ABSTRACT

MANAGEMENT OF HOSTILITY AND VERBAL FUNCTIONING
IN COLLEGE MALES

by Richard A. Westmaas

The purpose of this study was to investigate relationships between individual differences in the management of hostility and verbal functioning in a situation designed to arouse hostility. Psychoanalytic formulations of the processes involved in impulse inhibition suggest that individuals characterized by a relatively inhibitory method of managing hostility experience difficulty in producing words associated with the expression of hostility. That such individuals may also be at a disadvantage in producing words not inherently associated with aggression was inferred from the possible generalization of inhibitory processes. The hypotheses formulated to test the proposed relationships predicted a positive relationship between the expression of hostility and the production of (1) hostile words and (2) neutral words in a frustrating situation.

In testing these hypotheses, 80 male college students were randomly assigned to either a high arousal (HA) or low arousal (LA) condition. Prior to verbal production tasks, the 40 HA subjects were frustrated by contriving their failure on a test said to predict creative potential, and by the experimenter's insulting remarks. The 40 LA subjects were allowed to pass this test. Oral production of words in restricted categories provided the dependent measures. The hostile word category included

words used to describe someone whom one hates or dislikes. The neutral word category consisted of words ending in a-t-i-o-n. Measures of hostility were obtained near the end of the experiment, immediately following a procedure for inducing aggression in all subjects. These measures consisted of ratings on a post-experimental questionaire which provided for the expression of hostility toward the experimenter, the experiment, or the testing situation; and extrapunitive responses on a modified version of the Rosenzweig Picture Frustration Test.

That HA subjects were considerably more hostile than LA subjects on questionaire ratings was taken as evidence of the effectiveness of the arousal procedure and as support for the validity of the questionaire. Failure of the PF Test to reliably discriminate between the groups was interpreted as further questioning the validity of a technique that has shown serious weaknesses in other studies.

The hypotheses to be tested concerned only the results in the HA group. Results regarding the hypotheses were:

Hypothesis 1: Total hostility scores derived from questionaire ratings failed to relate positively to production of hostile words. A separate analysis of the questionaire items revealed that ratings of unfriendliness to the experimenter were highly associated with the production of hostile words ($p < .01$), whereas ratings providing more indirect expressions of hostility tended to relate negatively to hostile word production. It was suggested that it is not the indiscriminate expression of hostility, but the ability to aggress directly against the instigator which is predictive of fluency

with hostile words when frustrated. These results were seen as consistent with psychoanalytic theory, and with a variation of Miller's approach-avoidance paradigm which assumes individual differences in avoidance tendencies. Attention was called to the possible significance of proficiency with hostile verbalization as affecting patterns of managing hostility. The non-significant relation of PF measures to hostile word production was taken as a reflection of the relatively low validity of this instrument. It was pointed out that the sample chosen represents a group in which hostility is largely confined to verbal aggression, and that generalizations to other groups should be avoided. Suggestions for further research were made.

Hypothesis 2: None of the measures of hostility were significantly related to production of neutral words, suggesting that individuals who inhibit hostility are not characterized by lack of fluency with words unrelated to aggression.

Other findings were that, among LA subjects, non-significant trends of the same relationships exhibited in the HA group were obtained. Comparison of HA and LA groups showed that frustrated subjects produced more words of both categories than non-frustrated subjects. That the motivating effect of frustration was more transient for neutral words was seen as consistent with the assumption that greater inhibition accompanies production of hostile words in the presence of the instigator.

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to my wife, a kind but critical listener,
who graciously supported and assisted
in so many ways;

to Joel and Heidi, who were patient when
asked to play elsewhere so that their
Daddy could work on his thesis;

and to Amy, whose smiles were encouraging,
even though she is too young to understand.

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CHAPTER I

INTRODUCTION

The topics of hostility and of verbal functioning have both become the objects of increasing interest among investigators in the last few years. Interest in the area of hostility is indicated by the appearance of several instruments for assessing hostility (Siegel, 1956; Buss and Durkee, 1957; Zaks and Walters, 1959), and by an increasing number of studies with various interests and orientations. Interest in verbal functioning has received impetus from experimental sources in the operant conditioning studies, now being designed to simulate the clinical interview situation (Buss and Durkee, 1958; Sarason, 1961; Babladelis, 1961). From the clinical side, increasing interest centers around both content and style of verbal communication in the therapy hour as well as in personality correlates of verbal behavior in the interview.

The present study is concerned with relationships between the arousal of hostility and a specific aspect of verbal functioning, the continuous production of words in two categories; one related to the expression of hostility, the other neutral with regard to hostility. Major emphasis will be placed on individual differences in the management of hostility as related to verbal functioning in a situation in which hostility has been aroused.

Concepts and Definitions

The terms hostility and aggression are not generally given

precise definition, and are frequently used synonymously. Both terms serve at times to describe either motivational states or overt behavior. In what is probably the most systematic and influential treatment of the subject, Dollard, et al. (1939) define aggression as ". . . an act whose goal-response is injury to an organism (or organism surrogate)". While this definition appears to describe overt behavior, it is clear that in other portions of their work aggression is seen as covert or attitudinal. For example, "Aggression is not always manifested in overt movements but may exist as the content of a fantasy or dream or even a well thought out plan of revenge" (p. 10). The expression of aggression may be inhibited through fear of punishment, and changes in form or object of aggression may occur (p. 44 ff). Implicit here is the assumption that aggression is a relatively enduring state of the organism which, once established may be the antecedent of a variety of consequents. In general usage, the term hostility is frequently applied to the relatively enduring motivational-emotional complex inferred from overt behavior or antecedent events. The terms aggression or <u>hostile behavior</u> refer to overt behavior which is injurious to the interests or well being of others (English and English, 1958).

The term hostility is preferred in the present research, since attention will be focused on responses to situations which are assumed to arouse hostility, but in which overt responses vary in the extent to which they represent hostile behavior. Variations in response to frustration are assumed to reflect

(among other things) characteristic differences between individuals in their control or expression of hostile motivation.

The term management of hostility is employed here to refer to the use of devices which control or regulate the expression of hostile impulses. Such devices are exemplified in the defense mechanisms of denial, repression, projection, and turning against the self. No attempt is made to claim that all differences in the overt display of hostile behavior in the face of frustration are a function of variations in the management of hostility. Individuals may differ in their vulnerability to frustration as a function of constitutional differences and their previous history. Thus Dollard et al. (1939) speak of the number of frustrated response sequences, and Rosenzweig (1945) proposes the concept of frustration tolerance as a significant variable. The notion of ego strength, and the related concept of capacity to delay gratification also imply relatively enduring characteristics of the organism which relate to the outcome of frustration. Rosenzweig also suggests that individuals may have specific areas of vulnerability or low frustration tolerance corresponding to psychoanalytic "complexes."

From the foregoing, it is apparent that a variety of variables may conceivably operate to determine individual differences in hostile behavior. It is here proposed that a central and significant variable in determining reactions to frustration lies in the area of what has been called the management of hostility. The concept of management of hostility is a broad one which includes all the regulatory mechanisms and habitual strategems

relevant to the expression or inhibition of hostile impulses. Also included are the various socially acquired skills of modulating the expression of hostility so as to avoid the censure of the superego and the disapproval and retaliation of others.

The Modification of Hostile Impulses

The development of control mechanisms to regulate hostile tendencies is a prerequisite for social living. Unrestrained expression of hostility is discouraged at an early age within the family, and punished by law in the broader society. In the frustration-aggression theorists' treatment of the expression of hostility, fear of punishment is made one of the primary variables affecting the appearance of aggression. With the internalization of societal standards, and the institution within the personality of a censoring agent, the individual also comes to experience guilt and discomfort from within when his aggression exceeds the bounds of personal standards. Because of the opprobrium with which hostile behavior is regarded, particularly in the middle and upper social classes, various adjustments are made by the individual in his expression of hostility.

One result of society's attempts to discourage open hostility is to make the expression of hostility less direct and more diversified. Open rebellion may give way to a more subtle passive resistance; fantasied revenge may replace direct retaliation, and verbal denunciation may substitute for physical violence. Thus, Siegel (1956, 1957) proposes that people may differ not so much in the amount of hostility they possess, but in the way in which they express it.

A widely recognized contribution to the literature on the management of hostility is that of Rosenzweig (1944). He calls attention to differences in the direction of hostile expressions. The arousal of hostility may eventuate in the expression of aggression outwardly toward the frustrating agent (extrapunitive), inwardly toward the self (intropunitive), or the frustration and hostility may be denied or minimized (impunitive response). The work of Funkenstein and King (1954) and King and Henry (1955) suggests that the concept of the direction of hostility has meaning on the physiological as well as the psychological level. They found that subjects who respond to a stress situation with self-blame or anxiety tend to have an epinephrin-like response on the physiological level, whereas subjects responding with outwardly directed anger have a norepinephrin-like reaction.

In addition to the variety of forms in which overt aggression appears, the presence of social censure or superego prohibitions may effect a displacement of aggression, i.e., a change in the object of hostility. The hostility aroused by a frustrating agent in one situation is not necessarily specific but may be expressed toward individuals in other situations who had nothing to do with the frustration.

The preceding paragraphs indicate that hostile impulses may undergo a variety of modifications both in form and object. These modifications are assumed to result from factors inhibiting the direct expression of hostility.

The Management of Hostility

Whether the individual responds to frustration in an openly

hostile or an inhibited fashion depends on a number of factors both internal and external to the individual. The impulse to aggressively attack the frustrator is countered by fears of his retaliation or withdrawal of love. Situational factors, such as the status and power of the frustrator are potent factors in determining the level of hostile response (Berkowitz, 1959).

Miller's approach-avoidance conflict theory (1944) offers a framework for discussing the expression and inhibition of hostility. The principles of approach-avoidance theory may be briefly stated as follows: Miller posits that the tendency to approach or to avoid a goal is stronger the nearer the subject is to the goal. The strength of avoidance tendencies increases more rapidly with nearness to the goal than that of approach. That is, the slope of the avoidance gradient is steeper than that of approach, so that the two may cross. Further, the strength of tendencies to approach or avoid varies with the strength of the drive on which the tendencies are based. Increased drive raises the height of the entire gradient. In the context of hostility, approach tendencies are based on the strength of hostile drives, and avoidance tendencies are based on fears of retaliation. In the situation where hostile drive and fears of retaliation are of approximately equal strength so that the two gradients cross, a certain amount of hostility may be expressed at some distance from the goal. However, as the goal is approached, the expression of hostility becomes more and more conflictual until the avoidance tendencies become stronger than those of approach, and the subject withdraws. If the level of hostile drive is increased while retaliation remains constant,

the gradient of approach no longer intersects the avoidance gradient, and the hostile behavior is culminated.

