicle for the provocation.

SUMMARY OF HYPOTHESES

This completes the review of the literature pertaining to the hypotheses tested in this experiment. The hypotheses will now be summarized. First, a minor terminology change will be made in the wording of the hypotheses as they appeared in the review of the literature. As the discussion of the pilot experiment indicated, a direct reasonable or unreasonable explanation about a provocation was not given. Instead subjects had to infer that the recent events in the confederate's life caused his behavior during the game. So, in the description of the various conditions, the word "attribution" was substituted for the word "explanation." Secondly, since it was predicted from the pilot study that there would be no difference in aggression between the unreasonable attribution groups and the ambiguous attribution groups, the reasonable attribution groups were compared to the combined unreasonable and ambiguous groups instead of just the ambiguous groups, as was indicated in the review of the literature. This permits the five hypotheses to be evaluated by five orthogonal comparisons (Winer, 1971).

It was expected that:

1. High provocation would result in more aggression than low provocation (the first main effect hypothesis). (See Figure 3 for a graphical presentation of the expected results if all five hypotheses would be validated.)
2. There would be no significant difference in aggression

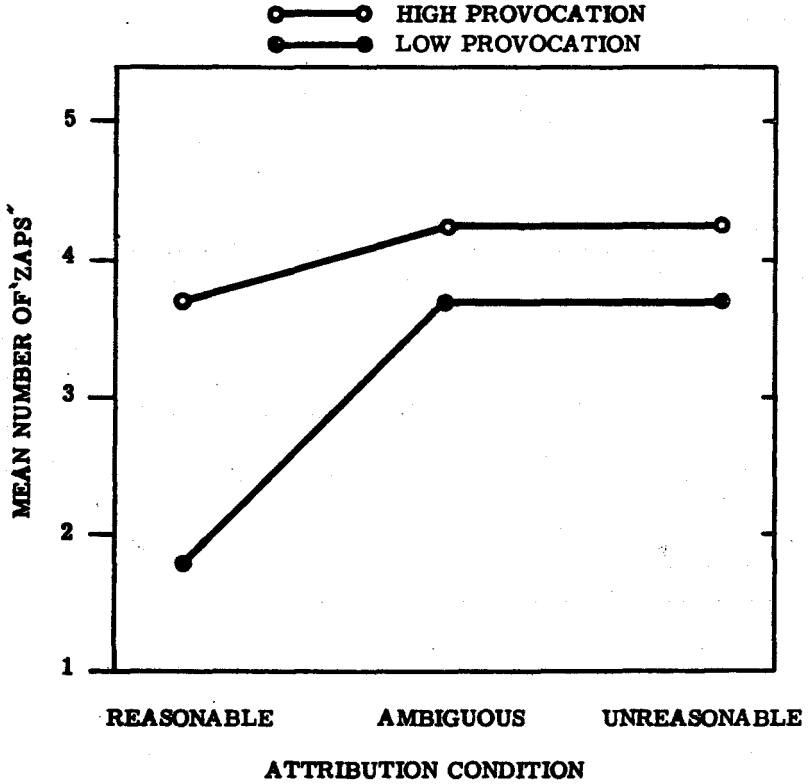


Figure 3. The Expected Mean Number of Zaps for Three Attribution Conditions at Two Levels of Provocation

between an unreasonable attribution about a provoker and no information about a provoker (a second main effect hypothesis, also a no effect or null hypothesis).

3. A reasonable attribution about a provoker would lead to less aggression than either an unreasonable attribution about a provoker or no information about a provoker (a third main effect hypothesis).

4. The difference in aggression between high and low provocation for an unreasonable attribution about a provoker would not be significantly greater than the difference in aggression between high and low provocation for no information about a provoker (the first interaction hypothesis, a no effect or null hypothesis).

5. The difference in aggression between high and low provocation for a reasonable attribution about a provoker would be greater than the difference between high and low provocation for either an unreasonable attribution about a provoker or no information about a provoker (a second interaction hypothesis).

This study also examined the difference in anger ratings in order to compare inhibition theory and differential cognitive appraisal. Inhibition theory predicts that there would be no difference in anger ratings between high aggressors and low aggressors. Differential cognitive appraisal predicts, on the other hand, that anger rating would be greater for high aggressors than for low aggressors.

METHOD

Subjects and Confederate

Ninety, white male students enrolled in introductory psychology courses at Indiana University, Purdue University Indianapolis participated in the experiment. Fifteen subjects were randomly assigned to each cell. Although participating in psychology experiments is not a course requirement, students were given extra credit for participating. Subjects also earned a maximum of \$3.00 and a minimum of \$2.00 in this experiment. The confederate was a chubby, 22 year old white, male, college senior who had a beard and mustache.

Design

A 2 x 3 factorial design was used based upon two levels of attack (high and low), and three attribution conditions (reasonable, unreasonable, and ambiguous). Fifteen subjects were randomly assigned to each cell of the design.

Apparatus

In the room were chairs, a table, and a screen separating the confederate's side from the subject's side. In the middle of the screen were the rules for the game (see Appendix A). On each side of the table was a stack of play money and two poker chips. The experimenter sat on one end of the table where there was a pencil and a manilla folder.

Procedure

After the subject arrived, the subject and confederate were

taken to the experimental room where the experimenter obtained the subject's and confederate's name.

Then the experimenter said, "I am studying the effects of different game strategies and game techniques on how much money people win and how people behave and feel in various types of situations. You will have to make some decisions during this game which will determine how much money you win and I will also ask you to fill out a questionnaire about how you feel. I want you to fill out this questionnaire both before and after the game.

"The object of this game is to win as much play money and real money as you can. You each have \$200 of play money to begin with. If you end up with \$220, you will receive 20¢ of real money. That is, for every play dollar you win, I will give you a penny after the game. Here is how the game is played. You both have identical red and white chips. There will be 50 turns to this game, and on each turn all you have to do is push the red or white chip towards me when I say, 'Go.'" (These instructions are very similar to those of Anchor and Cross, 1974.)

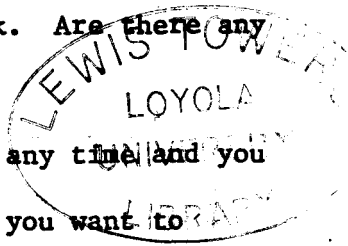
"Now let's see how money is won and lost. On the board in front of each of you are four rules" (see Appendix A). If both of you push red chips, you each receive \$12. If you (subject) push the red one and you (confederate) push the white one, you (subject) will lose \$4 and you (confederate) will win \$15. If you (subject) push the white one and you (confederate) push the red one, you (subject) will receive \$15 and you (confederate) will lose \$4. If you both push white chips, both of you will lose \$3. Now that's all there is to the game. Any questions so far? (The experimenter then paused to allow for any

questions.) Remember your job is to win as much money as you can. You are not in competition with each other. Both of you have a stack of money on your table and you are to take that money from the stack or put it back on the stack when I tell you the results of each turn.

