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THE UNIVERSITY OF ALBERTA

THE INFLUENCE OF EMOTIONAL CUES ON THE SUBSEQUENT AGGRESSION
OF PREJUDICED PERSONS

by



JAMES McCORMACK

A THESIS

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The undersigned certify that they have read,
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Abstract

The purpose of the present study was to evaluate whether people varying in prejudice level manifest different amounts of physical aggression toward a former antagonist. The prejudice level of seventy-two male subjects was categorized as either low, moderate, or high, depending on scores they obtained on a ten item Anti-Semitism and a twenty-eight item F scale questionnaire. Each subject upon his arrival for the experiment received moderate provocation by a peer. The subject was then given information via readings on a meter indicating his level of anger toward his antagonist. Subsequent to receiving this information, subjects were given an opportunity to repeatedly shock their antagonist while the latter was ostensibly involved in a concept learning task. The intensity and number of shocks administered by the subjects were utilized as measures of physical aggression. These scores were analyzed by analysis of variance. The subjects were assigned to one of nine conditions of a 3x3 factorial design with four repeated measures. The design included three levels of anger feedback (low, medium, or high), three levels of prejudice (low, moderate, or high), and four blocks of trials.

The data indicated that the level of aggression displayed by the low- and high-prejudiced persons was not significantly affected by the anger feedback that they received. In comparison to these two groups of subjects, the moderately prejudiced persons tended to display overall

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less aggression in the situation. The moderately prejudiced persons also exhibited physical aggression in curvilinear relation to the anger feedback conditions; they administered less shock in the low- and high-anger feedback conditions than in the medium-anger condition. These results were interpreted as support for the view that moderately prejudiced persons may be more aware of the appropriateness of aggression in a situation than are either low- or high-prejudiced persons.

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THE INFLUENCE OF EMOTIONAL CUES ON THE
SUBSEQUENT AGGRESSION OF PREJUDICED PERSONS

Introduction

In recent years a number of researchers have related the personality dimension of authoritarianism to many attitudinal and behavioral responses. The majority of these studies has been concerned primarily with one of two problem areas; a) the predisposition of authoritarians toward ethnic prejudice and aggression; b) the cognitive functioning of authoritarians (e.g. how they think, memorize, perceive stimuli).

Generally, researchers have attempted to gather information about high-prejudiced individuals by comparing them to their less prejudiced peers. However, this may be an inadequate approach to the problem. Rokeach (1960) has proposed that individuals who adhere to extreme points of view have different conceptual systems from those who are more moderate in the expression of their views. Applying this reasoning to the dimension of prejudice, several studies have reported that ~~emotional~~ stress can affect the judgmental processes of high-and low-prejudiced persons, making them evaluate others more negatively than do moderately prejudiced persons (Rule, 1966; Fischer and Rule, 1967; Fischer, 1968). To date, very little is known about what cognitive elements are involved in mediating the hostile

behavior of persons varying in prejudice level. The purpose of the present thesis was to pursue this question further. The particular focus was on investigating the differential effects emotional cues have on the manifestation of physical aggression by extremely high- and low-prejudiced persons in comparison to moderately prejudiced persons.

This thesis contains a brief discussion of the authoritarian personality theory, evidence conveying the cognitive style of the authoritarian person, and a review of several experimental studies that have investigated the relationship between authoritarianism, hostility displacement, and physical aggression. Finally, a laboratory study is described which examined the behavioral similarities of extremely high- and low-prejudiced persons in an emotionally arousing condition.

The Authoritarian Personality

The authors of The Authoritarian Personality (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950) attempted to understand better the dynamics of prejudice by focusing their investigation on the character structure of prejudiced individuals. It was their hypothesis that "...the political, economic, and social convictions of an individual often form a broad and coherent pattern, as if bound together by a 'mentality' or 'spirit,' and that this pattern is an expression of deep-lying trends in his personality" (Adorno et al., 1950, page 1).

This hypothesis was formulated on the basis of data collected from over 2000 people by means of clinical interviews, written self-report tests, and projective techniques. The major written tests were: the Anti-Semitism (A-S) scale, the Ethnocentrism (E) scale, the Political and Economic Conservatism (PEC) scale, and the implicit Anti-democratic Trends (F) scale.

The first two of these scales were designed to measure objectively the attitudes of the individual towards members of other groups. The A-S scale gave an indication of the individual's negative attitudes toward Jews, while the E scale tapped the person's more general rejection of various minority groups and his acceptance of patriotic ideals (e.g. the United States and its symbols). The PEC scale measured conservative attitudes concerning the American status quo, social change, and economics. The F scale was designed to measure authoritarianism (Fascism), the basic personality trait which presumably predisposes the individual toward behavior indicative of prejudice.

In analyzing the responses to these various scales, it was found that a person's anti-Semitism, general ethnocentrism, ideological conservatism, and authoritarianism formed a consistent pattern. The data thus offered support for the author's conception of prejudice as being rooted in central personality predispositions.

Adorno and his colleagues extended their investigation beyond descriptive analysis to specify what factors contributed to the development of this type of character structure. Their research in this area led them to hypothesize that the important determinants in the formation of authoritarianism were the child-rearing discipline practices of the parents. This particular interpretation has been concisely summarized by Deutch and Krauss (1965).

The "authoritarian personality" is produced by parents who use harsh and rigid forms of discipline on the child, who make their love and approval conditional on unquestioning obedience from the child, who emphasize duties and obligations rather than the exchange of affection in family relations, who are overly conscious of distinctions of status in their interpersonal relations and are contemptuous or exploitative toward those of lower status. As a result of being forced to submit to a harsh, arbitrary parental authority, the child develops hostility which is too dangerous to express toward the frustrating but feared parents. Having submitted, he also develops a view of himself that makes him feel more dependent on his parents, and thus less able to defy or even question them.

The child's need to repress rigidly all hostility toward the parents leads to an identification with authority and an idealization of it, with a concomitant displacement of the hostility onto out-groups, who usually are of lower status. Accompanying the displacement of his hostility is a projection onto out-groups of those of the authoritarian's own impulses which were frustrated and repressed because of their unacceptability within his family. The fear of his own impulses and the need to repress them rigidly leads to a rigid personality

organization, to stereotyped thinking, to an avoidance of introspective awareness, and to moralistic condemnation and punitive attitude toward unconventional values and practices. Personal relations are perceived in terms of power and status; "strength" and "toughness" are idealized, whereas "weakness" and "tenderness" are associated with each other and viewed with contempt.

It is not within the scope of the present thesis to enumerate the many methodological shortcomings of The Authoritarian Personality research. These have been extensively discussed in the literature (Christie and Jahoda, 1954; Hyman and Sheatsley, 1954; Titus and Hollander, 1957; Brown, 1964; Deutch and Krauss, 1965; Kirscht and Dillehay, 1967). Despite these criticisms, The Authoritarian Personality work is still considered monumental in light of the tremendous amount of subsequent research it stimulated.

In general, the major emphasis of the research on the authoritarian personality was to specify what particular personality, attitudinal, and behavioral differences exist between authoritarians and non-authoritarians. The results of this research are too numerous to summarize adequately here; for extensive surveys the reader is referred to Christie and Cook (1957), Titus and Hollander (1958), and Kirscht and Dillehay (1967). More directly relevant to the present thesis is a sub-area of this literature dealing with the cognitive style of authoritarian individuals.

Authoritarianism and Cognitive Style

According to the authors of The Authoritarian Personality, the primary characteristics of the prejudiced individual's cognitive style are his rigidity in thinking and intolerance of ambiguity. From data obtained in interviews with high-F scorers, they gained the impression that the prejudiced person's intolerance for ambiguity in conceptual functioning was a product of his intolerance of emotional ambivalence. To them, it appeared that a prejudiced individual demands a clear-cut label of his emotions for other people. He either loves or hates another; a mixture of these two emotions would be incompatible in his way of thinking. An unprejudiced person was thought to be more rational; he had a better understanding of his sometimes ambivalent feelings for others and hence was more able to cope with conflicts.

The empirical approach taken by most researchers of these cognitive variables has been somewhat indirect. Rather than to focus on how the authoritarian person resolves emotional conflict, they shifted their research emphasis from the emotional to the general perceptual area. This was done presumably to avoid "...certain social biases which may interfere with the investigation of social and clinical topics" (Christie and Cook, 1954, p. 245). Ambiguity was defined then as a desirable aspect of cognition referring

to complexity and differentiation in the creative process. The aspects of "intolerance of ambiguity" were accordingly specified: undue preference for symmetry, familiarity, definiteness, and regularity; tendency toward black-white solutions, premature closure, perseveration and stereotypy; a tendency toward excessively good form achieved either by diffuse globality or by over-emphasis on concrete detail; compartmentalization, stimulus boundness, avoidance of uncertainty as accomplished by the narrowing of meanings, by inaccessibility to experience, by mechanical repetition of sets, and an absolutizing of those aspects of reality which have to be preserved.

Research investigating intolerance of ambiguity has stimulated work on cognitive rigidity since several conceptual similarities are thought to exist between them. More specifically, the attribute of rigidity refers to the cognitive features of "concreteness" and "stimulus-boundness" (Brown, 1965). To measure rigidity, Rokeach (1948) utilized a problem solving task in which solutions to a series of tasks depended on the ability to deviate from a given set of information. He found that children scoring extremely high on ethnic prejudice were significantly more rigid on these problems than children scoring low in prejudice. Similar results were reported in the same study using college students as subjects. In studying the rigidity of high-ethnocentric subjects Christie (1950) found that frustrated subjects

used the set solution twice as long as low frustrated subjects. This result led him to conclude that frustration increased the prejudiced person's cognitive rigidity. Brown (1953) has emphasized the importance of this effect. He found that only under conditions of stress (ego involvement) did high-ethnocentric subjects significantly display more rigidity in solving the problems.

Millon (1957) has reported more support for the relation between rigidity and authoritarianism. He found, in studying the autokinetic effect, that high F scorers not only established a norm faster than low F scorers in the perceived movement of light (evidence for their intolerance of ambiguity) but also exhibited greater resistance to change (rigidity) under conditions of high involvement. Similar findings have been reported in a number of other studies (Harvey and Rutherford, 1958; Harvey and Caldwell, 1959; Harvey and Beverly, 1961; Harvey, 1962). In summarizing the results of these experiments, Harvey (1963) concluded that it was evident that the personality characteristic of authoritarianism predisposed the individual toward "...poorly articulated internal referents and heavy dependency on external cues, especially those emanating from authority."