In contrast to the psychoanalytic model, Miller's theory, and the experimental evidence he presents to support it, refers almost entirely to external variables in dealing with the expression of hostility. Little attention is given to individual differences in response to the same hostility provoking situation. The present research stresses the fact that individuals vary widely in their responses to frustrating situations. While admitting the effects of the external situation on the expression and inhibition of hostility, we posit that the individual's pattern of responses to frustration are to some extent characteristic of that individual from one situation to another.

In order to account for individual differences in the expression of hostility within Miller's framework, one might posit differences between individuals in their level of hostile drive, or in fears of retaliation, or both. Thus the relative absence of a hostile response to frustration could be determined by either a low level of hostile drive or by a high level of fear of retaliation. The concept of management of hostility assumes the presence of hostility, and places the emphasis on individual differences in fears of retaliation, or aggression anxiety, as determining individual differences in the amount of hostility that is expressed in a frustrating situation.

From a dynamic viewpoint, methods of managing hostility may be divided into two classes: those which permit impulse expression, and those which block the expression of the impulse.

The paradigm of impulse inhibition would be the complete repression of hostility and denial of frustration. Other methods of managing hostility, whether the manifestation is verbal or physical, subtle or obvious, direct or displaced, allow for some degree of impulse expression. A consideration of certain methods of dealing with hostility reveals some difficulties in the assignment of behavior to one of the two classes if these classes are thought of as discrete and mutually exclusive. Theorists disagree as to the drive reducing qualities of fantasied aggression (Feshbeck, 1955; Berkowitz, 1960), and Dollard et al. (1939) assert that self directed aggression is less drive reducing than outwardly directed because injury to the self constitutes additional frustration.

The position taken here is that expression and inhibition of hostility are relative terms which describe the extremes of a continuum. Thus it is possible to speak of a given manifestation of aggression as containing greater or lesser amounts of inhibition. The outcome of exposure to frustration can be placed on the inhibition-expression continuum, with massive repression and denial of frustration at one end, and physical assault on the frustrating agent at the other. Normally, a response to frustration represents a compromise between inhibition and complete expression. This viewpoint is in agreement with dynamic theory, which sees behavior as the outcome of a synthesis between opposing forces.

The behavior of the individual whose typical response to frustration approaches either the inhibition or expression

extreme is considered pathological. The person who fails to exercise some inhibition of aggression comes into conflict with the mores and laws of society and soon attracts the attention of the authorities. Behavior approaching the extreme of inhibition of hostility may be less dramatic, but the consequences to the individual may be just as far reaching. Such a person is handicapped in social relations by his inability to meet his frustrations constructively, to compete effectively, or even to recognize the sources of his frustration.

The basic mechanism involved in the extreme inhibition of hostility is known in psychoanalytic theory as repression. Repression occurs when pain becomes associated with the expression of an impulse, and the motive of avoiding pain becomes stronger than the pleasure of gratification. The essence of repression, according to Freud, "lies simply in the function of rejecting and keeping something out of consciousness" (1959, p. 86). Two phases of repression are distinguished. The inhibition of the ideational presentation of the instinct itself is termed primal repression. The second phase of repression, termed repression proper, has to do with derivatives of the repressed instinct-presentation, such as trains of thought originating elsewhere, which have come into associative connection with the instinct-presentation. The radiation of repression is one of the pathogenic features of this defense. Whole tracts of mental functioning may be withdrawn from effective interaction with the environment, producing a sterile or "pollyannish" personality. Further, the inhibition of aggression is itself frustrating. Thus there develops a vicious circle of increasing hostility

which demands still more energy to prevent its expression and its intrusion upon awareness.

Effects of Inhibition of Hostility on Verbal Functions

The existence of a relationship between inhibiting processes and verbal functions has been postulated by many observers, notably those with a psychoanalytic orientation. In psychoanalytic therapy, a blocking of the flow of free associations is assumed to result from the activation of repressive forces, signaling the approach to highly conflictual material. The effects of repression on the flow of speech in normal conversation have been described by Freud in his Psychopathology of Everyday Life (1938). Disturbances in verbal functioning are held to be particularly related to conflicts over hostility. The stutterer is seen as a hostile person whose speech has an anal sadistic significance. The stuttering reflects the conflict between the expression and inhibition of obscene and hostile impulses (Fenichel, 1945).

Some insight into the nature of the proposed relationship between disturbances in verbal functioning and inhibitory processes may be gained from a consideration of repression as elaborated by Freud. Freud (1959) speaks of repression proper as an "after expulsion" of ideas which were once conscious, but which have been given the connotation of danger either by association with the forbidden instinct or by virtue of an irradiation of the repressed instinct-presentation. Because of the intimate connection of ideation and language, verbal functioning must also be affected by repression. For if ideational elements are eliminated

from awareness through repression, the verbal symbols which serve as vehicles for that ideation must also be involved in the process.

The phenomenon of blocking, the temporary disappearance of a word or name from memory, is cited as a prime example of the manifestation of repressive processes in speech. The speaker is about to recite an incident or mention a name, when he is suddenly stymied by his inability to recall a key word or name. Freud's (1938) analysis of these blockages suggests that language is intricately involved in the course of repression. For in tracing the connection of the blocked (derivative) words to their sources, it is similarities and contrasts in sound and meaning that form the connecting links. Thus it becomes apparent that there is an interaction between repression and language. Not only does repression affect speech, but the peculiarities of language play a part in the formation of the derivatives which are repressed.

In the case of hostile impulses which have undergone the fate of repression, the influence of repression upon speech may be especially pronounced. Social expectations place a strong emphasis on verbal means of expressing hostility in contemporary middle class society. Thus the inhibition and rejection of hostile impulses and ideas becomes, to a great extent, the inhibition and rejection of verbal communication with hostile connotations.

Attempts to investigate these relationships in an experimental setting have been notably lacking. The foregoing analysis however, suggests several hypotheses which are capable of experimental investigation: the individual with excessive repression

centering around hostile impulses may be expected to have at his command relatively few words which are related to the expression of hostility. Should such an individual be placed in a situation demanding the use of hostile words, he would speak less fluently than an ordinary individual. The stimulation of hostile impulses by frustration would presumably have a similar effect, since with the increased cathexis of hostile impulses, greater inhibitory forces must be brought to bear, producing blockages in the flow of speech. It is conceivable that the inhibition of hostility may also have a more general retarding effect on verbal fluency. The necessity for constantly guarding against the expression of hostile tendencies may lead to a continuous verbal screening process, with a resulting drop in the spontaneity and rate of speech.

The present experiment is designed to provide evidence by which some of the above hypotheses may be supported or rejected.

CHAPTER II

MANAGEMENT OF HOSTILITY: RESEARCH FINDINGS

The formulations of Dollard et al. (1939) serve as a reference point for much of the research done on the inhibition and expression of hostility. In their view, frustration provides the necessary and sufficient stimulus for aggression. However, aggression may be inhibited by anticipation of punishment for the aggressive act, the strength of inhibition varying positively with the amount of anticipated punishment. Anticipation of punishment as used in frustration-aggression theory closely approximates the definition of anxiety as a warning signal in psychoanalytic theory (Fenichel, 1945). Predictions of the expression of hostility are complicated by the additional assumption in frustration-aggression theory that interference with aggressive responses is itself frustrating and provides further instigation to aggression.

Effects of Punishment on the Expression of Hostility

The inhibition of selected responses through punishment is amply illustrated in avoidance conditioning studies. In an attempt to simulate the process of repression, Ericksen and Keuthe (1956) demonstrated that it is possible to eliminate pre-selected responses in a word association test by the use of shock, and that the Subject (S) is not necessarily aware of his suppressing responses. An experiment done with pre-school

children illustrates the inhibition of aggressive responses through punishment (Chasdi and Lawrence, 1955). These investigators employed 23 children, placing 12 in an experimentally punished group and the remainder in a control group. Both groups had four doll play sessions, with the experimental group receiving punishment for the expression of aggression in session II. The frequency and intensity of aggression in session III was significantly lower for the experimental group than for the controls. This difference persisted in session IV, but was no longer significant.

A variety of studies with adults consistently find that less hostility is expressed when the frustrator is vested with power and authority than toward lower status frustrators (Cohen, 1955; Graham et al., 1951; Thibaut and Reichen, 1955). Roberts and Jessor (1958) confirm these results, and in addition find that the status of the frustrator has a greater effect on the responses of those receiving high authoritarian scores on the F-Scale than on low authoritarians. Also relevant here is the finding in verbal conditioning studies that the learning rate for hostile verbs is slower when the experimentor is punitive than when he or she is neutral (Binder et al., 1957; Ferguson and Buss, 1960).

The expectation of relationships between parental treatment of hostility and individual differences in the management of hostility has guided several investigators. The findings in this area are illustrative of the complexity of the problem of predicting the inhibition or expression of hostility. McCord and

his colleagues (1961), drawing on extensive materials on 174 non-delinquent lower class boys and their families collected in the Cambridge-Somerville youth project, attempt to identify familial correlates of aggression. Their results indicate that boys classified as aggressive were most likely to have emerged from an environment that simultaneously instilled a high level of aggressive urges and failed to provide conditions for controlling aggression. As compared with nonaggressive boys, the aggressive boys were treated in a more punitive, rejecting fashion, had fewer demands placed on them, and were disciplined in a more inconsistent fashion. Both "over-control" and "under-control" was found in the behavior of the aggressive boys' mothers, whereas the nonaggressive boys were likely to be normally controlled or "overcontrolled."

Sears and his colleagues (1953) argue that frequent punishment for hostile behavior produces aggression anxiety which interferes with the expression of aggression. But inhibition of the aggression is itself frustrating, and results in a still higher level of hostile drive. Thus, severity of punishment may be positively related to the amount of expressed aggression. In confirmation of this line of reasoning, Sears and his colleagues (1953) found that mothers' statements of how punitive they were regarding the expression of aggression correlated +.50 with teachers' ratings of aggressiveness in 21 nursery school boys, and +.60 with the observed frequency of aggression. For the 19 girls in this study, however, there was a negative relationship between strength of maternal punishment and observed aggression

in the nursery school. Their data also suggest that severity of punishment for aggression has a curvilinear relation with the amount of aggression displayed in the nursery school. A moderate amount of punishment is associated with a high level of aggressive behavior, while both greater and lesser amounts produce less overt aggression. In a more extensive study (Sears et al., 1957), including 379 boys and girls, measures of parental punishment and children's aggression in the home were derived from interviews with the mothers. In this study, the amount of reported aggression in the home was found to be related positively to both the amount of punishment received and the amount of permissiveness by the parents. This relationship held for both sexes. A report of a recent follow-up study of 160 of these younsters at age 12 (Sears, 1961) presents further complications. Data collected by means of a self report rating scale yielded negative correlations with reported severity of parental punishment for both sexes. Sears summarizes the various relationships as follows: "For both sexes, high punishment for aggression in the first 5 years of life was associated with a high level of reported aggression in the home, but at age 12 it was associated with a low level of anti-social aggression. In boys, at both ages, high permissiveness was associated with high aggression; in girls this effect was clearly evident only at the earlier age, with a mere suspicion of it at the later" (1961, p. 478).