There is also one other aspect of this game. After each five moves, I will say the word 'Option.' At this time you may raise your hand which is closest to me or don't raise your hand. If you raise your hand, this means that you want to give up \$4 of your money to the bank and make the other player pay \$20 of his money to the bank. If neither of you raise your hand within fifteen seconds, we'll just continue playing as before. If both of you raise your hand, then the option will be in effect for both of you, that is you each will give up \$4 plus \$20 or a total of \$24. I will say the word option after the 5th move, 10th move, 15th move, and so on. The last option will come after the 50th and final move.

"Here's how we'll play. I'll say the number of the move, for example, 'Number 1, Go.' When I say 'Go,' be sure to push either your white or red chip. Then after the 5th move, 10th move, and so on, I'll say the word 'Option.' Then you may raise your hand if you want to. Fifteen seconds after I say the word 'Option,' I'll tell you if neither, both or one of you raised your hand. After each trial and after each option, make the appropriate transaction with the bank. Are there any questions?

"Either of you may withdraw from this study at any time and you will be given money for coming to the experiment. If you want to continue, I would like you to sign this document of informed consent



(see Appendix B) which is part of the standard procedure for people participating in some psychological experiments.

"Now before we begin, I would like you to fill out this questionnaire or checklist." The Multiple Affect Adjective Check List (Zuckerman, 1960; Zuckerman, Lubin, Vogel, & Valerius, 1964) (see Appendix C) was administered.

The experimenter then asked if there were any questions. The subject overheard the following conversation between the experimenter and confederate if the subject was in the reasonable attribution condition.

Experimenter (E): Do you have any questions?

Confederate (C): Well, sort of...after answering that questionnaire

I realize I've got something on my mind and I hope it doesn't mess things up...

E: What is it?

C: Well, I'm pretty uptight.

E: Go ahead.

C: A couple of days ago my wife was sick and I took her to Community Hospital. They gave her some medicine, but they wanted to keep her for a day for observations and tests. That was two and a half days ago. I'm really worried that there is something wrong. I've asked the doctors what's wrong and they haven't given me or my wife an answer.

E: I can see you are worried...I don't know what to say. You caught me off guard....I guess the only thing that is important is that you can concentrate on the game. Do you think that you

can concentrate on the game?

C: Yes, I believe so.

E: Do you have any other questions?

C: No.

E: Do you (subject) have any questions?

Subjects in the unreasonable condition heard the following conversation.

E: Do you have any questions?

C: Well, sort of...after answering that questionnaire I realize I've got something on my mind and I hope it doesn't mess things up...

E: What is it?

C: Well, I'm very angry.

E: Go ahead.

C: My steady girlfriend just called me and broke tonight's date because she had the flu. I know she had a sore throat, but even if she was sick, she still could have gone out with me.

E: I can see you are angry...I don't know what to say. You caught me off guard....I guess the only thing that is important is that you can concentrate on the game. Do you think that you can concentrate on the game?

C: Yes, I believe so.

E: Do you have any other questions?

C: No.

E: Do you (subject) have any questions?

Subjects in the ambiguous condition heard the following

innocuous conversation.

E: Do you have any questions?

C: No.

E: Do you (subject) have any questions?

The experimenter then reminded them, "Remember, there is no winner or loser in this game. Don't feel that you must defeat anyone else. Your payoff does not depend on how much the other guy makes."

The confederate used the zap option one (low provocation) or six (high provocation) times out of the ten opportunities. In the low provocation condition, the confederate used the option on the fourth opportunity. In the high provocation condition, the confederate used the option on the first, third, fourth, sixth, seventh, and ninth opportunities.

The confederate played a 50% cooperative and 50% competitive random schedule of responses. After the game was completed, subjects were again asked to complete the Multiple Affect Adjective Check List and several questions about the confederate's feelings to determine if the subject was aware of the independent variable (see Appendix D). The experimenter then debriefed the subjects, and any money which was taken away because of the confederate's or subject's use of the option was returned.

RESULTS

The two principal independent variables in this study were level of provocation by a confederate and attributions about the reasonableness of the confederate's behavior. Provocation was operationally defined by the frequency of the use of the zap option in the Prisoner's Dilemma Game by the confederate. Two, fixed levels of provocation were used. Low provocation was defined as the confederate's use of the zap option once during the ten opportunities to use the option. High provocation was defined as the confederate using the option six times during the ten opportunities. The other independent variable was attribution. There were three types of attributions. In the ambiguous attribution condition, no information was given to the subject about recent events in the confederate's life. The subject was free to assign whatever motives he chose to the subject's actions. In the reasonable attribution condition, subjects overheard the confederate telling the experimenter that he was very worried because his wife had recently and unexpectedly been taken to the hospital for observation and tests. In the unreasonable attribution condition, subjects overheard the confederate telling the experimenter that he was very angry because the confederate's girlfriend had called today and broke tonight's date because she was sick.

The major dependent variables were aggression and anger ratings. Aggression was defined as the number of times that the subject used the zap option. Anger was defined by the subject's score on the Multiple

Affect Adjective Checklist (Zuckerman, 1960; Zuckerman, Lubin, Vogel, & Valerius, 1964) after the game was completed. The questionnaire was also administered before the game to determine if any of the groups significantly differed in anger level before the experiment began.

Effect of Provocation on Aggression

The data analysis is presented in four sections. The first section deals with the effect of provocation on aggression. The first hypothesis stated that subjects would aggress more if they were in the high provocation condition than if they were in the low provocation condition. The mean number of "zaps" and the mean pretest and posttest anger ratings for each of the six conditions are presented in Tables 1 and 2, respectively. Under high provocation, subjects used a mean of 4.16 "zaps" as compared with a mean of 2.56 "zaps" under low provocation. This difference was statistically significant, $F(1,84) = 10.01$, $p < .005$. Subjects who were highly provoked did aggress more against the confederate than subjects who were only slightly provoked (hypothesis 1).

Effect of Attributions on Aggression

Checks on manipulation of attributions. After the formal part of the experiment was completed, the subjects were individually asked to rate on a 14 point scale how angry, worried, and happy the other player felt (see Appendix D). The purpose of this was to assess whether the subjects heard and remembered the emotional feelings described by the confederate in the two attribution conditions. Subjects in the reasonable (worried confederate) condition gave the confederate a mean worry rating of 10.10 (very worried) compared to a mean worry rating

Table 1

Mean Number of "Zaps" for Three Attribution
Conditions at Two Levels of Provocation

Level of Provocation	Attribution Condition ^a			Overall Mean
	Reasonable	Ambiguous	Unreasonable	
Low	2.00	3.40	2.27	2.56
High	5.07	3.80	3.60	4.16
Overall Mean	3.54	3.60	2.94	3.36

^aN = 15 for each of the six cells.