The empirical evidence thus has indicated that the high authoritarian is motivated, for a number of reasons, to form conceptions rapidly in contexts of ambiguity and adhere strongly to these anchors when making future judgments.

Interpreting these findings, Berkowitz (1959, 1960, 1961) has proposed that the authoritarian's categorizations generally become broader under mild stress; he therefore does not make fine discriminations among stimulus tasks confronting him in this type of situation. In investigating the validity of this hypothesis, Berkowitz and others (e.g. Weatherly, 1961; Rule, 1966; Fischer and Rule, 1967; Fischer, 1968; Rule, Haley, and McCormack, 1971) have turned their attention to the area of aggression and hostility displacement. The discussion now is directed to the results of these studies and their implications for the current thesis problem.

Authoritarianism, Hostility Displacement, and Aggression

The theory contained in The Authoritarian Personality provides a plausible explanation of individual differences in the readiness to exhibit prejudiced behavior. In brief, it was suggested that if the high authoritarian is unable to attack the source of his frustration, he will displace his hostility upon a more available target; a scapegoat, one who is often completely innocent of the circumstances surrounding the frustrating incident. Berkowitz (1962) has suggested that highly prejudiced persons following frustration may have a tendency to become negative toward any stranger, regardless of the stranger's group membership. A number of studies have generally supported this view (e.g. Berkowitz, 1959, 1960, 1961; Weatherly, 1961; Dillehay, 1965; Epstein, 1965; Rule, 1966; Fischer and Rule, 1967). The findings of these studies

have indicated that those who score high on the A-S and F scales are more likely to displace aggression than those who score below the median, following frustration. In attempting to clarify some of the variables that affect the prejudiced person's hostile tendencies, Berkowitz (1959, 1960, 1961) has focused on the cognitive functioning of these individuals. He conducted a series of experiments in which subjects were exposed to harsh and frustrating individual treatment by the experimenter. After this, each subject was required to work for a brief period with a peer (the experimenter's confederate) and then asked to rate his liking for the peer. The results of his research indicated that high-prejudiced individuals showed a lack of discrimination between the peer and the experimenter, reacting to both with hostility. The low-prejudiced persons however, under stress, were reported to place the annoying experimenter and the peer into different categories. In comparison to the assimilation effect exhibited by the high-prejudiced persons, the low-prejudiced persons demonstrated a contrast effect by reacting to the peer with increased friendliness. These results were interpreted by Berkowitz as being due to changes in the judgmental functioning of high- and low-prejudiced persons during stress.

An important issue, however, arises in evaluating Berkowitz's interpretations regarding differences in the judgmental processes of low- and high-prejudiced persons.

The issue emanates from suggestions made in the literature that low scorers on the A-S and F scales may manifest cognitive functioning similar to those who score high on these scales. This point was originally mentioned by Adorno et al. (1950). These investigators discussed a certain sub-type of the low-prejudiced person who possesses cognitive characteristics similar to the high-prejudiced person. Since this sub-variety was most prominently distinguished by signs of rigidity in his cognitive processes, he was labelled the "rigid low scorer." The authors wrote that the lack of prejudice in these subjects is "...accidental in terms of personality, ...since with respect to many of our variables, especially rigidity and 'total' thinking, they could hardly be distinguished from some of our high extremes" (p. 772). Christie and Jahoda (1954) in their review of the literature also remarked about this possible relationship between extreme scorers:

Such concepts as that of the "rigid low," discussed in our book in the context of cognitive patterns, amply testify to the fact that we have not lost sight of the possibility that there may be curvilinear relationships among the various attitudes or traits of personality and that certain sub-varieties of the non-ethnocentric personality likewise exhibit the closeness of opposites that are bound to accompany intolerance of ambiguity or emotional ambivalence (p. 258).

Additional rationale for assuming similarities in the cognitive functioning of extremely high- and low-prejudiced

individuals is provided by Rokeach (1960). He proposed that individuals who adhere to extreme points of view tend to manifest similar behavior, regardless of the fact that the content of their attitudes differ. More recently, Rule (1966) investigated the possibility of extremists making similar judgments following frustration by using an experimental paradigm similar to that employed by Berkowitz (1959). She found that under stress those with extremely high and extremely low A-S scale scores reported greater personality differences between two strangers and were more negative in their evaluations of strangers than were moderately prejudiced persons. The discrepancy between Rule's and Berkowitz's findings was explained by differences in subject-selection criteria. Rule suggested that her moderately prejudiced group may have been comparable to Berkowitz's low-prejudiced group. Therefore, Berkowitz's findings may indicate differences between high- and moderate- rather than high- and low-prejudiced individuals.

These results were given further support in a second study (Fischer and Rule, 1967). Subjects in this study received either a favorable or an unfavorable evaluation of themselves from a peer. It was assumed by the experimenters that receiving a favorable evaluation of oneself from a peer would induce a positive anchor and receiving an unfavorable evaluation would induce a negative anchor. It was reported that when provided with a positive anchor, the high- and low-prejudiced persons became more favorable to strangers follow-

ing stress. With a negative anchor, the extreme persons became more negative to strangers. In contrast to the extreme persons' behavior, the moderately prejudiced persons reacted to the stress by becoming more friendly, regardless of the anchor.

The findings of this study suggested that both high-and low-prejudiced persons rely on external cues provided in the immediate situation to guide their behavior when stressed. Previously, research indicated that this type of rigidity characterized only the high-prejudiced individual (cp. Harvey, 1963). The moderately prejudiced person however, appears to utilize external sources of information differently in determining his course of action. It is possible that he may consider more the implications of his behavior and modify his responses on the basis of his thoughts.

In a third study, Fischer (1968) found that stress elicited a greater amount of displaced hostility from high-prejudiced persons than it did from moderate-or low-prejudiced persons. Fischer reasoned that the degree of stress experienced by subjects in his experiment was not sufficient enough to engage the expected similarities between high-and low-prejudiced persons. He did discover however that moderately prejudiced persons, following stress, demonstrated greater discrimination between targets of high-and low-aggressive cue value, whereas high-and low-prejudiced

persons did not. Such behavior on the part of the moderately prejudiced persons suggests that they were more discerning regarding the appropriateness of their aggressive behavior in the situation than extremists. That is, moderately prejudiced persons did not indiscriminately displace their hostility toward any available target, but only toward the most appropriate target, the one having high aggressive cue value (an obnoxious peer).

The emphasis of this research (Berkowitz, 1959, 1960, 1961; Rule, 1966; Fischer and Rule, 1967; Fischer, 1968) has been primarily on examining the aggressive verbal responses of persons varying in prejudice level. Rule, Haley, and McCormack, (1971) attempted to discover whether behavioral differences would occur between the extremists and moderately prejudiced persons in a situation where subjects were allowed to display their aggression physically. Subjects varying in anti-Semitism were given the opportunity to deliver painful shocks to a former antagonist, ostensibly to reinforce his learning performance during an experimental task. The data however, did not support the expectation that persons varying in prejudice level would express differing amounts of aggression subsequent to insult. It was speculated that the situational demands justifying expression in this study were probably quite strong. The authors suggested that perhaps another context, where the

insult was less, or the delivery of shock less justified, would engage the expected differences between extremists and moderately prejudiced persons.

The empirical research has departed in a number of ways from the central issues raised by Adorno in an effort to understand the cognitive and behavioral functioning of persons varying in prejudice. Although Adorno's theory emphasized displaying hostility onto outgroups and dependence on cues emanating from authority, several basic questions have arisen about cognitive processes and direct aggression.

A review of the research leads to the delineation of at least two major issues confronting this area of inquiry. The first involves whether the moderately prejudiced person is more discerning in his use of aggression, depending neither on external factors nor his emotional reactions per se to determine his subsequent aggressive response. The second issue is whether extremists differ from moderates in their overt physical aggression. So far, most of the research has examined only evaluative verbal responses of hostility. Variables which might engage the expected differences in physical aggression between extremists and moderately prejudiced persons have not, as yet, been determined.

A recent study (Berkowitz, Lepinski, and Angulo, 1969) perhaps has provided an appropriate paradigm to investigate the problems proposed in this thesis. Men were moderately insulted by an obnoxious confederate and then led to believe

that their antagonist had aroused either low-, moderate-, or high-anger in them. This manipulation was performed by giving the subjects false physiological information through a meter exposed to them which supposedly depicted the level of anger they felt towards the confederate. The results indicated that the medium-anger subjects were significantly more aggressive than either the low- or high-anger men. Berkowitz et al. (1969) suggested that high-anger subjects had inhibited strong aggressive responses because the knowledge that they were very angry had made them highly anxious. It was reasoned that this anxiety was produced by the subjects' thinking that their strong emotional reaction to the moderate provocation was unwarranted in the particular situation. The authors concluded that an individual's judgment of the appropriateness of aggression in a given situation is an important cognitive process governing the intensity of elicited aggression. They suggested that this type of judgment is probably affected by the nature and magnitude of the provocation he suffered:

If he had experienced a moderate insult, he might not be disturbed at thinking he is moderately angry; the moderate provocation often justifies a moderate reaction. A very strong reaction to the moderate insult may well be improper and unwarranted, however, and therefore might give rise to anxiety and the inhibition of aggression.

Thus, according to Berkowitz et al. (1969), people will judge the appropriateness of aggression on the basis of how angry they think they are as a result of the insult they suffered.

Aggression will be judged inappropriate in the situation if they believe their anger to be low. They will also be concerned about expressing aggression if they think their high anger is not justified by the moderate provocation they received.

The Problem

The findings of Rule (1966), Fischer and Rule (1967), and Fischer (1968) indicated that under stress moderately prejudiced persons may differ from extremely high- and low-prejudiced persons in the way they utilize cues to mediate their level of aggression. Moderately prejudiced persons presumably use the cues to judge the appropriateness of their subsequent responses. Since these individuals are assumed to consider the implications of their behavior, one would expect the moderately prejudiced persons to respond aggressively only in those situations where aggression is judged to be appropriate.

One could test this hypothesis by using an experimental paradigm similar to the one described by Berkowitz et al. (1969). In that study, the subject's judgment of the appropriateness of aggression was affected by presenting cues to him which indicated his level of anger following moderate provocation. Consistent with the findings of Berkowitz, one would expect the moderately prejudiced person to exhibit more aggression when he thinks he is moderately angry in response to a moderate insult than when he believed his anger to be low or high.