While all of these studies demonstrate relationships between parental punishment of aggression and the management of hostility, the obtained correlations are by no means consistent.

Punishment by itself is not predictive of the inhibition or expression of hostility. Other factors, such as the amount of frustration present in the home, the consistency of punishment for aggression, permissive or restrictive attitudes toward the child, the setting in which aggression is measured, the objects of aggression, and the method by which aggression is measured must also be taken into account in predicting the management of hostility. The results also indicate that relationships between punishment and the management of hostility may be quite different for boys than for girls. Sears and his colleagues (Sears et al., 1953, Sears, 1961) offer explanations for these sex differences, but it will not be necessary to detail them here. The studies of parental punishment and children's aggression may be said to agree with the proposition that punishment may serve the dual function of interfering with aggressive acts and providing further instigation to aggression. The difficulty is that the studies provide little information as to when and why one or the other outcome occurs.

The variable of parental attitudes toward aggression has been applied with some success to the perennial problem of predicting overt aggression from performance on projective tests. Lesser (1957) found a significantly positive correlation between fantasy aggression on a modified TAT and overt aggression as indicated by peer ratings for 23 elementary school boys whose mothers, on a questionaire, indicated that they were relatively supportive of aggression. For the 21 boys whose mothers were relatively discouraging of aggression there was a significant negative

relationship between fantasy and overt aggression. Similarly, contending that controls on overt aggression are more lax in lower class families, Mussen and Naylor (1954) find a significantly positive relationship between overt aggression and number of aggressive TAT themes for a sample of 24 lower-class juvenile delinquents, as predicted. These authors also found some support for the hypothesis that fear of punishment as reflected in the TAT is associated with less overt aggression. The above findings are in contrast to the studies which fail to find a predicted positive relationship between fantasy and overt aggression (Gluck, 1955; Kagan, 1956). Both Gluck and Kagan suggest that the variable of aggression anxiety, which went largely uncontrolled in their studies, may account for discrepancies between amount of fantasy and overt aggression.

Anxiety and the Management of Hostility

It is generally accepted that the frequent association of punishment with the expression of hostility leads to the anticipation of punishment or "aggression anxiety" when hostility is aroused. Most theorists also agree that aggression anxiety may inhibit acts of aggression, although there is some disagreement as to the role of anxiety as the principle factor in the reduction of aggression (Berkowitz, 1958; Feshback, 1955). There are several lines of evidence to indicate that the inhibition of aggression is associated with anxiety.

In a study employing physiological procedures (Funkenstein and King, 1954), 69 male college students were subjected to frustration

and their reactions were studied by means of ballistocardiograph and blood pressure measures. Tape recordings taken of a subsequent interview served as the basis for classifying the Ss' psychological reactions to frustration as; "anger out," "anger in," "anxiety," or miscellaneous. The various psychological responses were found to be related to the type of physiological response. Most of the "anger out" Ss responded in a manner similar to the reaction to noradrenalin, whereas the reaction of the "anger in" and "anxiety" Ss were similar and resembled the physiological response to the injection of adrenalin ($p < .001$). These findings are replicated in a rather inadequately reported study by King and Henry (1955) with 111 male college Ss. Vander Linde's (1955) finding of increased physiological tension among migraine patients, who inhibited aggression when subjected to frustration, also confirms that the inhibition of aggression is accompanied by anxiety indicators.

In the follow-up study of 160 12 year old children mentioned earlier, Sears (1961) also concerned himself with the antecedents of aggression anxiety and with its relation to antisocial aggression. His self-report questionaire was constructed to yield separate scores for aggression anxiety and antisocial aggression. Correlations with child rearing variables at age five confirmed the predictable effect of punishment as a determiner of aggression anxiety in girls, who also scored higher on aggression anxiety than the boys. Nonpermissiveness of aggression toward the parents was associated with aggression anxiety in both sexes. In boys, withdrawal of love by the parents was associated with aggression

anxiety, but punishment for aggression was not. Sears suggests that the development of aggression anxiety proceeds along quite different lines in the two sexes. His interpretations of the obtained sex differences appear to be carried far beyond his data, however, and there is no recognition of the possibility of obtaining the significant correlations of aggression anxiety with some of the 22 measures of child rearing antecedents merely by chance. The intercorrelation of antisocial aggression with aggression anxiety on the questionaire at age 12 is more substantial, however (-.33 for boys, -.48 for girls), and offers confirmation of the association of anxiety with the inhibition of aggression.

In a correlational study which pertains to the association of anxiety with the inhibition of aggression, Goodstein (1954) hypothesized a negative relationship between anxiety measures on the group Rorschach, Manifest Anxiety Scale (MAS), and Iowa Multiple Choice Picture Interpretation Test (IPIT) and hostility measures of the group Rorschach and IPIT for 57 college students. The predicted relationship was found between anxiety scores on the MAS and Rorschach hostility. However, no significant relationship existed between anxiety and hostility as measured by the IPIT, nor were the Rorschach measures on anxiety and hostility inversely related. The low intercorrelations among the anxiety measures suggests that in a study of this kind, an attempt should be made to confine measurement specifically to aggression anxiety.

A few studies directly incorporate the variable of aggression anxiety in relating fantasy productions to overt aggressive behavior. The results of the study by Mussen and Naylor (1954)

on the TAT performance of delinquents, cited earlier, are pertinent here. Among their juvenile delinquents, those ranking lowest in ratings of overt aggression showed greatest fear of punishment on the TAT. Prediction of overt aggression from the TAT was enhanced when both fantasy aggression and fear of punishment were taken into account. Purcell (1956), comparing 57 soldiers with high, middle and low ratings of behavioral aggression, found that the antisocial Ss produced a significantly larger number of undisguised fantasy aggressions on the TAT, and also significantly fewer themes of anticipated internal and external punishment. He emphasized that the same attention must be given to repressive, inhibitory forces manifested in the data as to the impulse or drive system.

In an attempt to establish that frustration is followed by increased punishment expectancy, Crandall (1951) randomly assigned 30 male college Ss to frustrated and control groups. The increase in punishment expectancy as reflected in the TAT was significantly greater for frustrated than for control Ss. These findings are in agreement with the generally accepted notion that in the socialized adult, the internalization of societal standards (superego formation) results in internal controls which make for the inhibition of tabu impulses even in the absence of external controls. Accordingly, we should expect that, with the instigation to aggression held constant, individuals characterized by strong internal controls on hostility should express less overt hostility than those with more lenient controls.

Individual Differences in the Management of Hostility

Vander Linde's (1955) study of the management of hostility in migraine headache patients is an example of successful prediction of differential response to frustration based on a knowledge of characteristic internal controls. On the basis of the literature on the psychosomatics of migraine postulating that migraine-prone individuals characteristically suppress their hostility, Vander Linde predicted that his 26 migraine patients would exhibit greater physiological stress and less verbal expression of hostility in response to frustration when compared to a control group similar except for the absence of a history of migraine headache. In confirmation of his hypotheses, the experimental group exhibited significantly greater muscular tension and a faster heart rate following frustration. The experimental group also gave significantly fewer aggressive responses on the Rosenzweig Picture Frustration Study and on a post-experimental questionaire than did the controls. A feature lacking in most studies, but of real interest here, is that aggression was assessed both before and after frustration by means of equated halves of the P-F Study. The differences in response to aggression highlighted by this technique were striking. Out of 26 control Ss, 22 gave an increased number of extrapunitive responses following frustration, whereas only 4 of the 26 migraine patients gave more extrapunitive responses after frustration than before ($p < .01$). Interestingly enough, the experimental group produced slightly more extrapunitive responses than the controls before they were subjected to frustration. Assuming that migraine-prone

individuals are characterized by a high level of aggression anxiety, the results of this study are in agreement with the concept of aggression anxiety as a significant inhibiting variable for the expression of hostility. This assumption is given credence here by the finding of relatively greater physiological signs of tension in the migraine group during frustration.

A recent study by Veldman and Worchel (1961), employing 80 male college Ss, also attempted to predict individual differences in the management of hostility in a frustrating situation. Drawing on Rogers' self-concept theory, the authors describe four types of personalities and predict different responses to frustration accordingly. Measures of self and ideal self discrepancy (SI), and of defensiveness as indicated by performance on the K scale of the MMPI, served as a basis for categorizing the Ss in one of the four personality types. Four groups of 20 Ss were thus obtained: low defensive, low SI (adjustive); high defensive, low SI (repressive); low defensive, high SI (anxious); and high defensive, high SI (distorters). The Ss were subjected to a frustrating "intelligence test," involving failure, distraction, and insult. Dependent measures of aggression and aggression anxiety, assessed by self report rating scales and sentence completion items, were obtained immediately for half of the Ss and after a 20-minute interpolated neutral task for the others.

Predictions of differential response to frustration were in general, supported by the results. The adjustive Ss expressed the strongest feelings of anger and the repressive group the least.

In the delay condition, the repressive group received the highest aggression anxiety scores, and was the only group that increased in aggression anxiety after delay, suggesting that in time these Ss became somewhat aware of their hostile impulses. The High SI group displaced more hostility than the low SI Ss, as predicted. These results, together with those of Vander Linde offer support for the notion that different methods of managing hostility exist, and that they are measureable and predictable.

"Test Hostility" and Response to Frustration

The studies reported thus far testify to the importance of both suppressive and impulse or drive factors in predicting hostile behavior. The level of hostility displayed presumably varies from one situation to another as a function of the balance between these forces. There is some evidence to indicate that results obtained from tests of hostility in a neutral situation offer little clue to the level of hostility displayed subsequently in a frustrating situation, and that individuals displaying little "test hostility" may actually react with greater than average aggression when frustrated. The results of a study by Hokanson and Gordon (1958), utilizing Miller's approach-avoidance conflict framework are illustrative. In this study, half of a group of 40 male college Ss representing extreme scores on Siegel's Manifest Hostility Scale (MHS) were placed in a high hostility arousal situation and half in a low arousal situation. Ss were then permitted to express hostility in fantasy (TAT) and overtly (shocking the E for wrong predictions about S on a personality test). The situations for expressing hostility also varied in

their stimulus value for evoking hostile responses. Predictions were that low test hostility (on MHS) Ss would manifest a net decrease in hostile expression both in fantasy and overtly as arousal conditions for hostility increased, and that high test hostility Ss would increase their expression of hostility with greater arousal. Results showed significant differences in the direction opposite of that predicted for fantasy aggression, with no significant differences for overt aggression. Thus the low test hostility Ss showed a significantly increased amount of fantasy aggression when aroused, while high test hostility Ss showed a significant decrease. These results are comparable to those obtained by Thibaut and Coules (1952), who found that initially hostile Ss, after receiving an insulting note, communicated a significantly smaller amount of aggression to the supposed insulter than the initially friendly Ss who were insulted. The findings of Vander Linde (1955) cited earlier are similar. His migraine patients gave slightly more extrapunitive responses than the controls prior to frustration, but following frustration most of the controls became more extrapunitive while the migraine patients did not.