Table 2
 Mean Pretest and Posttest Anger Scores for
 Three Attribution Conditions at Two
 Levels of Provocation

Level of Provocation	Attribution Condition ^a		
	Reasonable	Ambiguous	Unreasonable
	Pretest		
Low	7.00	6.87	6.60
High	6.80	5.40	5.60
	Posttest		
Low	8.13	7.13	8.33
High	8.00	6.80	7.00

^aN = 15 for each of the six cells.

of 6.03 for the confederate by the subjects in the no emotion or ambiguous condition. This difference was statistically significant, $t(56) = 4.10, p < .0005$. This indicates that there is a difference in the degree of worry attributed to the confederate in the two different conditions. In addition, when the subjects were debriefed, 29 out of 30 subjects who were in the reasonable attribution condition remembered that the confederate's wife was in the hospital. These results provide evidence that the subject had heard and remembered the experimental manipulation.

Subjects in the unreasonable and angry attribution condition gave the confederate a mean anger rating of 9.93 (very angry) while subjects in the ambiguous condition gave him a 5.43 mean anger rating. This statistically significant difference, $t(56) = 4.55, p < .005$, indicates that subjects in the two groups differed in the anger feelings which they attributed to the confederate. Also, during the debriefing 27 out of 30 subjects in the unreasonable conditions recalled that the confederate was angry because his girlfriend cancelled the date, and 25 out of 30 knew that she broke the date because she was sick. Thus, again there was evidence that most subjects heard the experimental manipulation and could recall it.

From the above analysis, subjects knew how the confederate felt and most subjects remembered why he felt angry or worried. In this study it was expected that subjects would attribute the confederate's emotion and this incident about his wife or girlfriend as causes of the confederate's provocation during the experiment. To determine whether subjects made this attribution, the subjects were individually asked

whether the confederate's mood influenced the way he played the game. This questionnaire was given after the formal part of the experiment was completed (see Appendix D). Forty-four out of 56 subjects in the reasonable and unreasonable groups indicated that his mood did influence how he played. A chi square analysis indicated that this difference was significant, $\chi^2 (1) = 18.29, p < .001$. This provides some support for believing that subjects attributed the confederate's mood as a cause of his behavior during the game. Subjects were also asked how did the confederate's mood influence his behavior during the game. Fifty percent of the subjects indicated that the incident with his girlfriend or wife influenced how he felt. These two pieces of data provide some reason to believe that most subjects made the attribution that the incidents influenced how the confederate felt which in turn affected how he played the game.

Data analysis. Since the subjects heard and remembered the reasonable and unreasonable attributions, this section will evaluate the effect of attributions on aggression. Hypotheses 2 and 4 (null hypotheses) were based on the pilot study in which the most unreasonable attribution was chosen from the five unreasonable stories and compared to the no information or ambiguous situation. These results of the pilot suggested that an unreasonable attribution would not alter aggression.

Both hypotheses 2 and 4, as they are stated, predict that there would be no difference in aggression. Usually, an hypothesis predicts a difference between groups. The experimenter, therefore, states a null hypothesis with the hope of rejecting this hypothesis. Hypotheses

2 and 4 predict that the null hypothesis will not be rejected and the probability level will be set at .10 instead of .05. Null hypothesis 2 states that there will be no significant difference in the number of zaps between the unreasonable attribution groups and the ambiguous groups. The results can be seen in Table 1. A non-significant main effect for attribution provided some support for this null hypothesis. The B_2 term in Table 3 was not significant, $F(1, 84) = 1.16, p = .28$. An unreasonable attribution did not seem to affect aggression.

It was also predicted that a reasonable attribution about a provoker would reduce aggression. The reasonable attribution groups were compared with the combined unreasonable and ambiguous groups. This was done because it was expected a priori that there would be no difference in aggression between these latter two groups. The results of the data analysis for hypothesis 2 are consistent with this expectation. Hypothesis 3 therefore states that in the combined unreasonable and ambiguous groups the number of zaps would be greater than in the reasonable attribution group. A significant main effect of attribution was expected. The results are shown in Table 4. The orthogonal (Winer, 1971) main effect term in Table 3, B_1 , evaluated this hypothesis. This term was not significant, $F(1, 84) = .25, n.s.$, and the data did not support the hypothesis. In summary, neither reasonable nor unreasonable attribution affected aggression.

Interactive Effect of Attribution and Provocation on Aggression

As was indicated above, the first hypothesis was supported and showed that the level of provocation influenced aggression. Also, the results for hypotheses 2 and 3 showed that attributions did not affect

Table 3

ANOVA: Preplanned, Orthogonal Comparisons
for "Zaps"

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Provocation (A)	1	57.60	10.01**
Attribution (B)	(2)	(8.09)	
B ₁	1	1.42	.25
B ₂	1	6.67	1.16
A x B	(2)	(27.47)	
A x B ₁	1	24.20	4.20*
A x B ₂	1	3.27	.57
Ss within Gps	84	5.76	

* p < .05

** p < .01

Table 4

Mean Number of "Zaps" in the Reasonable and Combined
Unreasonable and Ambiguous Conditions
at Two Levels of Provocation

Level of Provocation	Reasonable	Combined Groups
Low	2.00 (N = 15)	2.83 (N = 30)
High	5.07 (N = 15)	3.70 (N = 30)

aggression. The present section will examine the interactive effect of attributions and level of provocation on aggression. The results of the pilot suggested that an unreasonable attribution about a provoker would not result in differences in aggression between high and low provocation. Null hypothesis 4 was tested by comparing the difference in the number of zaps between high and low provocation for the unreasonable attribution groups with the difference in the number of zaps between high and low provocation for the ambiguous groups. As can be seen in Figure 4 and Table 1, there was only a small non-significant difference between high and low provocation in these two attribution conditions. It was expected that the attribution by provocation interaction term, $A \times B_2$, would not be significant. An examination of Table 3 indicates that the interaction was not significant, $F(1,84) = .57, p = .54$. This provides some support for null hypothesis 4. Thus, unreasonable and ambiguous attributions did not differentially influence the effect of the level of provocation on aggression.