Extremists, on the other hand, are presumed to be

less discerning regarding the appropriateness of aggression. In contrast to moderately prejudiced persons, the behavior of extremists seems to be directly affected by their immediate emotional state. If cues were to be presented to them indicating their anger following provocation, one would expect the extremists to rely on these cues to direct the intensity of their subsequent aggression, especially if these cues are derived from external sources of information.

The purpose of the present study was to evaluate whether people varying in prejudice level manifest different amounts of overt aggression. After being categorized as either a high, moderate, or low-prejudiced person, subjects participated in an experiment resembling the study described by Berkowitz et al. (1969). All persons received moderate provocation by a peer and were then given information through readings on an "anger meter" that their anger towards the peer was either low, medium, or high. Subsequent to receiving this information, they were given an opportunity to attack their antagonist.

Predictions:

Specific predictions were advanced regarding differences between extremists and moderately prejudiced persons in the amount of physical aggression across and within the three anger conditions.

1. Across anger conditions:

a) Both high- and low-prejudiced persons would display a significantly greater amount of physical aggression than would moderately prejudiced persons.

b) Extremists would display aggression in direct relation to the level of their anger as indicated to them by readings on an anger meter.

c) Moderately prejudiced persons were expected to display amounts of aggression in curvilinear relation to anger meter readings; less aggression would occur when the reading of the anger meter indicated low-or high-anger than when it indicated medium-anger.

2. Within anger conditions:

a) No differences in the amount of displayed aggression were predicted to occur between extremists and moderately prejudiced persons when the anger-meter reading indicated low-anger. This prediction was based on the assumption that both extremists and moderately prejudiced persons would display low amounts of aggression in this situation. The level of aggression for extremists would be low because they would rely on the meter reading to direct their subsequent aggression. The amount of aggression would be low also for moderately prejudiced persons; they would judge aggressive responses to be inappropriate in relation to their low-anger.

b) No differences in the level of aggression were expected to occur between extremists and moderately prejudiced persons when the anger meter indicated medium-anger. This expectation was based on the findings of Berkowitz et al. (1969) and Rule, Haley and McCormack (1971). It was reasoned that this would be the one situation where moderately prejudiced individuals would judge aggression to be appropriate, they would interpret their medium-anger as providing ample justification to attack their antagonist.

c) Significant differences between extremists and moderately prejudiced persons in manifested aggression were predicted to occur when the anger meter indicated high-anger. The high reading of the anger meter was expected to elicit the greatest amount of aggression from the extremists. Moderately prejudiced persons, on the other hand, presumably would experience some anxiety in thinking that their strong reaction to the moderate insult was unjustified. It was reasoned that the moderately prejudiced persons would be more concerned about the appropriateness of expressing aggression in such a situation. Hence, they would lower their level of attack towards their antagonist.

Method

Subjects

Subjects were 72 introductory psychology course students who participated to meet course requirements. These subjects were selected from a pool of 598 students who had completed a questionnaire which included the 10-item Anti-Semitism and the 28-item F scales (Adorno et al., 1950). For both scales, item scores varied from 5 points for a response indicating strong agreement with an item to 1 point for a response indicating strong disagreement. The resulting distributions were: A-S scale, range 10-50, median = 22; F scale, range = 35-111, median = 75.

Median and standard deviation scores for subjects categorized as high-prejudiced, moderately-prejudiced and low-prejudiced were A-S = 29 (S.D. = 2.3), F = 88 (S.D. = 7.1); A-S = 21 (S.D. = 1.7), F = 76 (S.D. = 3.1); A-S = 14 (S.D. = 4.4), F = 63 (S.D. = 7.8) respectively.

Apparatus and Materials

Experimental Room A. This was a large room containing several chairs and tables situated in front of a Beckman Polygraph. A curtain behind the polygraph prevented S from viewing the front area of the room. Behind this curtain was a large desk where E sat during the experiment and operated the tape recorder, anger meter, and switches controlling the lights on the shock generator. From this location E could

also look through a one-way mirror in the wall in front of him to observe the behavior of S in Room B.

Experimental Room B. During the experiment S sat at a desk in a small cubicle next door to Room A and operated the shock generator. Located to the right of the shock generator on the desk was the anger meter. Copper screening covered the entire wall area of the room serving to visually obscure the placement of a one-way mirror in the wall to the immediate right of S.

Shock Generator. This machine functionally simulated the aggression apparatus used by Buss (1961). The front of the machine was equipped with a large central dial which could be adjusted to shock intensity levels ranging from 0 to 330 volts. The S was led to believe that he could use the generator to vary the intensity and number of shocks that his partner would receive during the experiment. Shock intensity presumably could be varied by adjusting the central dial to the chosen level and then pressing a black button in the lower left hand corner of the machine. To vary the number of shocks, Ss were told they could press the button more than once.

Eight descriptive labels on the main dial of the machine indicated the subjective severity of the various shock intensity levels: slight shock - 0 to 55 volts; moderate shock - 56 to 110 volts; strong shock - 111 to 170

volts; very strong shock - 171 to 225 volts; intense shock - 226 to 400 volts; severe shock - 401 to 450 volts. The credibility of the apparatus was enhanced by the attachment of a safe guard device which prevented Ss from turning the dial higher than the 330 volt level.

In Room A the E could record the amount of shock administered by the S. The S's selected intensity of shock was measured by a small meter on E's desk; this meter was attached, via battery, to the central dial on the shock generator. The number of shocks S delivered on each trial was recorded on a small counter located on E's desk.

The Subject's "Teaching" Task. Following a procedure similar to the one employed by Buss (1961) it was explained to S that his partner would try to learn a certain code that was programmed into a teaching machine located on a desk in front of him in Room A. The task was to give his partner electric shocks whenever that person made a mistake. The S was to use the shock generator on the table in front of him. A set of lights located above the central dial of the machine was marked "right" and "wrong." Ostensibly whenever his partner made a response on a given trial, one of two lights would automatically go on indicating whether or not his partner's response had been correct. The S's task was to select the intensity and number of shocks that would be best in teaching the other person that his response was incorrect.

From E's location in Room A, switches were manipulated that controlled the lights on the shock generator. The number and sequence of correct and incorrect responses that the partner presumably made corresponded directly with the trial series followed by Berkowitz et. al.(1969). The partner's responses were "wrong" on 14 of the 20 trials. Correct responses occurred on trials 9, 13, 16, and 18-20.

Anger Meter. The S was told that before he began the teaching task, physiological measurements would be taken from him so that his base-line levels would be known. The E then directed S's attention to the meter located on the desk in front of him. Called the "anger meter," this device was ostensibly connected to the Beckman polygraph which Ss had earlier viewed in Room A. The reading of the anger meter would indicate integrated scores of the S's physiological responses (heart rate, galvanic skin reactions, and blood pressure) to various items presented to him over headphones via a taperecorder. In order to save time S was instructed to record his physiological responses via the meter while E was busy in the other room giving his partner further instructions.

The meter had a 6-point scale, 0-5, and had labels at three levels indicating "low," "medium," or "high" anger. As S listened to the tape he was instructed to think of certain people and subject areas. As he thought of each

he was to look at the meter reading and write down the value on the data sheet given to him by E. These readings, the S was told, would provide the base-line data assessing his mood, "such as anger." The various items were then called off one at a time; hometown, field of psychology, favorite professor, other subject in the experiment, and the experimenter. The readings of the dial were controlled by E in Room A. With the exception of the next to the last item (the other subject), the dial readings always fluctuated below 1, signifying very low anger.

The experimental conditions differed in the level of anger S supposedly felt toward his partner. The meter reading fluctuated between .5 and 1, in the low-anger condition, from 2.25 to 2.75 in the medium-anger condition, and from 4 to 4.25 in the high-anger condition.

Questionnaires. The data sheet on which S recorded the readings of the anger meter is presented in Appendix B. After S finished recording his supposed responses to the items, he was asked to complete a rating scale (also included in Appendix B). Using a 8-point bipolar scale S indicated whether he thought the dial readings were good or poor reflections of his actual feelings toward the taped items.

At the conclusion of the experiment, S was asked to complete several questionnaires concerning his immediate feelings about himself, and the other subject. The first

was a 21 item "mood scale" adapted from the Nowlis Mood Questionnaire (Nowlis, 1965). In responding to each item, the S was to check the extent to which the given adjective characterized his present mood on a 7-point scale (see Appendix C).

On a second questionnaire, S was asked to rate his partner on a series of 13 seven-point bipolar scales (see Appendix C).

Procedure

Upon the S's arrival at the laboratory waiting room, he found another male student also waiting for the session to begin. This person, posing as a fellow student was actually an accomplice of E.¹ He was directed by E to act in a somewhat hostile, obnoxious manner. He began by expressing strong annoyance toward the tardy experimenter and indicated that he was being paid to participate in the study. He then asked S how much money he was going to receive for his time. When S revealed that he was participating for course credit, the accomplice indirectly insulted the S by making the following disparaging remarks:

What? You're participating for credit (he then mockingly laughed at S)? When I

¹Two different students acted as confederates of E. Analyses of the results indicated however that no systematic results were attributable to these two people. These sources of variation are therefore ignored in this report.

took introductory psychology last year, I thought it was really dumb to be a subject in a bunch of experiments just so I could get a few extra points on my final grade. The way I figure it, if a person can't pass that course without having to look for ways to pick up extra points, then he shouldn't be taking the course in the first place.

After the accomplice expressed his disdain for the S's motives for participating in the study, E arrived and apologized for the delay. He led the two students to Room A and had them take seats in front of the Beckman polygraph. The E said that the purpose of the study was to investigate how certain physiological indices varied in response to different types of tasks, such as learning and teaching tasks. He informed them that one of them would be assigned the role of the teacher in the experiment while the other acted as the learner. Before the session began however, he mentioned that it would be a good idea if the two of them introduced themselves to one another since they would be working with each other in the experiment. Then E picked his accomplice to begin the conversation. He was asked by E to tell them something about himself..."why don't you start off by telling us what department you're in... how you like the city, and maybe your personal evaluation of this university." In the following description, the accomplice presents an unfavorable impression of himself and again, through implication, implies his negativity toward the S.

Well, I'm a second year student studying engineering. I originally wanted to go to an Eastern University but I wasn't accepted, so I came here, and I don't like it. I find people here are unfriendly and very provincial. Edmontonians don't seem to know what's going on in the rest of the world. Do you read the newspapers? I'm rather fed up with this place and especially students who attend this University. They all seem rather naive and egotistical to me. I probably won't stay here another year if I can help it.