Berkowitz (1960) succeeded in replicating the results of Thibaut and Coules and Hokanson and Gordon, utilizing male college Ss in pairs, ostensibly with the purpose of investigating first impressions. The degree of instigation to aggression was varied by means of a standard set of false notes substituted for those written by the Ss. The results showed that Ss scoring high on Siegel's MHS initially displayed significantly more hostility in

their communications, but that after insult, the low test hostility Ss increased their hostility more than the high test hostility Ss.

The consistency of these results prompted Rosenbaum and Stanners (1961) to attempt a replication with the difference that the S was subjected to personal attack in contrast to the indirect arousal procedures of the other studies. The results failed to confirm the previous findings, as Ss high in manifest hostility also expressed more aggression on the TAT when aroused, and in the low arousal situation, no differences were found between high and low test hostility Ss. The authors suggest that the discrepancies between their results and those of the earlier studies reflect procedural differences, particularly, the use of direct insult which aroused stronger hostility than the indirect methods of arousal.

Berkowitz (1958, 1960) and Hokanson (1961) have attempted to provide a theoretical rationale for the results they obtained. Following Sears (1953), Hokanson assumes that frequent or intense punishment for aggression produces aggression anxiety which inhibits aggressive acts, but that this inhibition constitutes additional frustration. Thus the person characterized by a high level of anxiety over aggression may actually have a higher level of hostility than those with less aggression anxiety, and may score higher on tests of hostility taken in a non-threatening situation. When faced with a situation where hostility is aroused, however, aggression anxiety is also aroused and little overt aggression appears. In a test of this interpretation, Hokanson

(1961) subjected high and low test hostility Ss to insult and failure, and found that high test hostility Ss showed significantly greater physiological signs of anxiety (systolic blood pressure and GSR increases) than low test hostility Ss, thus confirming his hypothesis that high test hostility Ss manifest greater aggression anxiety when aroused. Since the arousal procedures used in this study appear no less direct and intense than those employed by Rosenbaum and Stanners, little support is found for the explanation of their discrepant results as due to procedural differences.

While the findings are not completely consistent and no fully satisfactory explanation has been advanced for all the results obtained, the discrepancies between "test hostility" and response to frustration revealed in these studies have significant implications. We may conclude that performance on tests of hostility in a conventional setting is not necessarily representative of performance in situations where hostility is aroused. The traditional expectation of a positive correlation between test hostility and aggressive response to frustration appears to be unfounded. In some cases there may even be a negative correlation.

All of this suggests that certain precautions should be observed when attempting to identify individual differences in the management of hostility. In order to separate those who inhibit hostility from those who express hostility when frustrated, it is not sufficient to rely on measures of hostility taken in a neutral situation. The individual's test performance when

frustrated would seem to conform more closely to other indications of his management of hostility in a frustrating situation than test performance in a conventional testing situation. The ideal means of detecting the individual's method of managing hostility would be to secure measures of hostility before and after frustration. The pre-frustration measures provide a means of controlling for individual differences in level of hostile drive. Increases and decreases in the level of hostility displayed after frustration as compared with pre-frustration measures would then reflect the use of expressive or suppressive methods of managing hostility respectively. Experimental support for the validity of this approach is found in Vander Linde's study (1955), in which migraine patients did not differ appreciably from controls in the amount of extrapunitive aggression prior to frustration. When pre- and post-frustration tests were compared, however, significantly fewer of the migraine group increased in extrapunitiveness, as demanded by the hypothesis. In addition, the pre- to post-frustration changes also agreed with other indications of differences in the management of hostility in the two groups; the migraine group was significantly less hostile on a post-experimental questionaire, and exhibited significantly more physiological tension (aggression anxiety?) during and after frustration.

CHAPTER III

MANAGEMENT OF HOSTILITY AND VERBAL FUNCTIONS: RESEARCH FINDINGS

The research areas included in this section of the review are scattered and varied. There is little research bearing directly on the topic of management of hostility as it relates to verbal functioning. However, each of the studies reviewed below has some contribution to make.

Management of Hostility and Performance of Intellectual Tasks

Under the assumption that aggression anxiety produces responses which interfere with the expression of aggression, we should expect the effects of frustration to very with the strength of interfering responses. That such interfering responses can have inhibitory effects on behavior other than aggression is suggested in a study by Child and Waterhouse (1953). In their study, the effect of frustration for college students whose response to a rating scale indicated the presence of interfering responses following frustration, was to produce a slight decrement in performance on an intelligence. Among "low interference" Ss, the frustration produced a significant increase in performance. Comparable findings are reported by Sarason (1961), also among college students. Sarason was concerned with relationships between various measures of anxiety and performance on difficult anagram tasks under conditions of threat and no threat. He found that high anxious subjects as classified by scores on the Test Anxiety Scale and Lack of Protection Scale,

when threatened, performed at a significantly lower level than low or middle anxious Ss. Under conditions of no threat, these relationships were reversed. These studies suggest the presence of relatively enduring individual differences in patterns of response to frustration, and further, that these differences may be linked to the operation of anxiety. Of significance for our purposes is the finding that patterns of response to frustration have implications for broad areas of intellectual functioning.

The findings of Lantz (1945), who tested nine year old children under conditions of frustration and no frustration, suggest that the general effect of frustration is an inhibition of verbal associations. In this study, the task of "naming all the words you can think of" was more disturbed by frustration than any of the other subtests on the Stanford-Binet Intelligence Test. Unfortunately for our purposes, this study did not attempt to discover whether the disruptive effect varied with the individual's pattern of reaction to frustration, as in the studies by Child and Waterhouse, and by Sarason.

Depression and Verbal Productivity

The verbal behavior of individuals in states of depression is relevant to our topic if we accept the interpretation of depression as indicating the presence of guilt or internalized hostility. That depressed states are frequently associated with diminished verbal activity or even muteness is indicated in clinical and textbook descriptions of depression. Also, reduced responsiveness and increased reaction time on the Rorschach is

taken as one of the signs of depression (Beck, 1949; Klopfer et al., 1954). Welch and his colleagues (1946) compared elated and depressed patients of all classifications on the number of associations given to nonsense syllables. The depressed patients were significantly less productive than the elated patients, with almost no overlap between the groups. Compared with the association scores of normals obtained from previous data, depressed patients were below the mean for normals in verbal productivity. Thus, there is some evidence that extreme inhibition and internalization of aggression, as exemplified by depression, is associated with lowered verbal output.

Management of Hostility and Verbal Behavior of Psychotherapists

The expanding literature on verbal behavior in psychotherapy provides further data on the management of hostility and verbal functioning. Bandura (1956) reports a significant negative relationship between ratings of the therapist's anxiety over hostility and psychotherapeutic competance. In a second study (Bandura et al., 1960), this relationship is made more explicit. Twelve therapists in training were rated by their supervisors as to their characteristic way of managing hostility. More than one hundred taped interviews from 17 patients were then analyzed, and the therapists' responses to hostile statements made by patients were scored as approach or avoidance responses. In support of the hypotheses, it was found that therapists who typically expressed hostility directly and had low needs for approval were more likely to recognize and encourage the communication of hostility than therapists who did not express direct

hostility and who had high needs for approval. Therapists who were rated as characteristically inhibiting hostility and sensitive to social disapproval tended to avoid hostility expressed by the patient by remaining silent, by ignoring or mislabeling the hostility, or by changing the topic. The effect of this avoidance by the therapist was a stifling of further communication of hostility or a change in the object of hostility. These findings suggest that anxiety over the expression of hostility is associated with avoidance of verbal materials associated with hostility.

Anxiety and Verbal Functioning

Somewhat further removed, but still relevant to the purposes of this review are several recent studies which deal with relations between anxiety level in psychotherapy and verbal functioning. Mahl (1956) reports the development of a measure of speech disturbance which includes sentence incompletions, corrections, repetitions, stuttering, omission of words, and repetition of "ah." He found this measure of speech disturbance to vary positively with anxious-conflictual phases of the therapy hour as judged by the author for two of his patients. Boomer and Goodrich (1961) attempted to replicate Mahl's findings with different judges, and found a satisfactory inter-rater reliability for the speech disturbance measure. However, a significant relationship between anxiety and speech disturbance was obtained for only one of the two therapist-judges. When five experienced clinicians other than the patients' therapists were used to judge the patient's anxiety level during the interview, no significant relationships

between anxiety and speech disturbance were obtained.

In a slightly different approach, Panek and Barclay (1959) related speech disturbances in therapy patients to emotional arousal as indicated by GSR deflection. They used tape recordings and synchronized GSR recordings on four clients with four interviews each. Dividing the interview into intervals of 30 seconds, they found a significantly positive association between speech disturbance and emotional arousal. Dibner (1956, 1958), working with a similar measure of speech disruption, provides some evidence for regarding speech disruption as indicative of transient anxiety, but failed to find a significantly positive relation between speech disruption and skin conductance measures. This discrepancy from Panek and Barclay's results may be due to differences in units of measurement. Dibner's GSR measures were based on mean changes during the interview, whereas in the Panek study, momentary changes were recorded. The more gross comparisons of five minutes reported by Panek and Barclay also failed to show a significant association between skin conductance and speech disturbance. While the evidence is far from conclusive, these studies lend some support to the hypothesis that transient anxiety is accompanied by disturbances in verbal functioning. This conclusion is of importance to our interests if we assume, from our discussion in the previous chapter, that the inhibition of aggression is associated with aggression anxiety. On this basis, the individual who inhibits aggression may be expected to show disturbances or non-fluencies in speech when frustrated.

The studies reported up to this point agree to some extent in showing that the presence of anxiety is associated with lowered verbal productivity and inefficiencies in verbal functioning. There is some evidence, however, to show that anxiety may sometimes facilitate rather than inhibit verbal productivity. Davids and Eriksen (1955), operating from a Hullian framework, test the hypothesis that high anxiety Ss produce a greater number of associations to stimulus words than low anxiety Ss. In support of this hypothesis, they found a significantly positive correlation between scores on the Manifest Anxiety Scale and productivity of associations for 40 male college students. The authors also show that the relationship was not due to mutual correlations of their measures with intelligence.