Next the influence of a reasonable attribution and level of provocation on aggression was examined. It was expected that the effect of high and low provocation on aggression would be influenced by the reasonable attribution. It was specifically predicted that there would be a larger difference in aggression between high and low provocation for the reasonable attribution conditions than between high and low provocation for the combined unreasonable and ambiguous conditions. The results are contained in Figure 5 and Table 4. As can be seen from the graph, the means for high and low provocation in the combined ambiguous and unreasonable conditions differ by less than one zap. While

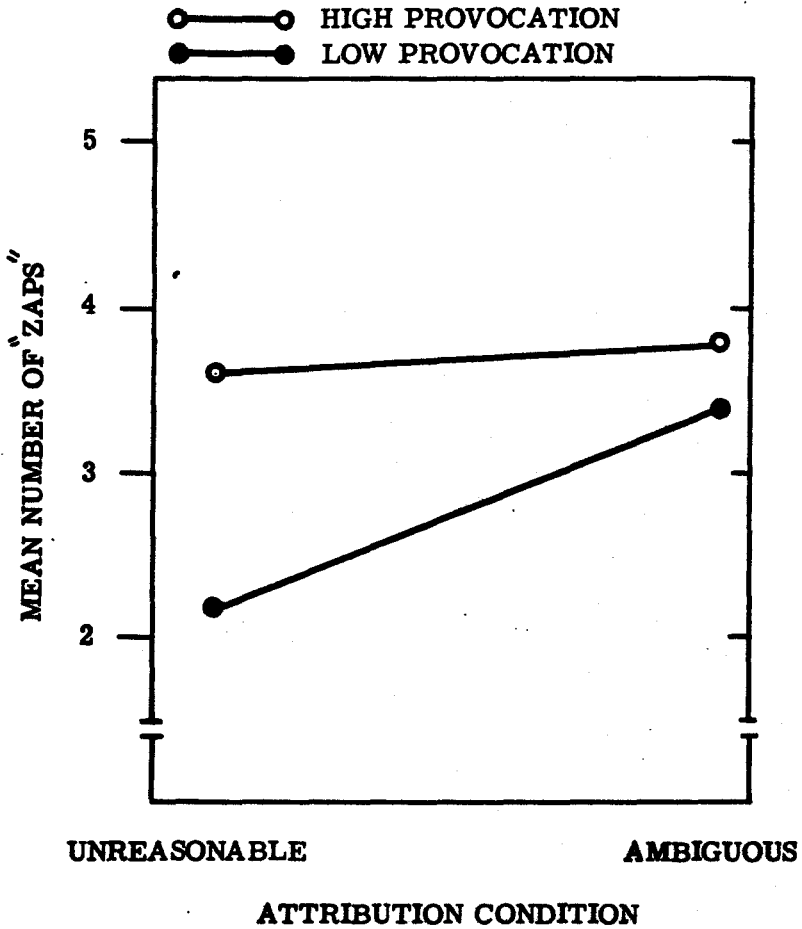


Figure 4. Mean Number of "Zaps" for Two Attribution Conditions at Two Levels of Provocation

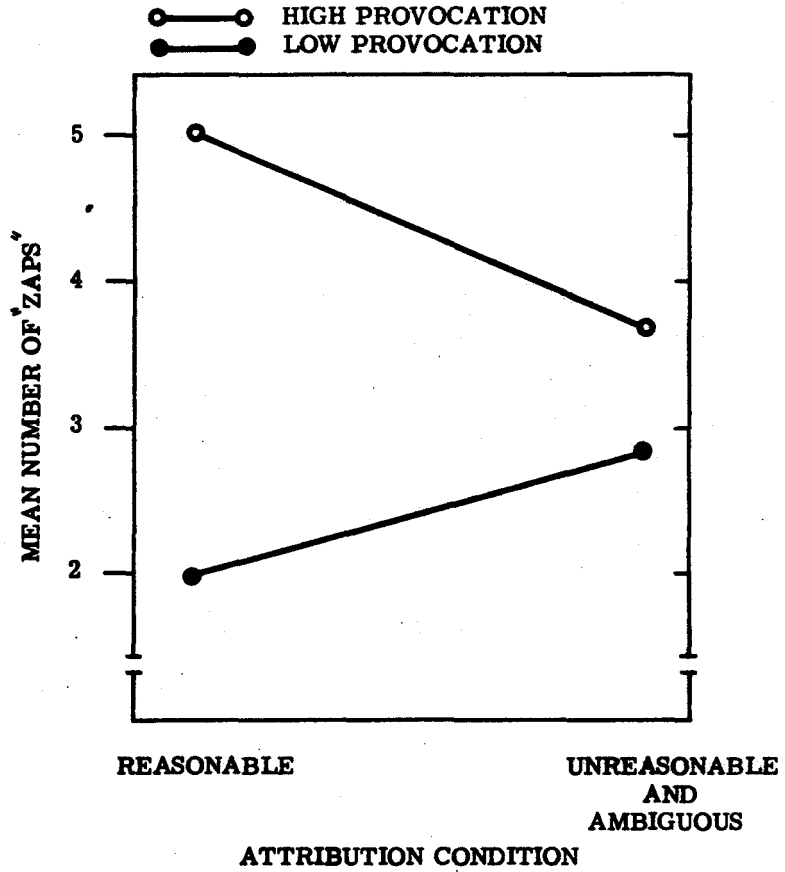


Figure 5. Mean Number of "Zaps" in the Reasonable and Combined Unreasonable and Ambiguous Conditions at Two Levels of Provocation

the means for high and low provocation in the reasonable conditions differ by more than three zaps. The orthogonal contrast (Winer, 1971) used to test this hypothesis is the interaction term $A \times B_1$ contained in Table 3. The provocation by attribution term was significant $F(1, 84) = 4.20, p < .05$. This analysis provides support for the hypothesis that the effect of level of provocation on subsequent aggression is influenced by reasonable attributions.

The influence of a reasonable attribution on the effect of provocation can be even more clearly seen by using a post hoc analysis on the difference in aggression between levels of provocation for the combined ambiguous and unreasonable groups and for the reasonable groups. Using the Tukey (b) test, there was no significant difference in aggression between high and low provocation for the combined ambiguous and unreasonable groups, but the difference in aggression between high and low provocation for the reasonable attribution was significant, $t(56) = 4.42, p < .01$. There was a significant difference in aggression between levels of provocation when a reasonable attribution was made about a provoker, but there was not a significant difference in aggression between high and low provocation when no attribution was made about the provoker or when an unreasonable attribution was made. In summary, provocation influenced aggression and a reasonable attribution enhanced the effect of provocation on aggression.

Anger Ratings

Check on manipulation. It was expected that the experimental manipulations would result in an increase in anger and, therefore, any aggression could be labeled angry aggression. An increase in anger

ratings from pretest to posttest would provide support for the effect of the experimental manipulation. The Multiple Affect Adjective Checklist (see Appendix C) was administered before and after the formal experiment. The mean pretest anger score was 6.38 and the mean posttest anger score was 7.60. This difference was significant, $F(1,84) = 15.87$, $p < .0005$, indicating that anger increased during the experiment and that the manipulation was successful in inducing anger.