The S was then asked by E to give some background information about himself. Generally, S became defensive and disagreed with what the accomplice had said.

After the introductions were concluded, E asked both students to come forward while he explained the purpose and mechanics of the Beckman polygraph. The Ss were given a very elaborate and technical description of how the apparatus would record their blood pressure, heart rate, galvanic skin responses and then integrate the readings to obtain psychologically meaningful scores. At this point, E assigned the two men to their respective roles, supposedly randomly. The accomplice was told that he would be the "learner", while the S was designated the "teacher." The S was then asked to sit at his desk a few minutes while E explained the learning task to the other. The E then led his accomplice behind the curtain and proceeded to instruct him about the operation of an imaginary teaching machine that he supposedly would be working with during the experi-

ment (although E spoke in a low voice, S could easily overhear the conversation). It was indicated in the instructions that the learner on each trial was to use the stylus provided and press it to a number of contact points on the front of the machine. It was stressed that the combination in which he touched the various contacts was critical, for there was a certain right combination which he had to learn. He was informed that he would receive electric shocks if he made wrong guesses of the combination. When asked if he had objections to receiving shock, the accomplice answered "...No, I guess not. I don't think a few shocks will bother me." The E then ostensibly attached a number of electrodes to his accomplice and mentioned that responses during the learning phase of the experiment would be recorded. Afterwards, E left his accomplice behind the curtain and led the S to Room B.

Before S was seated, E requested that he remove his shirt so that he could take some physiological measurements before S began his teaching task. While E attached various electrodes to the S, he explained that they were only sensing devices and that S would not feel anything from them. He was also given a data sheet and instructed how to record his responses to the items that would be presented to him over the headphones. Ostensibly during this time, E would be in Room A making sure S's partner understood his task

before they began. After the S indicated how he was to record his responses as measured by the anger meter, E proceeded to instruct S as to the operation of the shock generator. Before E put the headphones on the S he answered whatever questions S had concerning the experimental procedure. The E reiterated that S was first to listen to a tape and record his readings on the anger meter in response to the items presented. The supposed purpose of this was to get an indication of his base-line level of physiological activity. After the tape was finished, he was instructed to fill out the evaluation attached to the data sheet and wait for his partner to make his first response. On the basis of which light went on, he was to "reinforce" his partner for making wrong responses by giving him shock; for correct responses he would reinforce the learner by not giving him shock. The E then left the S and took his position behind the curtain in Room A. Before playing the prepared tape, E randomly assigned the S to one of three anger feedback conditions. He then played the tape and manipulated the dial readings on the anger meter as each item was presented. On the basis of which anger condition the S had been assigned E varied the meter reading to one of the three anger feedback levels (low, medium, or high) when "the other subject" was announced. After the S had finished recording the meter readings and filling out the attached

evaluation sheet, E initiated the beginning of the teaching task by switching on the "wrong" light of the shock generator. The E then proceeded to record the intensity and number of shocks administered by S on the fourteen designated trials.

Following the completion of the teaching phase, E entered Room B and asked the S to fill out the questionnaires he handed him. Presumably while the S was completing the forms, E would be next door removing the electrodes from the other subject and debriefing him about the experiment.

When S finished the rating scales, E entered the room and removed the electrodes from S's chest and arms. The E then asked the S a number of open-ended questions about his reactions to the experiment in an attempt to uncover S's feelings and possible suspicions.

Seventeen Ss were discarded because of their suspicion of various aspects of the study. Thirteen of these Ss were unduly suspicious of the shock apparatus and indicated strong doubts that the other student had actually received any shock during the experiment. The suspicion of these 13 S's appeared to be generated from one of two sources: (1) the S has participated in a similar study where the shock apparatus was employed; (2) the S was aware of the classic Milgram experiments on "Obedience" and concluded that similar deceptions were being used in the

current experiment. The four other Ss were dropped early in the experimental session because they seriously questioned the credibility of E's accomplice. Suspicious subjects were not distributed differently among experimental conditions.

Following this initial interview, E then debriefed the S. The E explained that he was interested in the relationship between the emotional cues presented to an individual, his interpretation of them, and his subsequent behavior. The S was told that the anger meter did not really indicate his true emotional reactions, but was actually manipulated by E in the next room. It was mentioned that the main purpose of the study was to find out whether the level of anger a person thought he felt toward an antagonist (via the anger meter) would influence the intensity of aggression (amount of shock) he directed towards his antagonist.

The E stressed that the S's partner had not, in fact, been connected to the shock apparatus, so it was not possible for S to shock anyone during the experiment. The S was informed that the intensity and number of shocks he attempted to administer had been recorded by E.

After E explained the deception of the confederate, anger meter, and shock apparatus, he asked the S if he felt at all "uncomfortable" about his not being initially aware of the true nature of the experiment. Nearly all Ss denied being upset about the procedures, and many expressed enthusiasm to learn about how the study was contrived. The debrief-

ing session lasted until such time that the E was reasonably sure that S's questions had been answered and that S felt comfortable with regards to his experience in the study. The majority of Ss indicated that they thought the experiment was quite worthwhile and wanted to participate in more experiments like it.

The E cautioned the S not to discuss the experiment with anyone and emphasized how different the S's own reactions could have been if he had any prior knowledge of the experimental procedures. The S was then thanked for his cooperation, given his experimental credit, and released.

Results

Summary of Experimental Design

A total of 72 male Ss was assigned to the 9 conditions of a 3x3 factorial design with four repeated measures. The design included three levels of anger feedback (low, medium, high), three levels of prejudice (low, medium, high), and four blocks of trials. Dependent measures included:

- (1) intensity and number of shocks administered by Ss,
- (2) Ss' questionnaire ratings of the anger meter readings, their emotions following the teaching phase of the study, and their evaluations of the antagonist.

Analyses of Shock Data

The major dependent measures of aggression were the intensity and number of shocks. Separate analyses were calculated for these two measures. In accordance with the analytical procedure followed by Berkowitz et al. (1969), mean shock intensity and number of shocks were obtained for each of four blocks of trials: 1-4, 5-8 (the first "right" response occurred on Trial 9), 10-12, and the Trials 14, 15, 17.

Intensity - Intensity scores were based on the voltage levels selected for each shock trial. Table 1 contains the mean shock intensities (averaged across trials) administered by the three prejudiced groups in each anger condition.

Table 2 presents a summary of the analysis of variance on the intensity scores. The overall mean intensity of shock delivered by the high-, moderate-, and low-prejudiced groups was 132.57, 94.18, and 117.66, respectively. The analysis of variance indicated that the prejudice main effect just failed to reach significance ($F=2.71$, $df=2/63$, $p<.10$). However, it was predicted a priori that extremists would exhibit more aggression across anger conditions than would moderately prejudiced persons. An orthogonal comparison of the combined mean scores of the two extreme groups to the mean score of the moderately prejudiced persons confirmed this prediction ($p<.025$). Neither the anger nor anger x prejudice interaction effects were significant. Furthermore, analysis of the mean shock intensity scores shown in Table 1 by a Duncan's multiple range test did not indicate significant differences between the three groups of subjects within, nor across anger feedback conditions. However, differences between extremists and moderately prejudiced persons were expected to occur in the High-Anger condition. In light of this a priori prediction, an orthogonal comparison of the group means in the High-Anger condition was made. The results of the selected t -test supported this hypothesis. The moderately prejudiced persons administered significantly less shock than both high- and low-prejudiced persons combined ($p<.025$). Selected t -tests were also computed to compare

the mean intensity of shock delivered by each group across the three anger feedback conditions. The results of these tests confirmed one other major prediction: the moderately prejudiced ss administered significantly more shock in the Medium-Anger condition than they did in both the Low- and High-Anger conditions ($p < .025$). On the other hand, the intensity of shock delivered by the two extreme groups was not significantly influenced by the anger meter readings ($p < .40$). Figure 1 depicts the group trends across the anger conditions.

TABLE 1

Mean Shock Intensity Scores for the Prejudice X
Anger Interaction

	Anger Condition		
	Low	Medium	High
High Prej.	140.82a	137.89a	118.98aN
Mod. Prej.	79.38b	131.17a	71.99bM
Low Prej.	97.31a	124.77a	130.91aN

Note. - The small letters indicate horizontal comparisons of the group means by selected one-tailed t-tests. Capital letters denote differences that occurred between the three groups in the High Anger condition. All comparisons were made on the basis of specific a priori predictions. Cells which do not have a subscript in common are significantly different from one another by at least the 5% level.

TABLE 2
 Summary of Analysis of Variance
 for Shock Intensity

Source of Variation	<u>df</u>	Sum of Squares	Mean Square	<u>F</u>	<u>P</u>
A: Anger	2	39178.678	19589.339	1.477	
P: Prejudice	2	71903.908	35951.954	2.711	<.10
AXB	4	56853.722	14213.431	1.072	
Error (a)	63	835329.931	13259.205		
T: Trials	3	109496.065	36498.688	49.125	<.005
AXT	6	12336.874	2056.146	2.767	<.025
PXT	6	9999.363	1666.560	2.243	<.05
AXPXT	12	15574.309	1297.859	1.747	<.10
Error (b)	189	140421.279	742.970		