In a recent series of studies, Kanfer (1958, 1959, 1960) has attempted to show that momentary anxiety increases the rate of verbal responding. In his first study, Kanfer found that the effect of a warning signal preceding a noxious shock was to increase the rate of continuous verbal responding, suggesting that anxiety (of a certain type) and verbal production are compatible and not competing responses. In a second study (1959), 20 college students were asked to talk for four minutes on each of five topics which were assumed to vary in amount of anxiety aroused. No group differences were found between topics, nor were there any significant differences in verbal rate for groups of Ss rated well-adjusted or poorly adjusted. However, on two of the topics (family relations and sex), poor adjustment ratings correlated positively and significantly with verbal rate, in

support of predictions. The third study (Kanfer, 1960) employed 36 recently hospitalized female psychiatric patients. The design called for an investigation of relationships between verbal rate, content (topics), and eyeblink rate in experimental interviews. In addition, MMPI scores were obtained, and each S was rated by a psychiatrist on the degree of conflict in each of the four topic areas. Contrary to findings in the previous study, verbal rate was found to differ significantly across topics. The highest rate was found on the topic "reasons for hospitalization," the topic chosen *a priori* as most anxiety provoking. Eyeblink rate did not differ significantly from topic to topic, contrary to the hypothesis, although the predicted positive correlation between psychiatric ratings of conflict and blink rate was obtained. The author considers his findings as supportive of his major hypothesis, although the evidence is far from convincing. No evidence is presented to support the selection of "reasons for hospitalization" as the most conflictual topic, nor do the psychiatric ratings and eyeblink data suggest that this is the case. Furthermore, no attempt is made to equate the topics on the supply of words appropriate to each topic, a variable of considerable importance in determining rate of verbal response (Bousfield, 1944). The negative correlations obtained in this study between the clinical scales of the MMPI (including the anxiety scale) and verbal rate are contrary to the findings of Davids and Eriksen (1955), and offer some support for the position that general anxiety is associated with a *lowered* rate of verbal responding in an interview situation.

The studies relating anxiety to verbal functioning offer somewhat contradictory results. It appears that anxiety is sometimes associated with increased verbal productivity (Davids and Eriksen, Kanfer), and sometimes with non-fluencies and disturbances in speech (Mahl, Dibner, Panek and Barclay). These findings would not be discrepant if it could be shown that increased verbal productivity is compatible with an increase in speech disturbances. However, an inspection of data presented by Wagner and Williams (1961), who employ both output and speech disturbance measures, suggests that these measures are indeed inversely related. One way of reconciling these findings, if we accept their reliability for the moment, is to assume that at lower levels, anxiety has a facilitating effect, but that as anxiety is increased it comes to have an inhibiting effect on verbal functions. It is not immediately apparent, however, that the Mahl, Dibner, and Panek studies employed higher levels of anxiety than those of Kanfer and Davids and Eriksen. The evidence is far from complete, and more conclusive formulations of the relationship of anxiety and verbal functioning will have to be deferred, pending a more systematic investigation of this area.

Newcomb's Hypothesis of Autistic Hostility

As we have seen, few studies in the research literature deal directly with relationships between the management of hostility and verbal functioning. Newcomb's (1947) concept of autistic hostility bears on our problem, but has thus far received only incidental experimental investigation. Newcomb posits that the arousal of hostility frequently creates barriers to further

communication (autistic hostility). As a result, the hostile attitude becomes persistent because the blocking of communication (either totally by withdrawal, or partially by avoiding the sensitive topic) prevents alterations in the relationship. This withdrawal from communication can also function as a means of expressing hostility, as in the case of snubbing.

Thibaut and Coules (1952) present findings partially supporting Newcomb's hypothesis. On the basis of their initial description of their assigned co-workers, 41 college students who served as Ss were categorized as initially friendly or initially hostile. The initially hostile Ss produced a significantly smaller volume of written communication to their partners prior to insult as well as after receiving an insulting note. Also in line with expectations from Newcomb's hypothesis, the novice therapists studied in the previously cited study (Bandura et al., 1960) tended to avoid responding to their patients' hostile remarks when these attacks were directed against the therapist himself. When the patients' attacks were less direct, the therapists with high aggression anxiety continued to avoid the patients' hostility, while those with less anxiety tended to encourage further communication of hostility. These findings suggest the presence of relatively stable individual differences in the degree to which individuals respond to hostility by the avoidance of communication.

Measurement of Verbal Functions

The settings and samples employed in the studies reported in this section of the review are varied. Considerable variation

also exists in the measures of verbal functioning. Several studies utilize naturalistic observation of change in verbal behavior as it relates to indices of emotional arousal in the therapy hour (Mahl, 1956; Boomer and Goodrich, 1961; Dibner, 1956, 1958). Somewhat more control is offered in the studies which create an experimental interview situation and attempt to vary the arousal value of the topics (Kanfer, 1959, 1960). However, the measures of verbal rate obtained in such studies offer no indication of the relative efficiency of verbal functioning, as the S may be avoiding the issue or repeating himself. Only one study (Lantz, 1945), done with children, investigates the effects of experimental frustration on verbal productivity. Other studies which employ experimental frustration along with individual difference measures of intellectual functioning (Child and Waterhouse, 1953; Sarason, 1961) offer suggestive evidence that the effects of frustration varies significantly among individuals. However, these studies did not use verbal functions as the dependent variables.

In investigating the effects of frustration on verbal functioning, there are obviously many aspects of verbal functioning which could serve as dependent variables. The study of samples of verbal behavior obtained from interviews offers some advantages in being similar to real life situations. The use of psycholinguistic measures (Dollard and Mowrer, 1947) also involves a more or less spontaneous verbal sample such as the interview provides. However, the interview, by its very nature, involves some loss of experimental control. Even in the "experimental interview" in which the S is asked to talk for a period of time

on specified topics, there is no way of insuring that he confines himself to the area of interest to the experimenter. Thus the S who produces words in great quantity may merely be adept at "beating around the bush." Such behavior is a defensive maneuver commonly seen in therapy clients and is a skill not unknown in other settings.

A form of verbal behavior which offers somewhat greater experimental control, while still allowing the retention of an interpersonal situation, is that of continuous production of words within a restricted category. This is a readily quantifiable form of verbal behavior, and one which has received the attention of previous investigators (Bousfield, 1944; Bousfield and Sedgewick, 1944). By specifying the category of words to be produced (e.g., words used to convey hostility or dislike), the experimenter can study verbal productions in areas of specific interest, with some assurance that the S confines himself to the selected area. The total number of appropriate words produced in a standard unit of time thus offers a measure of effective verbal functioning within a given area. The use of individual experimental sessions, and oral rather than written production of words, provides the essential elements of an interpersonal situation, a necessary feature if there is any intention to interpret the findings in terms of interpersonal dynamics.

Management of Hostility and Verbal Productivity: a Pilot Study

Data bearing directly on the relation of the inhibition of hostility and verbal fluency was gathered by the author in a pilot study. In this study, 14 college males were asked to

produce words in neutral categories (US cities and words ending in a-t-i-o-n) and in a category related to hostility (words which might be used to describe someone whom one hates or dislikes). Following these tasks, the experimenter related in an insulting and disparaging manner so as to provide instigation to hostility. The S was then asked once again to produce words in a neutral category (a-t-i-o-n words) and in a hostile category. At the conclusion of these tasks, further insulting remarks were made and the S was then asked to complete the Rosenzweig Picture-Frustration Test according to standard instructions. The total number of extrapunitive responses (TES) on the P-F Test served as a measure of the degree of inhibition and expression of hostility. The general hypothesis was that the level of inhibition of hostility is related to verbal fluency. Specifically, it was predicted that the TES would be positively related to verbal fluency measures both in a conflict-related area and in areas unrelated to conflict. Another hypothesis was that stimulation of hostility would differentially affect Ss who inhibit and Ss who express hostility. Specifically, low TES Ss were predicted to show smaller gains from Pre- to Post-Insult than High TES Ss.

In analyzing the data, the Ss were ranked according to their performance on the verbal fluency tasks and on their TES. The rank order correlations of extrapunitive scores with the various measures of verbal productivity are presented in Table 1. This table also shows the order in which the verbal tasks were presented.

Table 1

Rank Order Correlations of TES with Measures of Verbal Productivity (N = 14)

	Pre-Insult		Post-Insult	
U.S. Cities	Hostile Words	a-t-i-o-n Words	Hostile Words	a-t-i-o-n Words
-.11	.16	.52*	.58*	.55*

*Significant at the .05 level.

An additional analysis was carried out concerning the gain in verbal productivity from pre- to post-insult. The Ss were divided on the basis of the TES into high-inhibition and low-inhibition groups, with seven Ss in each group. The gain in number of words produced in each category was combined to yield a "total gain score," and these scores were ranked. (Gain scores for the separate categories could not be used because of too many tied ranks.) The Mann-Whitney U test was applied to the rankings and the results permit the rejection of the null hypothesis at the .036 level. These findings provide support for the hypothesis that stimulation of hostility has a predictable differential effect on verbal productivity. The verbal production of hostile inhibitors is diminished relative to hostile expressors.

The results bearing on the effects of inhibition of hostility on verbal productivity in areas unrelated to the area of conflict are equivocal. The TES measures are unrelated to the production of names of US cities, as indicated by the non-significant correlation of -.11. However, significant correlations were obtained

with the production of a-t-i-o-n words both before and after insult. The suggested interpretation is that an activation of conflict and anxiety was produced in the inhibited Ss first by the task of reciting hostile words, and secondly by the stimulation of hostility in the insult situation. The stronger anxiety in the inhibited Ss resulted in diminished productivity. Thus, verbal fluency in neutral areas may be affected only when conflicts are activated. This activation may occur by directly stimulating hostility through frustration and insult, or less directly by the production of words with hostile connotations. It is obviously necessary to vary the order of hostile and neutral words systematically, and to vary conditions of frustration independently in order to test this interpretation.

A similar interpretation would seem applicable regarding the correlations obtained between hostile words and the TES. Prior to the experimental stimulation of hostility there appears to be little relation between inhibition of hostility and production of hostile words, as indicated by the correlation of .16. At this point the Ss task may be viewed somewhat dispassionately by him, since it does not involve his current emotional state. It is after the stimulation of hostility that the effects of inhibition on production of hostile words becomes evident. Here the task of producing hostile words becomes emotionally congruent for those who express hostility relatively freely, but increasingly conflictual for those whose defenses inhibit the expression of hostility. When challenged to produce more hostile words after the insult, the expressors seemed to respond with some

enthusiasm, while the inhibitors appeared to cringe from the task. The findings here are not unlike those of Hokanson and Gordon (1958), Berkowitz (1960), and Vander Linde (1955) reported earlier. In the initial or test taking situation (here the pre-insult situation), the Ss who later demonstrate the ability to aggress when frustrated are not distinguished by high scores on indices of aggression, and may even receive low scores. With the introduction of genuine motives for aggression, those who were able to express their hostility received high scores on the P-F Test and also produced more hostile words than those whose scores on the P-F Test indicated an inhibition of hostility.

The difficulty in the preceding interpretations is that it is assumed that while conflicts in the production of hostile words prior to frustration are not strong enough to produce differential effects on hostile word production, the resulting anxiety did produce differential effects in inhibitors and expressors on the subsequent neutral task. In order to avoid a contradiction, an additional assumption must be made, that of a guilt reaction which occurs during and after the production of hostile words. This guilt becomes stronger among inhibitors and interferes with the succeeding task of producing a-t-i-o-n words, but has not develped sufficient strength during the production of hostile words to inhibit hostile word production. This interpretation finds some support in the study by Veldman and Worschel (1961) who found that repressive subjects increased in anxiety during a waiting period following frustration and insult.