Comparison of inhibition theory and differential cognitive appraisal. The predictions of differential cognitive appraisal and inhibition theory were tested by comparing the anger ratings of high aggressors and low aggressors. The subjects were ranked in terms of the number of "zaps" used. The low aggression group was defined as those subjects who used the zap option once or not at all. There were 29 subjects in this group. This was the bottom 32% of the distribution. The high aggression group was defined as those subjects who used the zap option from five to 10 times. There were 24 subjects in this group. This was the upper 27% of the distribution. Inhibition theory predicts that there will be no difference in anger ratings between these two groups. Differential cognitive appraisal predicts that the high aggressors will have higher anger ratings. Before this hypothesis was tested, it was necessary to examine the differences in anger scores before any experimental manipulations took place (pretest scores). The mean pretest anger ratings are presented in Table 5. As can be seen, the low aggressors had a higher mean anger score than the high aggressors. This difference was evaluated by the Newman-Kuels test and the difference between the groups was not significant, $t(52) =$

Table 5
Mean Pretest and Posttest Anger Ratings for
High and Low Aggressors

Aggressor Groups	Pretest	Posttest
Low (N = 29)	7.03	8.17
High (N = 24)	6.08	6.96

1.05. Thus, before the experimental manipulations took place the high and low aggressors did not reliably differ in terms of their level of anger.

Since the pretest scores did not differ significantly, the posttest anger scores were next examined to compare the predictions of the two theories. The low aggression group again had a higher mean reported anger score than the high aggression group which is counter to the predictions of differential cognitive appraisal (see Table 5). However, when the difference between the two groups on their posttest scores was evaluated by the Newman-Kuels test, it was not significant, $t(52) = 1.36$. Differences in aggression were not related to differences in anger levels. Thus, hypotheses one, two, four, and five were supported. Only hypothesis three was not supported.

DISCUSSION

Aggression Defined by the Zap Option

Several authors (Anchor & Cross, 1974; Berger & Tedeschi, 1969) have stated that the zap option is a measure of aggression. However, only two studies have used the zap option. Most of the studies in the literature have used shock in connection with the Buss Machine as a measure of aggression. In this type of experiment provocation was defined as the use of shock by the confederate on the subject and aggression was defined as the use of shock by the subject on the confederate. In the present experiment provocation was defined as the use of the zap option by the confederate on the subject and aggression was defined as the use of the zap option by the subject on the confederate. The present experiment confirmed the finding of previous experiments (Epstein & Taylor, 1967; Knott & Drost, 1972; Taylor, 1967) that high provocation resulted in more aggression than low provocation. Thus the subjects in the present experiment responded behaviorally to provocation as they had in previous experiments. These experiments have used a between subjects design to compare subjects' anger ratings in the provocation condition with different subjects' anger ratings in the no provocation condition. Subjects in the provocation condition were found to be more angry. In the present experiment a within subjects design was used to evaluate the effect of provocation on subjects' anger ratings. The increase in anger ratings from pretest to posttest indicated that subjects became more angry and labeled the provocation

as an attack. Thus, in terms of both behavior and cognitive labeling (anger), subjects responded similarly to provocation as defined by the use of the zap option as they did to the use of shock by the confederate. These findings add support for the zap option as a measure of aggression and suggest that this strategy in connection with the Prisoner's Dilemma game has the additional advantage of providing an alternative to electric shock as an operational definition for both provocation ("zaps" by confederate) and aggression ("zaps" by subject). This alternative to shock is needed at this time since there has been much criticism about the use of shock in psychology experiments.

Reasonable Attribution Determines the Effect of Provocation on Aggression

The results also indicate that the difference in aggression between high and low provocation for a reasonable attribution about a provoker was greater than the difference between high and low provocation for both an unreasonable attribution about a provoker and no information about a provoker. These different levels of provocation seemed to have little effect on aggression when they were used in connection with unreasonable or ambiguous attributions but seem to have dramatically different effects when used with a reasonable attribution. A reasonable attribution under low provocation seemed to decrease aggression (although not significant) but seemed to increase aggression under high provocation (although not significant). This finding seems to be in agreement with recent studies in similar areas where interactional effects have been found between provocation and attributed subject variables. Baron (1974) found that pain cues from the victim of aggression tend to reduce aggression when the person was not previously

aroused or when the person was moderately aroused (Baron, 1971); but facilitated aggression when the aggressor was highly provoked by the victim. Baron (1973) also found a similar differential effect of threatened retaliation. Threatened retaliation from the confederate reduced aggression when the aggressor was not provoked, but did not reduce aggression when the aggressor was highly provoked. These studies point up the complexity of the area and the need to consider not only the level of prior provocation, although level of provocation is a powerful variable in and of itself, but also pain cues from the victim, possibility of retaliation, and additional information about the provoker.

Reasonable Attribution Reduced Aggression for Questionnaire Studies
but Not for Experimental Studies

Attribution, when considered by itself, did not seem to have any effect on aggression. This is in contrast to prior studies which have found main effects for attribution. Most of the previous studies in this area have been questionnaire studies in which subjects were given hypothetical situations and asked to imagine what they would do or how they would feel. In the present experiment, subjects were placed in a situation which was set up to be more life-like and, hopefully, the subjects were more involved. As a result, they are likely to have a different reaction to the attributions. For example, they are likely to be more aroused in the present experimental study because money was actually taken away from them. Also, seeing and meeting a person may affect the subject's willingness to take money away from him (Milgram, 1965). In the pilot study which also involved a questionnaire pro-

cedure, subjects were asked to imagine that they were highly provoked by the confederate. They were then told to indicate how many times they would use the zap option. The results of the pilot study are in accord with the previous questionnaire studies, subjects said they would aggress less when they heard the reasonable story. In further support for this point, the only other experimental study (Kregarman & Worchel, 1961) which used an experimental procedure did not find differences in aggression as a function of differences in reasonableness. As the reader has seen, however, the students in the high provocation behaved in just the reverse of what was expected.

Two aspects of the more life-like, experimental situation may account for the difference in results between the questionnaire and experimental studies. First, in the questionnaire study, subjects were asked to imagine that the confederate took money away from them six times; and in the experimental study, the confederate actually took money away from them six times. The subjects may have been more highly provoked or aroused by the confederate when he actually took money away from them than when they just imagined that he did. Thus, in a sense, the experimental procedure could be considered a high provocation and the questionnaire procedure a low provocation. It has been demonstrated in the present study that a reasonable attribution about a provoker tends to reduce aggression under low provocation but tends to increase aggression under high provocation. Thus, it is possible that the reasonable attribution reduces aggression for the less provoking, "imagination" procedure of the questionnaire studies, but tended to increase aggression for the more provoking, life-like, experimental

procedure. Differences in perceived level of provocation of the questionnaire and experimental procedures may account for differences in aggression for these procedures.