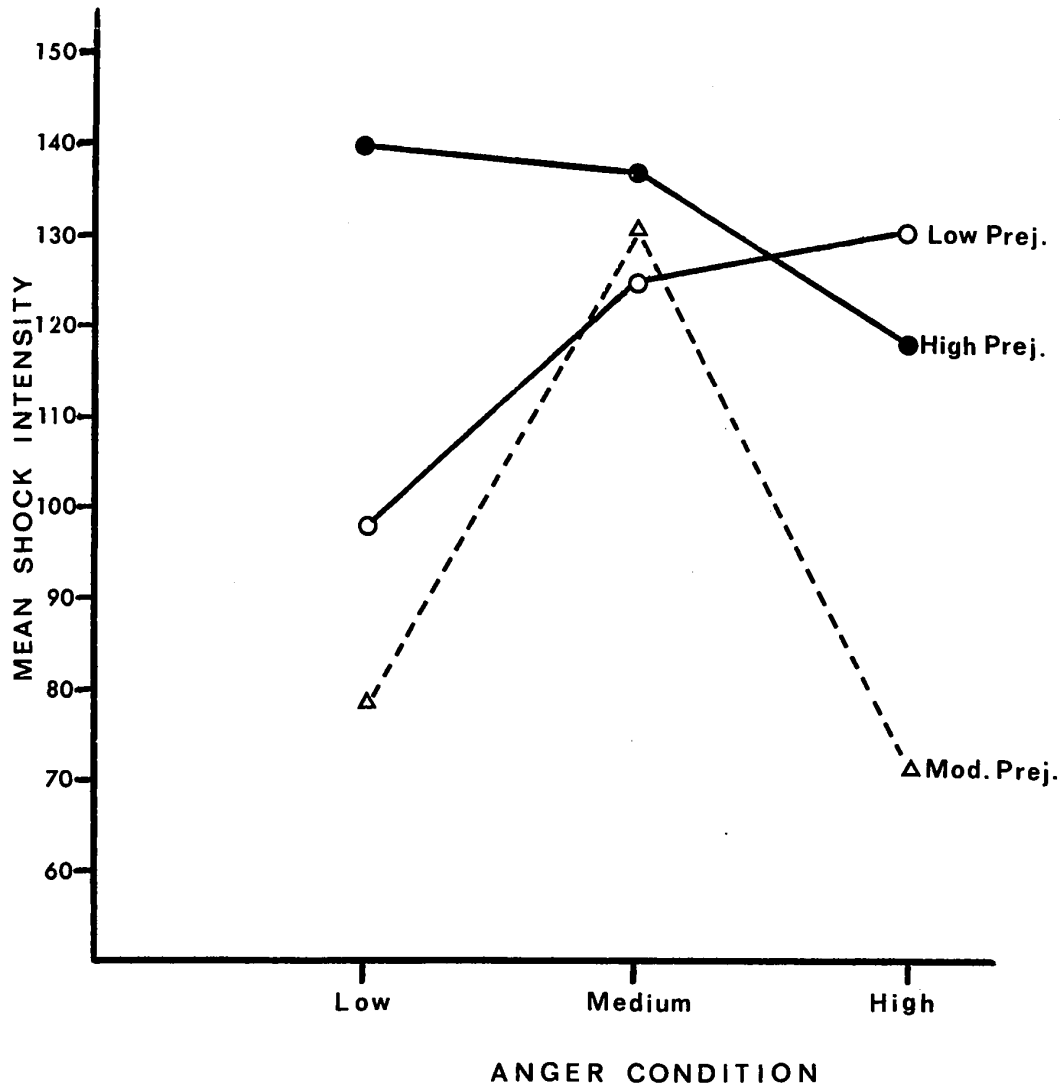


Fig. 1. Mean intensity of shocks delivered by subjects in the prejudice and anger conditions.

The trials main effect was highly significant ($F=49.13$, $df=3/189$, $p<.005$), and indicated an increase in shocks over trials. The mean intensities of shock for the four blocks of trials were, in order from first to last: 82.07, 119.58, 124.58, 132.99.

Two interactions were significant: the Anger X Trials effect ($F=2.77$, $df=6/189$, $p<.025$) and the Groups X Trials effect ($F=2.24$, $df=6/189$, $p<.05$). The interaction between anger and trials indicated that Ss in the Medium-Anger condition delivered more intense shock on the first three trial blocks than Ss in the Low-or High-Anger conditions ($p<.005$, Duncan's multiple range test); these differences converged on the last block of trials. Table 3 contains the means for this interaction, while Figure 2 depicts the interaction graphically. The interaction of groups with trials showed that differences between the three prejudiced groups became more pronounced as the number of trial blocks increased. A Duncan's multiple range test showed that in all four trial blocks moderates gave significantly less intense shock than either extreme group ($p<.05$). This test also indicated that the high-prejudiced Ss gave significantly more intense shock than the low-prejudiced Ss on trials 2, 3, and 4 ($p<.05$). Table 4 presents the means for the Groups X Trials interaction. Figure 3 illustrates the group trends across trials. Examination of these trends,

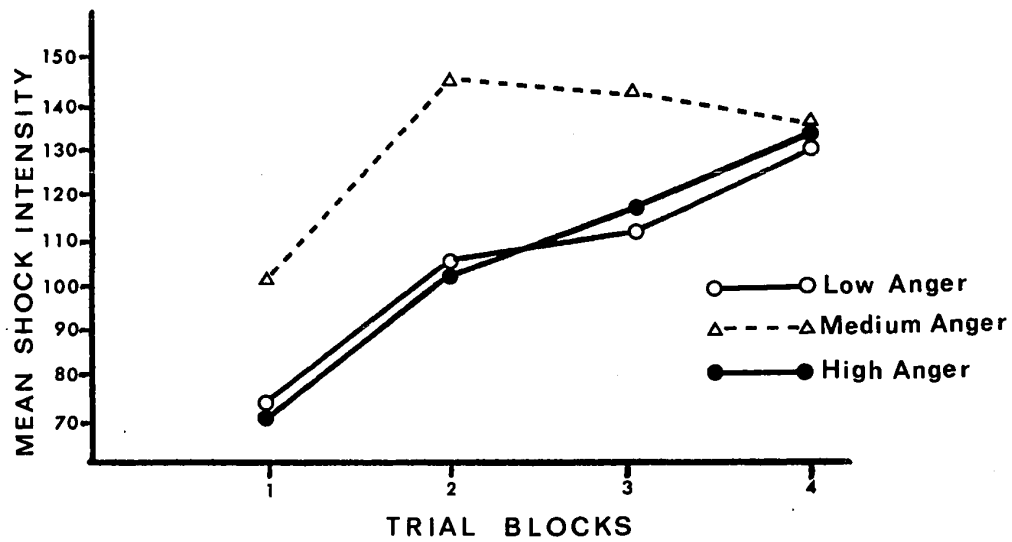


Fig. 2. Mean intensity of shocks delivered by subjects in each anger condition as a function of four blocks of trials.

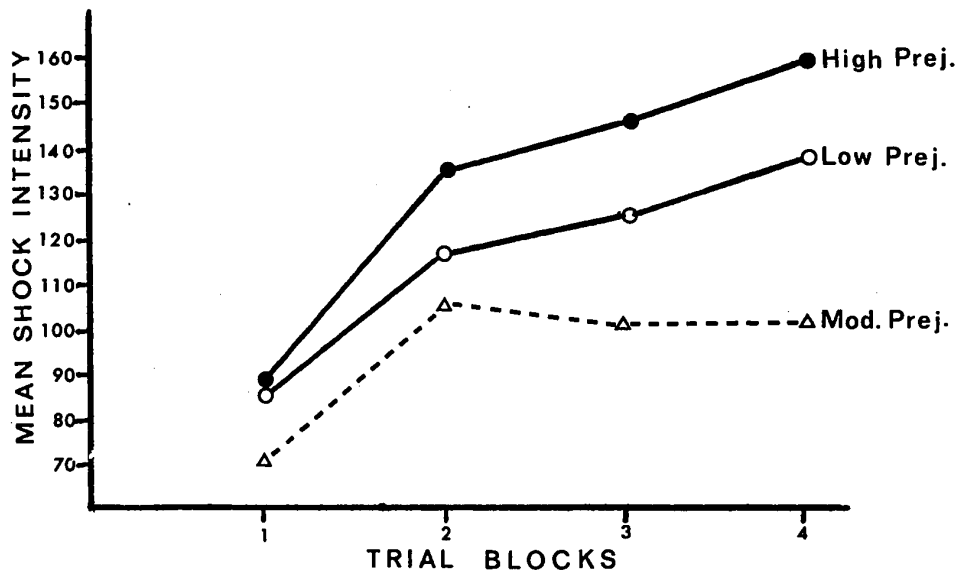


Fig. 3. Mean intensity of shocks delivered by subjects in each prejudice condition as a function of four blocks of trials.

indicated that while S_s in both extreme conditions tended to increase the intensity of shock over trials, those in the moderate condition leveled off after the second block of trials. The differences in the linear component of these trends was highly significant ($F=6.22$, $df=2/189$, $p<.005$).

TABLE 3

Mean Shock Intensities for the Anger X Trials Interaction

	Trial 1	Trial 2	Trial 3	Trial 4
Low Anger	72.604mM	106.156mN	112.917mN	131.667mP
Medium Anger	102.188nM	145.625nN	142.917nN	134.375mN
High Anger	71.406mM	106.948mN	117.917mNP	132.917mP

Note. - Cells not having a subscript in common are significantly different from one another by at least the .05 level using the Duncan's multiple range test. In the comparisons of the means for each trial block in the interaction, small letter indicates vertical comparisons (among conditions within a given trial) and capital letters indicate horizontal comparisons.

TABLE 4

Mean Shock Intensities for the Prejudice X Trials Interaction

	Trial 1	Trial 2	Trial 3	Trial 4
High Prej.	89.323mM	136.563pN	145.208pNP	159.167pP
Mod. Prej.	70.000nM	103.177nN	101.667nN	101.875nN
Low Prej..	86.875mM	118.990mN	126.875mNP	137.917mP

Note. - Cells not having a subscript in common are significantly different from one another by at least the .05 level using the Duncan's multiple range test. In the comparisons of the means for each trial block in the interaction, small letter indicates vertical comparisons (among conditions within a given trial) and capital letters indicate horizontal comparisons.