The data of this pilot study certainly do not permit the assertion of the above conclusions and interpretations with any

degree of confidence. More questions are raised than answered by the data. Still, the correlations obtained between individual differences in the management of hostility and verbal fluency offer encouraging support for the line of thinking developed in this review. The introduction of frustration was found to be a means of producing predictable differences in verbal functioning.

CHAPTER IV

THE PROBLEM, HYPOTHESES, AND METHOD

THE PROBLEM

It is the purpose of this research to investigate relationships between the variables of frustration, individual differences in the management of hostility, and verbal productivity in neutral and hostile word categories. Underlying the plan of this research are several general assumptions:

1. Individuals react quite differently to objectively similar frustrating situations.

2. The patterning of responses to a frustrating situation are to some extent characteristic for the individual.

3. These response patterns may be ordered on the dimension of expression vs. inhibition of hostility.

The general thesis of this investigation is that the effects of frustration on verbal productivity are variable, depending on the individual's characteristic mode of managing the hostility engendered by frustration.

HYPOTHESES

Psychoanalytic formulations of the processes involved in the inhibition of forbidden impulses have suggested that the inhibition of hostility is accompanied by a relative inability to produce words associated with the expression of hostility.

This same prediction can be made from a learning theory viewpoint. Assuming that frequent punishment for aggression has produced the response pattern of inhibiting aggression in frustrating situations, it is to be expected that verbal responses related to the expression of aggression should also be inhibited either as a result of having been punished directly, or by response generalization, or both.

The results of the pilot study indicated that differences in verbal output of groups designated as high and low inhibitors of hostility were maximized following frustration. These results were predicted from psychoanalytic theory on the basis of Freud's assertion that a heightened cathexis of the repressed instinct presentation elicits anxiety and greater counter-cathectic forces which normally reduce the likelihood of a derivative gaining consciousness. Another way of viewing the problem is in terms of Miller's approach-avoidance conflict theory as applied to individual differences in the management of hostility. In this framework, the avoidance gradient of the S who responds to the experimental frustration with relatively little aggression is more elevated than that of the S who responds aggressively. Upon the arousal of hostility, he soon reaches the point where avoidance tendencies based on fears of retaliation become stronger than aggressive approach tendencies. Aggression anxiety, and the resulting avoidance tendencies, may be assumed to interfere with verbal production, particularly when the words are those which connote aggression. Thus it is to be expected that upon the arousal of hostility, the individual inhibiting hostility will

be at a disadvantage in producing hostile words.

On the basis of theoretical considerations, and from the results of the preliminary investigation, therefore, the first hypothesis can be stated as follows:

Hypothesis 1: Upon exposure to an hostility-arousing situation, individuals identified as inhibiting hostility produce fewer hostile words in a standard unit of time than individuals who tend to express hostility.

The results of the pilot study indicated that, following frustration, the production of neutral words was inhibited as well as that of hostile words in the subjects who inhibited hostility. These results are predicted from the assumption that the interfering effects of aggression anxiety generalize to neutral as well as hostile areas of verbal production. A second hypothesis, based on the assumed effects of aggression anxiety and on results obtained in the pilot study may therefore be stated:

Hypothesis 2: Upon exposure to an hostility-arousing situation, individuals identified as inhibiting hostility produce fewer neutral words in a standard unit of time than individuals who tend to express hostility.

Other Relationships Explored in this Study

The design of this experiment permits the exploration of other relationships in addition to those predicted in the major hypotheses. These relationships concern: (1) the general effect of the frustration manipulation on verbal productivity, exclusive of individual differences, and (2) the management of hostility and verbal productivity in a non-frustrating situation. Neither existing theory nor available evidence permit definite predictions to be made for these relationships. To some extent, opposite

predictions are possible on the basis of present information. Therefore, statements will be in the form of questions rather than predictions of outcome.

1. General effects of frustration on verbal productivity:

   What is the general effect of frustration (ignoring individual differences) on the production of:

   a. hostile words?

   b. neutral words?

2. Relationships between individual differences in the management of hostility and verbal productivity in a non-frustrating situation.

   Are individual differences in the management of hostility significantly related to the production of:

   a. hostile words in a non-frustrating situation?

   b. neutral words in a non-frustrating situation?

METHOD

Summary of the Experimental Design

The design called for 80 Ss to be randomly assigned to high arousal and low arousal groups, with 40 Ss in each group. Each S was required to produce words of a hostile nature and words not inherently related to the expression of hostility. The order of presentation of these verbal categories was counter-balanced in both the high and low arousal groups, with 20 Ss in each group producing hostile words first, the other 20 neutral words first. Within both groups, the Ss were categorized, on the basis of procedures described below, as to their method of managing hostility. Twenty Ss in each group were designated as having a

predominantly expressive method of managing hostility, and the other 20 as having a predominantly inhibitory method of managing hostility.

The essential features of this design can be readily visualized by referring to Figure 1.

Figure 1

Representation of the Design Employed in the Investigation

High Arousal Group (N = 40)			Low Arousal Group (N = 40)		
Management of Hostility	Hostile Words	Neutral Words	Management of Hostility	Hostile Words	Neutral Words
Inhibitors (N = 20)	**	**	Inhibitors (N = 20)	**	**
Expressors (N = 20)	**	**	Expressors (N = 20)	**	**

**Dependent measures = number of words produced.

Subjects

Eighty subjects were drawn from the population of students enrolled in introductory psychology classes at Michigan State University by means of a volunteer sign-up sheet. The sample was confined to male Ss between the ages of 18 and 25 who were native born. Ss were seen in individual sessions of approximately 45 minutes duration over a period of five weeks. Assignment of the S to either the High Arousal or Low Arousal Group was made prior to his appearance for testing by means of a table of random numbers. In this way, 40 Ss were placed in each group.

Table 2 shows that the Ss in the High Arousal and Low Arousal groups were quite similar with regard to age, verbal intelligence (as assessed by the verbal scale of the College Qualification Test), and a rough measure of social class origin consisting of the combined number of years of education received by both parents.

Table 2

Comparison of Low Arousal and High Arousal Groups on Age, Verbal Intelligence, and Parents' Education

Group		Age	Verbal Intell.	Parents' Educ.
High Arousal (N = 40)	Mean	20.20	47.47	25.88
	S.D.	1.67	10.46	4.79
Low Arousal (N = 40)	Mean	19.55	47.35	26.05
	S.D.	1.43	11.09	4.96
	t	1.87	.05	.16
	p	.10	.90	.90

Procedures and Measuring Instruments

In order to provide an overview of the sequence of events in the experimental session, an outline of the experimental procedure is shown below.

Outline of Experimental Procedure

1. S is seated across the table from the experimenter, near the microphone of a tape recorder. Obtain Ss name, birthdate, etc.

2. Administer Rosenzweig Picture Frustration Test (first half).

Instructions: "Each of the pictures I will show you contains two or more persons. One person is always shown saying certain words to another. For each picture, I want you to tell me the number of the sentence that is most like what you would actually say or really reply if you were in these situations. Work as quickly as you can and avoid being humorous. When you have answered a card, go right on to the next one."

3. Administer Arthur Stencil Design Test.

Instructions: "This next test has been used for some time as an intelligence test. Recently there have been some indications that the test also relates to creative ability. You can make all of these designs with these cards. The important thing about this test is to look for the pattern. Put the cards back after finishing each design."

a. High Arousal Ss: Administer designs 1-3 and 16-20.

(During last five designs) "30 seconds left . . . 5 seconds left . . . time's up!"

(Repeatedly and with increasing exasperation, while S is working on the designs) "Watch for the pattern."

(Before last design) "Maybe if you would try a little harder for once."

(At conclusion, while pushing the test materials impatiently aside) "If you would have listened to me and looked for the pattern you wouldn't have done such a lousy job."

b. Low Arousal Ss: Administer designs 1-3 and 4-8. Allow ample time to complete each design. Mild commendation at conclusion.

4. Verbal productivity tasks. Odd numbered Ss say neutral words first, then hostile words. Even numbered Ss say hostile words, then neutral words.

Task is introduced as requiring "the ability to produce words and ideas at will; an essential ingredient in any form of creativity involving verbal communication." See instructions for hostile and neutral word production below.

5. Arousal procedure administered to all Ss (both high and low arousal). Task is introduced as one which requires both mental agility and control.

"I want you to count backwards from one hundred to one by three's as quickly as possible. One hundred, ninety-seven, and so forth."

(At first hesitation) "Not so slow, hurry! Faster now."

(When S makes an error) "You goofed on __. It should be __."

(At about 20 to 30 seconds) "You're already over the time limit. You'll have to go back to the beginning. Now faster this time."

Repeat same procedure on second trial, making corrections or saying the numbers for S when he hesitates, in a sarcastic tone of voice.

On third trial, harassment continues, but S is allowed to count all the way down to one. Errors and time are noted, and the experimenter says, "The practice didn't help much. Is that all the faster you can count?"

6. Administer P-F test (second half) "Now do these."

7. Post-Experimental Questionaire. "I'll read the instructions to you to be sure you understand." The instructions are then read to S in a sarcastic tone of voice.

8. S is told of the real purpose of the experiment and assured as to the adequacy of his performance. S is invited to describe his feelings and reaction to the experiment. Further catharsis is provided in an interview in which S is asked to describe his responses to a variety of other frustrating situations.

A. Independent Variables.

The design of this experiment calls for the manipulation of two independent variables. One of these is an experimental or treatment variable--the arousal of hostility. The other is an individual difference or subject variable--the management of of hostility. The procedures involved in the manipulation of these two variables are of considerable importance, for the interpretation of the data as related to the hypotheses depend

to a large extent on the assumption that these variables have been effectively manipulated.

Situation designed to arouse hostility.

A variety of techniques designed to elicit hostility have been described in the literature. An assumption common to each of these techniques and supported by considerable evidence is that the frustration of significant needs leads to hostility and tendencies toward aggression. This assumption is also made in the present study. The essential feature of frustration is the blocking of a goal-oriented activity. The strength of the instigation to aggression is assumed to vary directly with the strength of the motive that is thwarted.

In studies employing college students, a common procedure is to thwart the subject in a task labeled as an intelligence test, under the assumption that college students are highly motivated to obtain a high rating on intelligence, and failure to do so is an injury to self-esteem. The success of any such procedure depends upon the degree to which the task is perceived as relevant to the needs of self-enhancement. In order to promote ego involvement, the credibility of the task as related to the ability it purports to measure must be established. Also, the individual should experience some success at the outset so as to insure his cooperation and raise expectations (later thwarted) of a successful and self-enhancing performance. Another requirement, often neglected, is of special importance in this study; the frustration must be of such a nature that the source of frustration may be legitimately perceived as external, so as

not to bias the response toward an intropunitive reaction based on apparent limitations in ability.