Secondly, in the present experimental situation the subject must aggress against a person whom he has met and seen; and it has been demonstrated that subjects aggress less against persons whom they have met and have seen (Zimbardo, 1969). Thus, differences between the two procedures in anonymity of the victim of aggression may result in differences in aggression between the questionnaire and experimental procedure. In summary, differences in the two strategies seem to result in different subject responses to a reasonable attribution or explanation.

Inhibition Theory vs. Differential Cognitive Appraisal as Explanations of Aggression

This study also examined differences in anger ratings to determine whether differential cognitive appraisal or inhibition theory seem to better explain differences in subject aggression. Since the two theories apply only to angry aggression, it should be noted that subjects became significantly more angry from the beginning to the end of the experiment indicating that use of the zap option can be labeled as angry aggression and that both theories would be applicable. In order to determine whether differential cognitive appraisal or inhibition theory explained differences in aggression, anger ratings for subjects who used the zap option most during the game (high aggressors) were compared with the anger ratings for subjects who used the zap option the least (low aggressors). Differential cognitive appraisal predicts that high

aggressors would have higher anger ratings than low aggressors. Inhibition theory predicts that there would be no difference in anger scores between the high aggressors and the low aggressors. Thus, inhibition theory was supported. Also, there were no significant differences in anger ratings for any of the conditions for which there were significant differences in aggression. This would seem to mean that subjects utilized information about level of provocation and attributions to inhibit aggression.

In a further test of the two theories, aggression scores for individuals who had high posttest anger ratings (high anger) were compared with the aggression scores for individuals who had low posttest anger (low anger) ratings. There was no significant difference in aggression for the two groups, adding further support for inhibition theory. While the data suggest that inhibition theory better explains subject aggression, there is a possibility that anger ratings taken during the experiment would have supported differential cognitive appraisal. In the present experiment the anger rating scale was administered after the game was over. It is possible that the high aggressors experienced some catharsis after aggressing (Hokanson & Burgess, 1962) which may have reduced the intensity of anger ratings which were taken after the experimental procedure was completed. In a future experiment the possibility could be tested by having subjects indicate their anger during the game as well as before and after the game.

Only one previous study examined anger ratings for subjects who were highly provoked and moderately provoked. In contrast to the

present study, Knott and Drost (1972) found that people who were highly provoked rated themselves as more angry than people who were moderately provoked. There are numerous differences between the present study and the Knott and Drost study. For example, the Knott and Drost study had much less interaction between the subject and the confederate in their "game" situation. They also separated the provocation from aggression and had two sets of provocations while the present experiment had only one. Their procedures increased fear and stress during the experiment and the present experiment decreased anxiety. Because of these differences and because there have been so few studies in this area, it is impossible to sort out the reasons for the differing results.

Possibilities for Future Experiments

Another parameter influencing the effect of provocation on aggression. The present study demonstrated that the effect of provocation on aggression is influenced by attributions about the provoker. Methodological differences among aggression studies suggest another parameter which may influence the effect of provocation on aggression. In the present experiment there were 10 trials and on each trial the confederate could "zap" the subject (provocation) and the subject could "zap" the confederate (aggression). Other experiments using shock have restricted the use of shock. For example, the confederate would have 10 opportunities to shock the subject (provocation), followed by 10 additional opportunities for the confederate to shock the subject. These two designs differ in the amount of interaction between the provoker and the aggressor. Thus, there is much more interaction between the confederate and the subject in the

design used in the present experiment than in previous Buss-type experiments. This difference in the degree of interaction between these two designs could alter the effect of provocation on aggression. The effect of this methodological difference will depend on the subject's interpretation of the confederate's behavior in the high interaction design. In the high interaction design, the subject may realize that when he uses the zap option, the confederate also has a chance to retaliate. However, there is no fear of retaliation from the confederate in the low interaction design. Studies on threat of retaliation (Baron, 1973) suggest that there will be less aggression in the high interaction design at low provocation; but there will be no difference in aggression between the two designs at high provocation. The subject could also make a different interpretation. In the high interaction design, the subject may believe that the confederate is using the option because the subject used the option. For subjects who make this type of attribution, the high interaction design may have the effect of reducing aggression for both high and low provocation when compared to the low interaction design. The effect of provocation on aggression should be investigated for both types of designs.

Effect of an unreasonable attribution. The reasonable attribution was an important parameter in determining the effect of level of provocation on aggression; but the unreasonable attribution did not influence the effect of provocation on aggression when compared with the ambiguous attribution. However, several factors in the present experiment probably reduced the effect of the unreasonable attribution. In the unreasonable condition the confederate had to act like he was angry because his girl

friend canceled tonight's date because she was sick. The confederate for the present study had difficulty presenting himself as angry. This may have reduced the unreasonable aspect of the story. In a future study more attention should be given to the acting ability of the confederate. Also, many of the students seemed to identify with the confederate because they believed he was losing his girlfriend. Several subjects said that the same thing had happened to them within the last week. In support of this possibility, the subjects in the unreasonable condition not only gave the confederate a very high anger rating but also a very high worry rating on the post experimental questionnaire. A future experiment should try to eliminate such extraneous features from the unreasonable story.

More explicit determination of attribution. The present experiment differed from previous attribution-aggression experiments in two ways. In most previous experiments the experimenter actually told the subject that his behavior was a result of one or the other of several events. For example, in one study (Geen, Rakosky, & Pigg, 1972) a provoker shocked (provocation) students as they read a sexually exciting story. One group of subjects was told by the experimenter that they were aroused by the shocks and another group of subjects was told by the experimenter that they were aroused by the story. The present experiment differed from the above example in that facts were presented about the provoker's and not the subject's behavior. Also, in the present experiment, the experimenter did not tell the subject that the recent events in the confederate's life caused the confederate's behavior during the game. The subjects had to make the attributions themselves. Post-

experimental questionnaire data suggested that subjects did make a causal connection between the recent event and the confederate's behavior during the game. However, there was also evidence that some subjects attributed the confederate's behavior to another source. In a post experimental interview some subjects spontaneously said that they wanted to beat the other guy even though the directions stated that they were not in competition with each other. Since many subjects felt this strong competitive urge and attributed their own behavior to a need to win, it seems likely that they could also have attributed the confederate's game behavior to competitiveness. The present experiment did not provide evidence about which attribution was more powerful. A future experiment could determine the type of attributions that subjects made. This could be accomplished by having the experimenter make attributions about the cause of the provoker's behavior and then determine the effect of the attributions on aggression. For example, the competitive attribution by subjects could be increased by having the experimenter tell subjects that game behavior is influenced by competitiveness of the players. The subject and confederate could also take a test of competitiveness and the confederate's score would be given to the subject. The confederate, of course, would have a fixed, high competitive score which, hopefully, would increase the competitive attribution by the subjects. The external event attribution could be increased by having the experimenter indicate the importance of outside events in determining game behavior. Following this statement, the experimenter could have the subject and confederate indicate to the experimenter and to each other important recent events in their lives.