Although the Prejudice X Anger X Trials interactions for shock intensity did not quite reach significance ($F=1.74$, $df=12/189$, $p<.10$), analysis of each anger condition by a Duncan's multiple range test indicated several significant findings. Table 5 presents the group means across trials in each anger condition, while Figure 4 presents group trends across trials graphically. In the Low-Anger condition, the moderately prejudiced Ss did not differ significantly from low-prejudiced Ss in any of the four blocks of trials. The high-prejudiced Ss, however, gave significantly more intense shock than did the moderately prejudiced persons in the first block of trials, and significantly higher shocks than both low- and moderately prejudiced persons in each of the three succeeding blocks of trials ($p<.05$). Comparison of the group means across trials in the Medium-Anger condition indicated that subsequent to the first block of trials, high-prejudiced persons gave significantly higher intensities of shocks. Moderately prejudiced persons also increased the level of shocks on the second block of trials, but significantly decreased the level of shocks in the fourth block of trials. Low-prejudiced persons did not show a significant increase in shock intensity over trials. Analysis of the High-Anger condition indicated that the moderately prejudiced Ss administered significantly less intense shocks than either the low- or high-prejudiced Ss in trial blocks 2, 3, and 4

TABLE 5

Mean shock intensities delivered by subjects across the four trial blocks in each of the prejudice and anger level conditions

<u>Low Anger</u>				
	<u>Trial 1</u>	<u>Trial 2</u>	<u>Trial 3</u>	<u>Trial 4</u>
High Prej.	88.44mM	139.22mN	159.38mNP	176.25mP
Mod. Prej.	55.31nM	76.56nMN	85.00nN	100.63nN
Low Prej.	74.06mnM	102.69nMN	94.38nMN	118.13nN
<u>Medium Anger</u>				
	<u>Trial 1</u>	<u>Trial 2</u>	<u>Trial 3</u>	<u>Trial 4</u>
High Prej.	99.38mM	147.19 _n NM	150.63mN	154.38nN
Mod. Prej.	98.91mM	162.66nP	143.13mNP	120.00mMN
Low Prej.	108.28mM	127.03mM	135.00mM	128.75mnM
<u>High Anger</u>				
	<u>Trial 1</u>	<u>Trial 2</u>	<u>Trial 3</u>	<u>Trial 4</u>
High Prej.	80.16mM	123.28mN	125.63mN	146.88mN
Mod. Prej.	55.78mM	70.31nM	76.88nM	85.00nM
Low Prej.	78.28mM	127.25mN	151.25mNP	166.88mP

Note. - Cells having a subscript in common (within each anger condition only) are not significantly different at the .05 level by a Duncan's multiple range test. In the comparisons of the means for each trial block, the small letters indicate vertical comparisons (among prejudice conditions within a given trial) and the capital letters indicate horizontal comparisons.

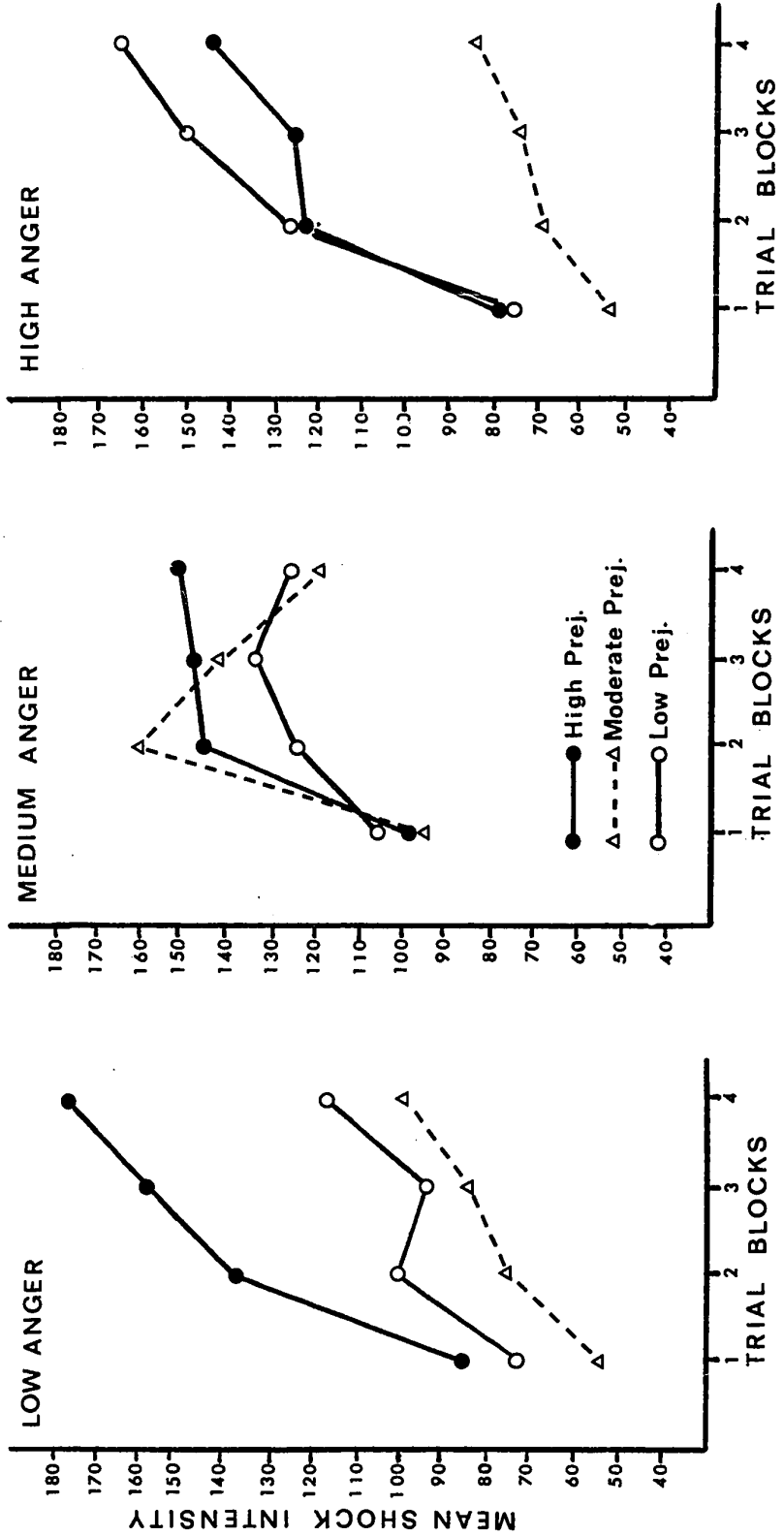


Fig. 4. Mean intensity of shocks delivered by subjects in the prejudice and anger conditions as a function of four blocks of trials.

($p < .001$, Duncan's multiple range test). No significant differences occurred between the high and low prejudiced persons in any of the four blocks of trials. Further, the data indicate that whereas both high and low prejudiced persons increased the intensity of shocks over trials, moderately prejudiced persons did not.

Number. Number scores were obtained by counting and averaging the number of button presses made by Ss on each block of shock trials. Table 6 contains a summary of the analysis of variance on the number scores. Although the Groups main effect was not significant in the analysis of variance, a selected t-test (one-tailed) computed on the group means indicated that the moderately prejudiced Ss gave significantly fewer shocks than the Ss in the two extreme conditions combined ($p < .05$). The respective means for the high, moderate, and low-prejudiced Ss were 1.31, 1.16, and 1.34. The only significant result obtained in the analysis of variance was for the trials main effect ($F = 4.96$, $df = 3/189$, $p < .005$). The mean number of shocks given by Ss in the four blocks of trials were in order from first to last: 1.13, 1.28, 1.35, and 1.30. Significantly more shocks were given on trials 2, 3, and 4 than on Trial 1 ($p < .05$, Duncan's multiple range test). The number of shocks delivered on Trials 2, 3, and 4 did not differ significantly from one another. No other effects in this analysis approached significance.

TABLE 6

Summary of the Analysis of Variance for Number of Shocks

Source of Variation	<u>df</u>	Sum of Squares	Mean Squares	<u>F</u>	<u>P</u>
A: Anger	2	1.129	.864	.988	
P: Prejudice	2	1.785	.892	1.563	
AXP	4	.456	.114	.200	
Error (a)	63	35.982	.571		
T: Trials	3	1.768	.589	4.957	<.005
AXT	6	.408	.068	.573	
PXT	6	.618	.103	.867	
AXPXT	12	.934	.078	.655	
Error (b)	189	22.472	.119		

Analysis of Questionnaire Data

Immediately following the S's recording the anger meter readings, he indicated on a rating scale whether he thought the readings corresponded to his subjective feeling about the presented items. Table 7 presents a summary of a 3x3 (Groups X Anger) analysis of variance of the Ss score of agreement that the meter accurately reflected their level of anger with the confederate. The S's scores were based on an eight-point scale; high scores indicated that the anger meter was a very good reflection of his anger with his antagonist, while low scores indicated the meter poorly reflected his anger. Although significant effects were not obtained in this analysis, a Duncan's multiple range test yielded one interesting finding: the moderately prejudiced Ss believed the anger meter gave a poorer reflection of their anger with the confederate when it indicated "High-Anger" than when it read "Low-Anger." It is possible that the moderates reacted in a way similar to the Ss who participated in the Berkowitz et al. (1969) study; that is, the moderately prejudiced persons may have construed their purportedly high-anger to be inappropriate for the amount of provocation they suffered. Such thinking on the part of the moderately prejudiced persons could very well have had the mediating effect of inhibiting aggression in the High-Anger Condition.

TABLE 7

Summary of the Analysis of Variance for
Rated Accuracy of Anger Meter in Reflecting the Level
of Anger Toward the Antagonist

Source of Variation	<u>df</u>	Sum of Squares	Mean Square	<u>F</u>	<u>P</u>
A: Anger	2	13.361	6.681	1.585	
P: Prejudice	2	1.028	.514	.122	
AXP	4	30.556	7.639	1.813	
Error	63	265.500	4.214		

Mean Ratings of Anger Meter
for the Prejudice X Anger Interaction

	Anger Condition		
	Low	Medium	High
High Prej.	4.25 _{mM}	6.000 _{mM}	5.375 _{mM}
Mod. Prej.	6.000 _{mM}	5.750 _{mnM}	3.500 _{nM}
Low Prej.	5.125 _{mM}	5.625 _{mM}	5.375 _{mM}

Note. - Cells having a subscript in common are not significantly different at the .05 level by Duncan's multiple range test. The small letters indicate comparisons across anger conditions for each group and the capital letter indicates comparisons between groups within each anger condition.

Analyses of variance were computed on the seven-point bipolar items of the Mood scale to assess the Ss' feelings following the teaching phase of the experiment. In accordance with indices suggested by Nowlis (1965), S's ratings of their over-all anger were computed by summing together the S's responses to six items: defiant, annoyed, angry, grouchy, rebellious, and fed-up. A summary of the analysis of variance of the S's rated anger is presented in Table 8. A significant prejudice main effect was obtained ($F=4.05$, $df=2/63$, $p<.025$). The low-prejudiced Ss reported being less angry than did either the high- or moderately prejudiced Ss ($p<.01$, Duncan's multiple range test). The mean anger scores for the high-, moderate-, and low-prejudiced Ss were 16.96, 15.33, and 12.37, respectively. Other ad hoc comparisons using the Duncan's multiple range test were not significant.