A procedure which meets the above specifications has been described by Weiss and Fine (1956) and has also been used successfully by Rosenbaum and Stanners (1961). The procedure involves the use of the Arthur Stencil Design, Test I, one of the subtests of the Arthur Point Scale of Performance Tests, Revised Form II (1947). The test consists of a series of 20 colored designs of increasing complexity, which the S is to reproduce by assembling the stencils of various colors and patterns. The normal administration allows for a time limit of four minutes for each design. In the modification of this test for the arousal of hostility, all Ss were asked to complete three easy designs (1-3), with appropriate praise for their successful performance. Subjects in the hostility arousal condition were then given five difficult designs (16-20) with a time limit of one minute for each design. (None of Rosenbaum and Stanners' Ss were able to complete these designs in this time limit.) The E meanwhile, contributed distractions, calling out the number of seconds remaining, and urging the S on with useless advice. This was followed by criticism for not heeding his advice. In the low-arousal condition, the three easy designs were followed by five relatively easy designs (4-8), with no time limit. Mild commendation was given these Ss at the conclusion of the test.

An important consideration in the experimental arousal of hostility is that the S should not be aware that the frustration is part of the experimental treatment. In order to minimize this possibility, and to distract the S from guessing at the real

purposes of the experiment, the following deception was employed. In recruiting students to serve as Ss in this study, the experiment was labeled as an investigation of creativity. The Stencil Design Test was introduced as a test known to be useful in detecting creative potential, an illusion that is enhanced by the colorful stencils and the requirement of analyzing and constructing the designs. None of the Ss appeared to question the alleged purpose of this test.

Measurement of the management of hostility

Our review of the literature has shown that discrepancies are frequently found between "test hostility" and hostility expressed in response to frustration. From these results we concluded that performance on tests of hostility is not necessarily representative of performance in situations where hostility is aroused. Accordingly, it was suggested that the proper identification of individual differences in the management of hostility requires that measures be secured at the time the individual is frustrated.

In order to achieve the proper conditions for the measurement of individual differences in the management of hostility, therefore, it was necessary to stimulate hostility in all Ss prior to testing for hostility. Thus, in addition to the procedures for the experimental manipulation of hostility described above, a second frustration procedure was undertaken following the verbal production tasks and prior to testing for hostility. This procedure was designed to provide further instigation to aggression in the high arousal group and to arouse hostility in the

low arousal group for the first time. The procedure consisted of asking the S to count backwards by three's from 100 to 1 as quickly as possible. While the S was counting, he was being subjected to repeated interruptions and sarcastic remarks by the E, and was twice told to go back and start again at 100. This procedure was found to be effective in producing hostility by Hokanson (1961).

In order to perfect the details of the procedures for arousing hostility, several tape recorded sessions were held with practice Ss prior to the collection of data for the study. The playback of these recorded sessions served to point up and correct initial inconsistencies in the rather difficult role-playing required of the experimenter.

Two instruments were chosen to measure individual differences in the management of hostility. The first is a modification of the Rosenzweig Picture Frustration Test which permits an assessment of the direction in which hostility is expressed before and after frustration. The second is a questionaire which provides the S with an opportunity to express aggression fairly directly in response to questions asking the S for his reaction to the E, his evaluation of the experiment, etc.

a. The modified P-F test

The Rosenzweig Picture-Frustration Test was specifically designed to assess an individual's characteristic mode of handling frustrating experiences. Responses to the frustrating situations depicted in this test are categorized as expressing aggression outwardly toward the frustrating agent (Extrapunitive), inwardly

toward the self (Intropunitive), or as minimizing the frustration and denying hostility (Impunitive). In scoring symbols, these responses are labeled E, I, and M respectively. For the purposes of this study, the intropunitive and impunitive responses are both regarded as indicating a relatively suppressive method of managing hostility. Since our concern is with the expression and inhibition of aggression directed toward the frustrating agent, the extrapunitive scores of the P-F test seem to be an appropriate measure.

Vander Linde's (1955) adaption of the P-F test includes several changes which enhance the suitability of the instrument for the purposes of this research. In this modification, the pictures are presented individually, accompanied by three alternative responses chosen from the P-F test manual and actual protocols to represent extrapunitive, intropunitive, and impunitive responses to the frustrating situations. The individual is asked to select from these responses the one most resembling the response he would make to the situation depicted in the picture. The use of forced choice rather than free response allows for more objective scoring, and also eliminates the element of verbal production from the independent variable. The major advantage of Vander Linde's modification is the division of the test into equated halves, each consisting of 12 items, which permits the assessment of hostility with the same instrument before and after frustration. The items included in each half, in the order of their appearance, are shown in Appendix A. A more complete description of the procedures used in constructing

the modified P-F test may be found in Vander Linde (1955).

In the present study, the order of administration of the two halves of the modified P-F test was the same for all Ss. The gain in number of E responses from pre- to post-frustration served to identify individual differences in the management of hostility. A large gain signifies a relatively direct expression of aggression, and smaller gains or decreased E responses signify the inhibition of direct aggression.

b. The post-experimental questionaire

The purpose of the post-experimental questionaire was to provide opportunities for the S to express hostility in fairly direct ways which could be readily recorded and quantified. The questionaire is so constructed that the S's hostility may be expressed in the form of unfriendly reactions to the E, in unfavorable evaluations of the procedures used in the experiment, and of the value of the experiment. Opportunity is also given for the S to indicate his unwillingness to cooperate with E in a follow-up study. In order to eliminate the element of verbal production in these measures, responses were in the form of ratings on a continuous scale 100 millimeters long, anchored at both ends, rather than verbal responses. Scores are obtained by measuring the distance in millimeters from the check marks to the favorable (non-hostile) pole. Ratings on each scale may thus range from zero to 100, with higher scores representing greater amounts of hostility.

Although aggressive acts can be carried out with little awareness of feelings of anger, the awareness of feelings of irritation

and anger are usually considered a part of the expression of hostility. In order to assess the subjective components of the management of hostility, the post-experimental questionaire also included an opportunity for the S to rate his feelings, as described by several adjectives, on a continuous scale from low to high, with a possible range of from zero to 100, as with evaluation questionaire ratings. Self-ratings on the adjectives irritated, angry, and annoyed served to indicate the degree of awareness of feelings of hostility.

In view of the significance attributed to anxiety in determining both the expression of hostility and verbal productivity, four adjectives relating to feelings of anxiety (uneasy, distressed, vulnerable, and apprehensive) were also included in the self-rating scale.

The complete post-experimental questionaire can be seen in Appendix B. Since the post-experimental questionaire provides a measure of the expression of hostility independent of the P-F test, two independent measures of hostility were available, both of which were expected to relate to verbal productivity as predicted in the hypotheses.

B. Dependent Variables

The design of this experiment calls for two categories of verbal production, one directly related to the expression of hostility, and one relatively neutral with regard to hostility. The task of producing words in restricted categories lends itself nicely to the demands of this experiment. By specifying

the category of words to be produced, it is possible to control the area of verbal discourse, while permitting maximum freedom for the emergence of individual differences in verbal productivity within the defined area. In requiring the S to speak the words to the experimenter in a face to face situation, the elements of an interpersonal situation are maintained. The recitation of hostile words in the presence of the E who has just frustrated him may easily be given the connotation by the S of expressing hostility toward the E. The total number of appropriate words produced in each category, written down by E as they are produced provides measures of effective verbal functioning in the pre-selected areas.

The verbal categories used in this study were the same as those employed in the pilot study. A time limit of three minutes was set for verbal production in each category.

Hostile word category

The instructions for producing words in the hostile category were intended to elicit words directly related to the expression of hostility. Instructions for the production of hostile words were:

> "Say all the words you can think of which might be used to describe someone whom one hates or dislikes. For example; stupid, foolish, ugly, son of a bitch, and so forth. Any questions?"

Whether or not S replies, E continues:

> "Say just as many words as you can think of which might be used to describe someone whom one hates or dislikes."

"Neutral" word category

The instructions for the production of words in the

"neutral" category were:

> "Say all the words you can think of which end in the letters a-t-i-o-n. For example: station, nation, elevation, reputation, and so forth."

The reason for the quotation marks surrounding the word neutral above is that the particular category of words was chosen to represent a verbal category which is only relatively neutral with regard to hostility. Although the structure of this task permits the production of a wide variety of words not related to aggression, there are several words within this category which are associated with hostility and which may be emotionally loaded for the individual with conflicts centering around the expression of hostility. Examples are: accusation, damnation, devastation, constipation, and castration. It was anticipated that associations such as these which might be elicited (particularly in the high arousal situation) would be warded off by Ss with inhibitory methods of managing hostility, with a resulting decrement in total production of words in this category. The selection of this particular category was thus an attempt to provide maximal opportunity for the generalization of inhibitory processes.

CHAPTER V

RESULTS

Effectiveness of the Procedure for Instigating Hostility

A comparison of the High Arousal (HA) and Low Arousal (LA) groups indicates that the stencil design procedure for instigating hostility was quite successful. Only eight of the 40 Ss in the HA group succeeded in passing any of the last five (difficult) designs within the one minute time limit. Of these eight, six passed only one design, one passed two, and one passed three designs. Among the LA group, all of the Ss were given ample time in which to pass all of the last five (moderately difficult) designs. Thirty-two of these Ss passed at least four of the designs within one minute.

The effectiveness of the arousal procedure is indicated by comparing the two groups on measures of hostility and anxiety derived from the post-experimental questionaire. It can be seen from Table 3 that the HA Ss were significantly more unfavorable in their evaluations on the post-experimental questionaire, and also rated themselves as being significantly more angry and anxious during the interview than their LA counterparts. The HA Ss also rated themselves as feeling significantly less competent during the experimental session than the LA Ss, further confirming that the arousal procedure had the desired effect.

The presence of significant differences between HA and LA groups on both hostility and anxiety raises the question of how

Table 3

Comparison of High Arousal and Low Arousal Groups:
Mean Ratings on the Post-Experimental Questionaire

Group		Evaluation Questionaire	Self-Report Hostility	Self-Report Anxiety	Self-Report Competence	Net Hostility
High Arousal	Mean	51.66	49.71	50.41	32.62	.61
	S.D.	14.82	20.54	14.11	20.66	16.14
Low Arousal	Mean	35.42	37.29	43.33	47.83	-7.10
	S.D.	11.93	23.73	17.91	23.90	15.46
	t	5.43	2.51	1.98	-3.04	2.19
	p	.001	.01	.05	.005	.025

successfully the arousal procedure elicited hostility as compared with a more general emotional arousal. In order to determine whether the arousal procedure had the effect of elevating hostility to a greater extent than anxiety, each S's mean rating of anxiety adjectives was subtracted from his mean ratings on the evaluation questionaire and hostility adjectives combined. The difference obtained in subtracting mean anxiety scores from mean hostility scores provides a measure of net hostility, the extent to which hostility is predominant over anxiety for the individual S. A comparison of the two groups on net hostility (Table 3) shows that the HA group scores significantly higher than the LA group. This finding suggests that the arousal procedure elevated hostility scores to a significantly greater extent than anxiety scores.