Hopefully, subjects in this condition would more likely attribute the confederate's behavior to the external event. As was mentioned above, this type of experiment would differ from previous attribution-aggression experiments in that the attribution is made about the provoker's behavior and not the subject's behavior.

A third condition could also be added in which no statement would be made by the experimenter. In this condition the subject would make the attribution by himself. A comparison of the number of "zaps" by subjects in the subject attribution condition with the number of "zaps" by subjects in the two experimenter attribution conditions would indicate which attribution the subject made (competitiveness or external event).

In addition, the type of attribution that a subject makes by himself about the causes of a provoker's behavior is likely to be influenced by personality variables. Important personality variables which should be considered are: trait hostility, trait anxiety, internal-external locus of control, and empathy.

SUMMARY

This experiment was designed to determine whether level of provocation and attributions about the provoker result in differences in subject aggression and to determine whether differential cognitive appraisal or inhibition theory better explain aggression. Provocation was manipulated by varying the number of times (one or six) that the confederate used the zap option of the Prisoner's Dilemma Game in the 10 opportunities. The zap option takes money away from the opposing player at a cost to the player using the option. There were three types of attributions. In the ambiguous attribution condition, no information was given to the subject about recent events in the confederate's life. In the reasonable attribution condition, subjects overheard the confederate telling the experimenter that he was very worried because his wife had recently and unexpectedly been taken to the hospital for observation and tests. In the unreasonable attribution condition, subjects overheard the confederate telling the experimenter that he was very angry because the confederate's girlfriend had called today and broke tonight's date because she was sick. Aggression was measured by the number of times that the subject used the zap option in the 10 opportunities. Anger was measured by means of a self-rating. This was a randomized group design with two levels of provocation and three different attribution conditions.

The results supported four of the five hypotheses. High provocation resulted in more aggression than low provocation. Subjects

not only responded behaviorally to provocation as subjects did in previous experiments when provocation and aggression were defined by the use of shock, but they also labeled the provocations similarly. Subjects' anger ratings increased from pretest to posttest indicating that they labeled provocations as an attack as they did in previous experiments. These results provided support for the zap option as a measure of aggression and as a definition of provocation. It was suggested that the zap option in connection with the Prisoner's Dilemma Game is an adequate alternative to electric shock as an operational definition for both provocation and aggression.

However, high provocation resulted in more aggression than low provocation only in the reasonable attribution condition. Level of provocation had little effect on aggression when used in connection with the unreasonable or ambiguous attributions. This finding and other similar findings point up the complexity of the area and the need to consider more than just the level of prior provocation although level of provocation is a powerful variable in and of itself.

Type of attribution, however, was not an important variable by itself. Most previous studies have found that a reasonable explanation of a provocation reduced aggression when compared to an ambiguous or nonjustified provocation. However, these studies have been questionnaire studies involving hypothetical situations. In the present experiment subjects were placed in a situation which was intended to be life-like. It was suggested that differences in the experimental strategies seemed to result in different aggression responses to the reasonable explanation or attribution.

In order to determine whether differential cognitive appraisal or inhibition theory explained the above differences in subject aggression, anger ratings for subjects who used the zap option most (high aggressors) during the game were compared with anger ratings for subjects who used the zap option the least (low aggressors). Differential cognitive appraisal predicts that high aggressors would have higher anger ratings than low aggressors. Inhibition theory predicts that there would be no difference in anger ratings between the two groups. Inhibition theory was supported.

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APPENDIX A

Choice and Payoff Sheet for Subjects

Choice		Payoff	
YOU	HIM	YOU	HIM
Red	Red	\$12	\$12
White	Red	\$15	-\$4
Red	White	-\$4	\$15
White	White	-\$3	-\$3

APPENDIX B

Statement of Informed Consent

I, _____, by signing this statement

(sign your name)

indicate that I understand the terms and procedures of this

experiment and I freely volunteer to participate.

APPENDIX C

The following are the hostility and anxiety scales from the Zuckerman (1960) Multiple Affect Adjective Checklist.

Name _____

AFFECT ADJECTIVE CHECK LIST

Below you will find words which describe different kinds of moods and feelings. Put an "X" next to the words which describe how you feel right now, that is, at this moment. Some of the words may sound alike, but we want you to check all the words that describe your feelings at this time. Work rapidly.

- | | | |
|----------------------|----------------------|-----------------------|
| 1. ___ afraid | 18. ___ frightened | 34. ___ secure |
| 2. ___ agreeable | 19. ___ furious | 35. ___ shaky |
| 3. ___ amiable | 20. ___ good-natured | 36. ___ steady |
| 4. ___ angry | 21. ___ happy | 37. ___ stormy |
| 5. ___ bitter | 22. ___ irritated | 38. ___ sympathetic |
| 6. ___ calm | 23. ___ joyful | 39. ___ tame |
| 7. ___ cheerful | 24. ___ kindly | 40. ___ tender |
| 8. ___ contented | 25. ___ loving | 41. ___ tense |
| 9. ___ cooperative | 26. ___ mad | 42. ___ terrified |
| 10. ___ cruel | 27. ___ mean | 43. ___ thoughtful |
| 11. ___ desperate | 28. ___ nervous | 44. ___ understanding |
| 12. ___ disagreeable | 29. ___ offended | 45. ___ unsociable |
| 13. ___ discontented | 30. ___ outraged | 46. ___ upset |
| 14. ___ disgusted | 31. ___ panicky | 47. ___ vexed |
| 15. ___ enraged | 32. ___ pleasant | 48. ___ willful |
| 16. ___ fearful | 33. ___ polite | 49. ___ worrying |
| 17. ___ friendly | | |

APPENDIX D

The following is the questionnaire the subject was asked to fill out about the confederate.

APPENDIX E

The following is the material given to the subjects for the pilot experiment.