TABLE 8

Summary of the Analysis of Variance for
 Rated Anger following Administration of Shock
 (scores were summed over items: defiant, annoyed, angry,
 grouchy, rebellious, fed-up)

Source of Variation	<u>df</u>	Sum of Squares	Mean Squares	<u>F</u>	<u>P</u>
A: Anger	2	8.111	4.056	.200	
P: Prejudice	2	273.861	136.931	4.048	<.025
AXP	4	42.556	10.639	.314	
Error	63	2151.250	33.829		

Subjects responded to four items (jittery, upset, fearful, confident) to assess their general feelings of anxiety. Table 9 summarizes the analysis of variance that was computed on the summed scores of these items. In this analysis the Groups main effect just failed to reach significance ($F=2.40$, $df=2/63$, $p<.10$). Comparison of the group means by a Duncan's multiple range test indicated that the moderately prejudiced Ss reported being significantly more anxious than the extreme low-prejudiced Ss ($p<.05$). The mean anxiety scores for the high, moderate, and low-prejudiced Ss were 11.79, 12.42, and 9.79, respectively. Examination of the group means by a Duncan's multiple comparisons test indicated one significant finding--the difference in felt anxiety reported by the low-and moderately prejudiced persons was most apparent in the high-anger condition ($p<.05$). Analyses of variance conducted on the rest of the items contained in the Mood Scale did not yield any significant findings.

One final analysis of variance was carried out on the evaluation of the antagonist by the three groups of Ss varying in prejudice level. Total scores over thirteen bipolar adjectives for the person evaluated were analyzed in a 3 x 3 factorial design. A low score indicated a favorable evaluation a high score an unfavorable evaluation. The results of this analysis of variance are summarized on Table 10. Analysis of the evaluations of the antagonist yielded no significant findings.

TABLE 9

Summary of the Analysis of Variance for
 Rated Anxiety Following Administration of Shock
 (scores were summed over items: jittery, upset, fearful,
 confident)

Source of Variation	df	Sum of Squares	Mean Square	F	P
A: Anger	2	8.083	4.042	.215	
P: Prejudice	2	90.250	45.125	2.403	<.10
AXP	4	110.667	27.667	1.473	
Error	63	1183.000	18.778		

Mean rating of reported anxiety
 for the Prejudice X Anger Interaction

	Anger Condition		
	Low	Medium	High
High Prej.	10.750mM	13.375mM	11.250mMN
Mod. Prej.	13.875mM	10.250mM	13.125mM
Low Prej.	10.375mM	10.750mM	8.250mN

Note. - Cells having a subscript in common are not significantly different at the .05 level by Duncan's multiple range test. The small letter indicates comparisons across anger conditions for each group and the capital letters indicates comparisons between groups within each anger condition.

TABLE 10
Analysis of Variance Summary for
Rated Evaluation of Antagonist

Source of Variation	<u>df</u>	Sum of Squares	Mean Squares	<u>F</u>	<u>P</u>
A: Anger	2	19.444	9.722	.101	
P: Prejudice	2	305.861	152.931	1.594	
AXP	4	226.722	56.681	.591	
Error	63	6045.750	95.964		

Discussion

It was predicted that across anger conditions high- and low-prejudiced persons would display a greater amount of aggression toward their antagonist than would moderately prejudiced persons. The results obtained with the two measures of physical aggression lent some support to this hypothesis. Extremists delivered a greater number of shocks and more intense shocks than did the moderately prejudiced persons. These data extended the findings of Rule (1966), Fischer and Rule (1967), and Fischer (1968). Whereas these former studies reported differences between extremists and moderately prejudiced persons in their displaced verbal hostility following stress, the results of the present study indicated that these differences are also obtained measuring their level of physical aggression toward an antagonist.

It also was predicted that extremists would display aggression in direct relation to the level of anger as indicated to them by readings on the anger meter. Results did not confirm this prediction. Analysis of the mean shock intensities across anger conditions indicated that the different levels of anger feedback did not significantly affect the intensity of attack by either group of extremists. This finding requires a re-examination of the assumption that following stress, extremists utilize the anger meter readings to delineate their level of anger, and subsequently, their level of attack toward the antagonist. One plausible

explanation for this result is offered in the findings of Fischer and Rule (1967) and Fischer (1968). In the first study, it was reported that extremists, after being provoked by a peer and forming a negative impression of him, used this initial impression as an anchor to make subsequent judgments of strangers; that is, they assimilated their evaluations of others in the direction of the anchor. Furthermore, Fischer (1968) found that following provocation, both high- and low-prejudiced persons indiscriminately displaced their hostility toward the target person regardless of the target's aggressive cue value. One could also say that extremists in Fischer's study assimilated their subsequent evaluations of others in the direction of the negative anchor induced by their antagonist. It is suggested that a similar form of this assimilation process may have occurred in the present study. The extremists, after being provoked by the target person and forming a negative impression of him, may have responded on the basis of their first impression of the target person and not on the basis of subsequent information indicating how angry he had made them. Thus, rather than the interpretation offered by Fischer and Rule (1967) that extremists regulate their behavior according to external information in the immediate situation, it may be that extremists rigidly adhere to initial impressions to mediate their subsequent behavior.

In contrast to the behavior of the extremists, the mean intensity of shocks delivered by moderately prejudiced persons across anger conditions was significantly influenced by the anger meter readings. The results showed that the moderately prejudiced persons gave their antagonist more intense shocks in the medium-anger condition than in the low- and high-anger conditions. This finding was consistent with expectations and lends some indirect support to the view that the moderately prejudiced persons may consider appropriateness of aggression in the situation before responding.

The hypothesis that the prejudice level of persons affects their level of attack against a former antagonist was further evidenced by the significant Prejudice X Trials interaction. The data indicated that while both high- and low-prejudiced persons continued to increase the intensity of delivered shocks across trial blocks, moderately prejudiced persons discontinued increasing shock intensities once the target person began to respond correctly. Moreover, the extremists delivered significantly more intense shock than the moderately prejudiced persons in each of the four trial blocks. One could argue that the extremists increased their attack on the learner because they thought administering greater punishment would facilitate the learner's performance. However, a more plausible explanation in light of previous research findings (Rule, 1966; Fischer and Rule, 1967) may

be that the extremists generally wanted to hurt their antagonist in spite of his increasing correct responses.

It should be noted that differences which emerged over trial blocks between people varying in prejudice level were influenced by the anger feedback condition to which they were assigned. Evidence for this contention comes from an examination of significant differences obtained by the Duncan's Multiple range test between conditions in the Prejudice X Anger X Trials interaction. In the Low-Anger feedback condition it was expected that high- and low-prejudiced persons would not differ from moderately prejudiced persons in manifest aggression. This hypothesis was only partially confirmed. Although low- and moderately prejudiced persons did not differ from one another in the intensity of shock they delivered over trials, high-prejudiced persons gave significantly more intense shocks than the other two groups of subjects in three of the four trial blocks. Also, in comparison to low- and moderately prejudiced persons, high-prejudiced individuals appeared to increase the intensity of shocks at a more rapid rate over trials. It is difficult to explain what particular factors elicited this relatively high level of attack from these subjects in this condition. Perhaps the high-prejudiced persons in this condition relied more on their initial negative impression, or for some reason they may have been more aroused than

either low- or moderately prejudiced persons. In attempting to answer these questions one should note that Fischer (1968) obtained a similar finding. He reported that high-prejudiced persons were more hostile toward a stranger following mild stress than were low- or moderately prejudiced persons. However, neither Fischer's study nor the present investigation offers evidence which can explain the high-prejudiced persons behavior under these conditions.

Generally, the results obtained in the Medium-Anger condition were consistent with expectation. The data showed that although high-prejudiced persons tended to increase shock intensity more than did the low-prejudiced persons as trials progressed, extremists did not differ from one another in the overall mean intensity of shock given to the learner. Responses by the moderately prejudiced persons appeared to vary more over trials. They were more aggressive than the low-prejudiced persons toward the learner as he continued to give wrong answers in the second block of trials. But unlike either group of extremists, once the learner began to respond correctly they significantly reduced the amount of punishment given him. Despite the feedback of medium-anger which may have led moderately prejudiced persons to believe that aggression was appropriate in the situation, they still may have experienced some difficulty justifying their relatively high punitivity toward the learner once he began to give right answers. The point to be emphasized

however is that the moderately prejudiced persons did not differ significantly from the extremists in the overall mean shock intensity delivered to the learner.

As expected, differences between the extremists and the moderately prejudiced persons in the intensity of shock delivered to the learner were most apparent in the High-Anger condition. The overall mean shock intensity given by the moderately prejudiced persons was significantly less than that delivered by either low- or high-prejudiced persons. Furthermore, an examination of the mean shock intensities delivered by each group of subjects across trials indicated that differences between the moderately prejudiced persons and extremists increased as trials progressed; both groups of extremists significantly increased the intensity of shocks over trials whereas the moderately prejudiced persons did not.

It was predicted that the moderately prejudiced persons would experience feeling of anxiety after they were told via the anger meter that they strongly reacted to the insult of their antagonist. This anxiety would presumably result from their awareness that their high anger was not justified by the magnitude of provocation they suffered. Some of the questionnaire data partially supported this contention. Moderately prejudiced persons did appear to be more aware of the inappropriateness of the high-anger meter reading. These subjects judged that the higher reading did not reflect their

feelings toward the antagonist. Whether they made this judgment rationally or were led by feelings of anxiety to deny their anger is debatable. It may be important to consider that the moderately prejudiced persons did report experiencing more anxiety in this condition than the low-prejudiced persons. Again, it is difficult to determine whether the source of their anxiety was due to their concern over the possibility that the antagonist had made them highly angry or due to some other factor. The suggestion remains however that the moderately prejudiced persons may have been more aware than the extremists about the inappropriateness of their emotional reactions to the situation. This awareness seemed to have the effect of reducing their expression of aggression.

Of less relevance to the main predictions of this study was the significant Trials main effect obtained in the analysis of shock number and intensity. A discussion of this effect will not follow since it is a rather frequent finding and has been discussed in detail several times in the literature (e.g. Buss, 1963, 1966; Geen, 1968; Berkowitz, et al., 1969; Baron and Kepner, 1970; Rule, Haley, and McCormack, 1971). It was also found that the feedback the subjects received concerning their anger level affected the rate of increase in shock intensity across trials. As the data in the two-way interaction between Anger and Trials

showed, subjects in the Medium-Anger condition attacked the learner less after the second block of trials. This decline was not significant, however. In comparison to the Medium-Anger subjects, persons in the other two anger conditions progressively increased the intensity of their attacks over trials. These results are inconsistent with the findings of Berkowitz et al. (1969), who reported that differences in mean shock intensities between the subjects in the Medium-Anger condition and subjects in Low- or High-conditions increased as trials progressed, with medium anger feedback conditions increasing most. The fact that aggression didn't progressively increase in the medium-anger condition in this study may have been due to particular responses of subjects varying in prejudice level in that condition.