In this experiment we are interested in the judgments that people in general make about behavior in a game. Imagine participating with a person, Sam, in a psychology experiment. In this experiment you and Sam played a game together to win real money. The object of the game was to win as much money as you can. There were 100 chances or turns for both of you to win money. On every turn you and Sam had to choose one of two moves, a cooperative move or a competitive move. If both of you chose the cooperative move, you each got 8¢ from the experimenter. If you both chose a competitive move, you each gave 2¢ back to the experimenter. If one of you chose the competitive move and the other a cooperative move, the person who chose the competitive move got 10¢ and the person who chose the cooperative move had to give 3¢ back to the experimenter. Neither of you knew what the other person chose until after both of you had chosen. For this part of the game, you each won about \$2.50. However, there was another rule to this game. After every 10 moves, the experimenter said the word "Option." At this time both of you could push a telegraph key down. The first one to push the key down got the choice of whether or not he wanted to use the option. If one of you decided to use the option, this meant that you wanted to give up 12¢ of the money you had won to the experimenter so that the other player had to pay 20¢ of his money to the experimenter. In other words the option took money away from the other player but at a cost to the person using the option. Neither you nor Sam had to use this option. During the experiment with you, Sam used the option 6 out of a possible 10 times. His action took \$1.20 away from you and it cost him 72¢ to use the option, that is, you both had

to return money to the experimenter but you had to return more. From what you can determine, the use of the option did not benefit Sam.

However, before the experiment began, you overheard Sam commenting to the experimenter something about his personal life. Assume that you hear one of the comments on pages 3, 4, and 5. Please rate how reasonable or unreasonable was Sam's behavior to you based on each piece of information. The rating scale for each piece of information is below the information. (Briefly look at page 3.) You are to circle one of the numbers which indicates how reasonable are Sam's actions, given the additional information which you overheard.

After rating the first one, go on and rate the second comment. Consider each piece of information separately. Do not carry information or judgments along from one situation to the next. Try to consider each comment on its own. Please reread all the directions again before going on to your task. If you have any questions, please feel free to ask them. If, for any reason, you do not wish to continue with the experiment, you are free to leave and you will be given credit for participating. (This is a standard procedure for psychology experiments.) Please reread the directions if you have not done so.

Additional Information

RATE THESE STATEMENTS INDEPENDENTLY

1. He is angry because his instructor sprung an unexpected, difficult, and very important examination for which he was poorly prepared.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

2. He is worried because the doctors at a local hospital haven't told him about the condition of his wife who went to the hospital for observations.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

3. He is very happy because he had just landed a part time job that fit in with his schedule at school and the salary was a ridiculously high \$5.50/hr.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

4. He is angry because his steady date phoned and broke this evening's date because she had suddenly become ill.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

5. He is worried because a prof chose him and two others from a big class to give speeches about their reports for the whole class because they had the best reports.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

6. Assume that you did not hear the other person tell the experimenter anything.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

7. He left a valuable article of his in a repair shop. He's worried because when he called at the appointed time, the repair man said he didn't have it fixed because he had an illness in the family.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

8. He is angry because an intimate friend while drunk spread rumors to many people about him which were unjustified and somewhat uncomplimentary.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

9. He said that he is a very competitive person and sometimes he gets carried away. He also said that sometimes his competitiveness causes him some difficulty, but he's trying to overcome it.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

10. He is worried because his boss at work has reassigned him to a position involving very menial work because of recent cutbacks in federal funds.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

11. He is angry because this guy who sits next to him in class always comes in late and then asks him what has gone on in class. The prof seems to be disturbed by this repeated talking.

1	2	3	4	5	6	7
Completely Reasonable		Partly Reasonable		Partly Unreasonable		Completely Unreasonable

For your second task, I'd like you to rank these 11 situations in terms of how reasonable or understandable they are. Put the number of the situation which you feel makes Sam's behavior the most reasonable or understandable next to # 1 below. And next to # 2 below, put the situation which makes Sam's behavior the next most reasonable; and so on until you have ranked all the situations from the most reasonable (#1) to the least reasonable (#11).

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.

Your last task is to reread each comment and then to pick one of the six statements listed under each number which best describes how you would feel and act if Sam was taking money away from you and if you overheard each of the comments listed on pages 3, 4, 5. Check one statement for each number or comment.

In doing this task, you might think to yourself - if I overheard comment one (or two and so on) and Sam then used the option to make me return my winnings to the experimenter, which statement below best describes how I would feel and what I would do.

1. ___ I would feel hostile and I would use the option on him ___ times. (Fill in the number if this statement best reflects your feelings.)
 - ___ I would feel hostile but I wouldn't show it in my behavior.
 - ___ I would feel concerned and I would show it in my behavior.
 - ___ I would feel concerned but I would not show it.
 - ___ I would not feel hostile or concerned.
 - ___ I would use the option without feeling hostile or concerned.

2. ___ I would feel hostile and I would use the option on him ___ times. (Fill in the number if this statement best describes your feelings.)
 - ___ I would feel hostile but I wouldn't show it in my behavior.
 - ___ I would feel concerned and I would show it in my behavior.
 - ___ I would feel concerned but I would not show it.
 - ___ I would not feel hostile or concerned.
 - ___ I would use the option without feeling hostile or concerned.

3. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

4. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

5. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

6. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

7. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

8. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

9. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

10. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

11. _____ I would feel hostile and I would use the option on him _____ times. (Fill in the number if this statement best reflects your feelings.)

_____ I would feel hostile but I wouldn't show it in my behavior.

_____ I would feel concerned and I would show it in my behavior.

_____ I would feel concerned but I would not show it.

_____ I would not feel hostile or concerned.

_____ I would use the option without feeling hostile or concerned.

APPENDIX F

Summary of Pilot Study Data for the 11 Different Situations

Measures	Situation Number										
	1	2 ^a	3	4 ^b	5	6 ^c	7	8	9	10	11
<u>Mean Scores</u>											
Rating ^d	5.0	4.0	3.9	5.6	5.0	3.8	5.3	4.4	2.8	4.4	4.0
Rank Order ^e	6.0	3.5	5.0	7.2	7.3	7.6	7.2	6.0	4.6	5.9	5.9
<u>Total Scores</u>											
Hostility	10	2	10	8	6	8	7	8	9	5	10
Concern	10	22	3	8	10	3	10	11	8	15	12
Option	4	0	3	3	0	4	2	3	5	1	2

Note. N = 29

^aMost reasonable attribution.

^bMost unreasonable attribution

^cNo information given by Sam, ambiguous attribution.

^dLower the score the more reasonable the rating.

^eLower the score the more reasonable the rank order.

APPROVAL SHEET

The dissertation submitted by John F. Kremer has been read and approved by the following Committee:

Dr. Emil J. Posavac, Chairman
Associate Professor, Psychology, Loyola

Dr. Alan S. DeWolfe
Professor, Psychology, Loyola

Dr. James E. Johnson
Associate Professor, Psychology, Loyola

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

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

September 23, 1975
Date


Director's Signature