Analyses of the post-questionnaire data did not yield many significant findings. It was discovered, however, that the low-prejudiced persons rated themselves as being less angry after having the opportunity to attack their antagonist than did either the high- or moderately prejudiced persons. This result is difficult to interpret. One might possibly explain the difference in felt anger between the low- and moderately prejudiced persons as being due to a cathartic effect. Since the low-prejudiced persons displayed a higher volume of open aggression than did the moderately prejudiced persons, they conceivably may have reduced their anger to a greater degree than did the moderates. A catharsis

interpretation, however, only explains a portion of the data. The question remains as to why the high-prejudiced persons didn't similarly reduce their anger when in fact they displayed a comparatively high level of aggression. Perhaps a more reasonable explanation is that the low-prejudiced individuals experienced a greater amount of guilt subsequent to their acts of aggression and hence were led to deny that their behavior in the situation was mediated by hostile feelings. This interpretation is consistent with Fischer's (1968) suggestion that low scores on the A-S scale may reflect strong inhibitions against admitting feelings of hostility. The fact that these individuals did engage in open aggression may have created a greater need for them to justify their behavior. Such justification could have taken the form of perceiving their behavior as serving strictly an instructive, rather than retaliatory, purpose. This speculation can only be verified in the future by increasing the sensitivity of post-experimental questionnaire instruments.

In summary, the results of this thesis demonstrated the degree to which the physical aggression of persons varying in prejudice level was differentially influenced by emotional cues in the situation. The major finding to support the contention of behavioral similarities between high- and low-prejudiced persons was that neither group's level of aggression was significantly affected by the

presentation of cues indicative of their anger state following provocation. This finding supported the view that the extremists reacted to the target person more on the basis of their initial negative impression of him than on subsequent external information in the situation. In contrast to the aggressive behavior of the extremists, moderately prejudiced persons appeared to utilize the cues regarding their emotional reactions to judge the appropriateness of aggression in the situation. As expected, differences in physical aggression between the extremists and moderately prejudiced persons were most apparent in the High-Anger condition. While both high- and low-prejudiced persons tended to increase their attack on their former antagonist as trials progressed; the reactive physical aggression displayed by the moderately prejudiced persons was remarkably low. Evidence suggests that the latter group of subjects were more aware of the inappropriateness of their registered high anger toward their antagonist. This awareness may consequently have had an ameliorating effect on their aggressive tendencies toward the antagonist.

Further evidence obtained in this thesis suggests that differences in the intensity of aggression between extremists and moderately prejudiced persons are more clearly distinguishable in a paradigm which allows the person ample opportunity to repeatedly attack his antagonist. It is

therefore suggested that future investigations of the aggressive behavior of prejudiced individuals take into consideration not only the judgmental and behavioral differences which appear to exist between extreme and moderately prejudiced persons, but also various aspects of the experimental situation (e.g. initial information about the target person, level of stress, presence of emotional cues, number of opportunities for retaliation) which would engage the expected differences.

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ANTI-SEMITISM SCALE ITEMS

1. Anyone who employs many people should be careful not to hire a large percentage of Jews.
2. One trouble with Jewish businessmen is that they stick together and connive, so that a Gentile doesn't have a fair chance in competition.
3. The Jewish districts in most cities are results of the clannishness and stick-togetherness of Jews.
4. Persecution of the Jews would be largely eliminated if the Jews would make really sincere efforts to rid themselves of their harmful and offensive faults.
5. I can hardly imagine myself marrying a Jew.
6. Jewish leaders should encourage Jews to be more inconspicuous, and to keep out of professions and activities already overcrowded with Jews, and to keep out of the public notice.
7. The trouble with letting Jews into a nice neighborhood is that they gradually give it a typical Jewish atmosphere.
8. No matter how Canadian a Jew may seem to be, there is always something different and strange, something basically Jewish underneath.
9. There may be a few exceptions, but in general, Jews are pretty much alike.
10. There are too many Jews in the various agencies and bureaus in Ottawa and they have too much control over our national policies.

CALIFORNIA F SCALE ITEMS

1. Obedience and respect for authority are the most important virtues children should learn.
2. Science has its place, but there are many important things that can never possibly be understood by the human mind.
3. A person who has bad manners, habits and breeding can hardly expect to get along with decent people.
4. When a person has a problem or worry, it is best for him not to think about it, but to keep busy with more cheerful things.
5. Every person should have complete faith in some supernatural power whose decisions he obeys without question.
6. No weakness or difficulty can hold us back if we have enough will power.
7. Human nature being what it is, there will always be war and conflict.
8. Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them.
9. If people would talk less and work more, everybody would be better off.
10. Young people get rebellious ideas sometimes, but as they grow up they ought to get over them and settle down.
11. What the youth needs most is strict discipline, rugged determination, and the will to work and fight for family and country.
12. Nowadays more and more people are prying into matters that should remain personal and private.
13. Some people are born with the urge to jump from high places.
14. An insult to our honor should always be punished.

15. Familiarity breeds contempt.
16. Wars and social troubles may some day be ended by an earthquake or flood that will destroy the whole world.
17. Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped or worse.
18. The business man and the manufacturer are much more important to society than the artist and the professor.
19. What this country needs most, more than laws and political programs, is a few courageous, tireless, devoted leaders in whom the people can put their faith.
20. There is hardly anything lower than a person who does not feel great love, gratitude and respect for his parents.
21. People can be divided into two classes: the weak and the strong.
22. The wild sex life of the old Greeks and Romans was tame compared to some of the goings-on in this country, even in places where people might least expect it.
23. Homosexuals are hardly better than criminals and ought to be severely punished.
24. No sane, normal, decent person could ever think of hurting a close friend or relative.
25. Most of our social problems would be solved if we could somehow get rid of the immoral, crooked and feebleminded.
26. Some day it will probably be shown that astrology can explain a lot of things.
27. Most people don't realize how much our lives are controlled by plots hatched in secret places.
28. Nobody ever learned anything really important except through suffering.

ANGER METER RATING SCALE

Write down the reading of the anger meter in response to each of the items when they are mentioned on the tape. Indicate whether your level of anger is low, medium or high using the scale below.

<u>Meter reading</u>	<u>Anger level</u>
0 - 1.5	Low
1.5 - 3.5	Medium
3.5 - 5.0	High

Item #1	Meter reading	Anger level
	_____	_____
Item #2	Meter reading	Anger level
	_____	_____
Item #3	Meter reading	Anger level
	_____	_____
Item #4	Meter reading	Anger level
	_____	_____
Item #5	Meter reading	Anger level
	_____	_____

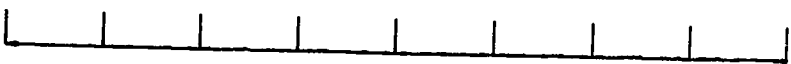
Answer the following questions.

Physiological indicants are good measures of the moods people experience (i.e. anger).

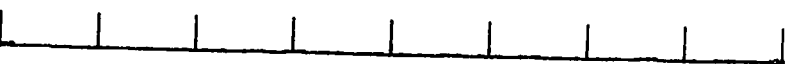
Agree  Disagree

To what extent did the anger meter reflect your feelings towards:


1) Psychology

very good reflection  Very poor reflection

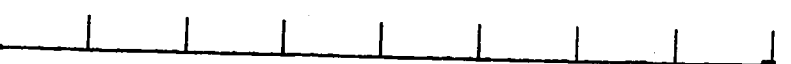
2) Favorite professor

very good reflection  Very poor reflection

3) The other subject in the experiment

Very good reflection  Very poor reflection

4) The experimenter




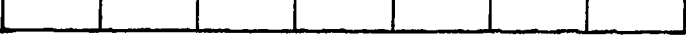


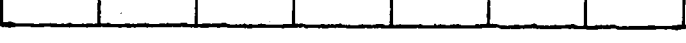
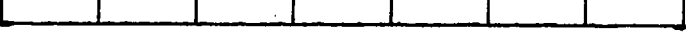
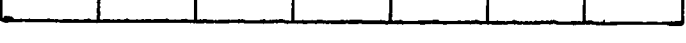
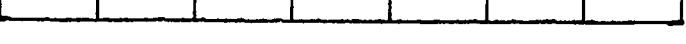
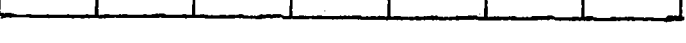
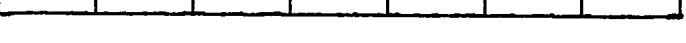
Very good reflection  Very poor reflection

Any general comments?

MOOD ADJECTIVE CHECK LIST

To supplement the physiological data concerning your baseline level of emotional arousal please fill out this questionnaire. Rate the degree to which you are immediately experiencing the following designated feelings. Place a check mark in one of the spaces provided on each line. Make sure you answer each item.

very involved	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all involved
very confident	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all confident
very defiant	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all defiant
very disappointed	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all disappointed
very energetic	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all energetic
very jittery	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all jittery
very annoyed	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all annoyed
very attentive	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all attentive
very carefree	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	not at all carefree

very angry		not at all angry
very vigorous		not at all vigorous
very upset		not at all upset
very warmhearted		not at all warmhearted
very grouchy		not at all grouchy
very sad		not at all sad
very rebellious		not at all rebellious
very drowsy		not at all drowsy
very fearful		not at all fearful
very tired		not at all tired
very fed-up		not at all fed-up
very active		not at all active

RATING SCALE

NAME _____

WARM	_ _ _ _ _ _ _	COLD
BAD	_ _ _ _ _ _ _	GOOD
FRIENDLY	_ _ _ _ _ _ _	UNFRIENDLY
DEPENDENT	_ _ _ _ _ _ _	INDEPENDENT
SOCIABLE	_ _ _ _ _ _ _	UNSOCIABLE
QUARRELSOME	_ _ _ _ _ _ _	CONGENIAL
GRATEFUL	_ _ _ _ _ _ _	UNGRATEFUL
STUPID	_ _ _ _ _ _ _	INTELLIGENT
LAZY	_ _ _ _ _ _ _	DILIGENT
AFFECTIONATE	_ _ _ _ _ _ _	HATEFUL
DISCONTENTED	_ _ _ _ _ _ _	CONTENTED
CHEERFUL	_ _ _ _ _ _ _	GLUM
UNFEELING	_ _ _ _ _ _ _	FEELING