Within the HA group, the overall level of hostility ratings is approximately equal to that of anxiety. For the LA Ss, the level of hostility is significantly lower than that of anxiety ($D = 7.10$; $t = 2.87$). Thus, in terms of the absolute values of the ratings on the post-experimental questionaire, the HA group may be described as both highly hostile and highly anxious. The LA Ss, by comparison, are moderately anxious and significantly less hostile in response to the experimental procedures. However, in the absence of a third group in which no frustration occured, there is no baseline for anxiety and hostility ratings in a non-threatening situation. Thus the absolute levels obtained must be interpreted with caution.

A comparison of the HA and LA groups on PF test extrapunitive (E) scores before and after frustration is presented in Table 4. The groups do not differ significantly either before or after

frustration in the number of E responses. The relatively skewed distribution of PF-E scores makes the use of the "t" ratio somewhat questionable in these comparisons, however.

Table 4

Mean pre-frustration and post-frustration PF extra-punitive scores of High Arousal and Low Arousal groups

		Pre-frustration	Post-frustration
HA	Mean	1.875	2.375
	S.D.	1.288	1.592
LA	Mean	1.625	2.075
	S.D.	1.461	1.889
	t	.81	.77

A comparison of the HA and LA groups on the direction of changes in the number of E scores from pre-frustration to post-frustration is presented in Table 5. This table shows the number of Ss in each group whose scores increased, decreased, or remained unchanged from the first to the second administration.

Table 5

Direction of PF-E change in HA and LA groups

	Increase	No Change	Decrease	Total
HA	22	5	13	40
LA	15	14	11	40

Chi square = 5.75, p. 05 < .10

The resulting chi square of 5.75, which approaches significance at the .05 level, provides some evidence of a systematic difference between the HA and LA groups in the direction of PF-E change after frustration. However, the differences are not entirely consistent with expectations. More of the HA Ss than LA Ss show an increase in extrapunitiveness after frustration, as expected. But a few more HA Ss also show a decrease in E scores after frustration, a difference opposite of that expected. Comparing Ss within groups, we note that Ss in the HA group tended to either increase or decrease in extrapunitiveness, with only five Ss giving the same number of E responses after frustration as before. In the LA group, the Ss divide themselves almost equally between increased, decreased, and unchanged E responses.

In summary, the effects of experimental frustration were to produce a large and significant elevation of hostility scores on the post-experimental questionaire. While anxiety ratings on the questionaire were also elevated by the frustration procedure, the differences in hostility scores were significantly greater than those of anxiety. These findings not only reflect favorably on the adequacy of the frustration procedure, but also on the validity of the post-experimental questionaire in discriminating between groups which have been subjected to treatments varying in degree of instigation to aggression. The effects of the frustration procedure on the direction of change in PF-E scores from pre- to post-frustration are less substantial and less consistent. The effect of the frustration procedures on this

measure of hostility was a non-significant tendency for Ss to become either more or less extrapunitive, with very few Ss in the HA group giving the same number of E responses on the second administration. Thus the PF-E change measures are relatively insensitive to the differences in the amount of instigation to aggression in the two groups, and support for the validity of the PF test in this study is somewhat tenuous.

Findings Regarding the Hypotheses

The hypotheses to be tested predicted a positive relationship between the expression of hostility and the production of (1) hostile words and (2) neutral words in an hostility arousing situation (i.e., within the HA group). Two separate measures of the expression of hostility, the post-experimental questionaire and the Rosenzweig P-F test, were available for testing each hypothesis. Since the findings are somewhat different for these two measures, the results will be reported separately.

A. Findings based on the post-experimental questionaire.

The first hypothesis stated that upon exposure to an hostility arousing situation, individuals identified as expressing relatively little hostility will produce fewer hostile words in a comparable length of time than those who express greater amounts of hostility. The second hypothesis predicted that the same relationship would obtain with regard to the production of neutral words.

These hypotheses can be re-stated in terms of the operations used to measure the expression of hostility on the post-experimental

questionaire as follows:

Operational Statement of the Hypotheses (A)

Ss in the HA group whose hostility scores on the post-experimental questionaire are below the median will produce (1) fewer hostile words and (2) fewer neutral words than Ss whose hostility scores are above the median.

Two analyses were conducted by way of testing these operational hypotheses. In the first analysis, the ratings on the evaluation questionaire (evaluation hostility) and on the three hostility adjectives (self-report hostility) were averaged to provide a measure of total hostility (TH). The TH scores were then used to divide the Ss in both the HA and LA groups at their respective medians into high hostility (HH) and a low hostility (LH) group, with 20 Ss in each group. The mean number of words produced in the hostile and neutral categories for each of the four groups thus obtained is presented in Table 6. Support for the hypotheses was contingent on finding a larger number of words produced in the HA, HH group than in the HA, LH group. As can be seen from Table 6, the tendency of the results is in a direction opposite of that predicted. However, in the LA group there is a tendency for HH Ss to produce more words of both categories than LH Ss.

Since the verbal production scores were approximately normally distributed, statistical procedures involving the assumption of normality were possible. The results of an analysis of variance based on the TH breakdown are presented in Table 7. That the difference in verbal productivity between HH and LH Ss is negligible when the level of arousal is disregarded is shown by the

Table 6

Mean Number of Hostile and Neutral Words Produced by Ss Above and Below the Median in Total Hostility

Hostility Level	High Arousal Group HW	High Arousal Group NW	Hostility Level	Low Arousal Group HW	Low Arousal Group NW
High Hostile (TH scores:50-82)	18.55	14.00	High Hostile (TH scores:36-65)	18.50	13.05
Low Hostile (TH scores:13-49)	22.20	15.85	Low Hostile (TH scores:12-36)	16.20	12.40
Total Group	20.38	14.92	Total Group	17.35	12.72

Table 7

Analysis of Variance of Verbal Production: Levels of Hostility Determined by TH Scores on the Post-Experimental Questionaire

Source	df	SS	MS	F ratio
Arousal (Ar)	1	273.00	273.00	5.47
Levels of hostility (Lv)	1	13.76	13.76	.22
Ar x Lv	1	188.52	188.52	3.78
Between Ss in Lv x Ar Groups (Error "between")	76	3793.32	49.91	
Total Between	79	4268.60		
Hostile-Neutral Words	1	1015.06	1015.06	49.04
H-N x Ar	1	6.82	6.82	.33
H-N x Lv	1	2.83	2.83	.14
H-N x Ar x Lv	1	19.46	19.46	.94
H-N x Ss in Lv x Ar Groups (Error "within")	76	1573.33	20.70	
Total Within	80	2617.50		
Total	159	6886.10		

Note.- $F_{.05}$, df 1, 76 = 3.98

non-significant F values of .22 for the main effects of levels of hostility and .14 for the interaction of H-N x levels of hostility. The significance of the differences in verbal productivity between HH and LH Ss, taking arousal level into account, is evaluated by the F test for the interaction of Arousal x Levels of hostility and by the triple interaction of H-N x Arousal x Levels of hostility. Neither of these interactions are found to have an F ratio significantly different from chance expectation, although the Arousal x Levels of hostility interaction approaches significance at the .05 level. An inspection of the cell means in Table 6 shows that differences in verbal production in the LA group contributed as much to the interaction as did differences in the HA group.

The results of this analysis thus fail to support the hypothesis of a positive relationship between the expression of hostility on the post-experimental questionaire and verbal productivity within the HA group. On the contrary, a non-significant trend was found for HA Ss scoring high on total questionaire hostility to produce fewer words in both hostile and neutral categories than low scoring Ss.

A second analysis, which takes account of the differences existing between the different scales of the evaluation questionaire, indicates that the combination of ratings into total hostility scores overlooks significant differences among the scales of the evaluation questionaire. An inspection of the evaluation questionaire reveals that the items differ in the directness with which hostility is expressed. Only one of the scales refers

directly to unfriendliness toward the experimenter. The other scales are less directly related to the frustrating agent in that they provide for hostility to be expressed in unfavorable evaluations of the testing situation, of the value of the experiment, or in unwillingness to participate in another experiment with the experimenter. The remaining scale occupies an intermediate position with regard to directness of hostility in that it provides for unfavorable evaluations of the effects of the experimenter's behavior on performance and does not include the element of unfriendliness.

Under the assumption that ratings of unfriendliness toward the experimenter represents the most direct expression of hostility on the rating scales, the prediction was made that ratings on this scale would relate positively to production of (1) hostile words, and (2) neutral words in the HA group. To test this prediction, the Ss in the HA and LA groups were divided at their respective medians into "friendly" and "unfriendly" groups, with 20 Ss in each group.

A comparison of the number of hostile and neutral words produced by Ss scoring above and below the median in unfriendliness to the E is presented in Table 8. It can be seen that, in the HA group, significantly more hostile words were produced by Ss whose reactions were unfriendly than by the "friendly" Ss. However, the difference between friendly and unfriendly Ss in the production of neutral words is negligible.

The mean number of hostile and neutral words produced by Ss falling above and below the median on each of the other scales of

Table 8

Mean Production of Neutral and Hostile Words by Ss Scoring Above and Below the Median on Each of the Ratings on the Post-Experimental Evaluation Questionaire

Questionaire Item		High Arousal Group HW	High Arousal Group NW	Range	Low Arousal Group HW	Low Arousal Group NW
Reaction to E						
Friendly (Range 3-57)		16.85	14.75	(2-25)	16.25	12.00
Unfriendly (59-87)		23.90	15.10	(28-67)	18.45	13.15
	t	3.22	.25		1.01	.87
Effect of E's behavior						
Favorable (0-66)		20.00	14.95	(3-50)	16.25	12.90
Unfavorable (67-90)		20.71	14.90	(51-98)	18.45	12.55
	t	.29	-.03		1.01	-.27
Effect of test. situation						
Favorable (15-60)		22.10	16.00	(2-33)	17.74	12.79
Unfavorable (61-98)		18.65	13.85	(35-84)	17.00	12.71
	t	-1.47	-1.59		-.34	-.06
Value of Experiment						
Valuable (4-50)		21.90	16.15	(11-38)	17.70	13.35
Worthless (51-96)		18.68	13.70	(39-94)	17.00	12.00
	t	-1.36	-1.82		-.32	-1.06
Participate Again						
Willing (0-25)		22.25	15.25	(2-13)	18.50	14.05
Unwilling (31-100)		18.50	14.60	(14-78)	16.20	11.40
	t	-1.61	-.47		-1.06	-2.15

Note.- $t_{.05} = 2.02$; $t_{.01} = 2.70$ (two-tailed)

the evaluation questionaire is also presented in Table 8. With the exception of ratings of the effect of E's behavior on performance, all of the other scales consistently show negative relationships with the number of words produced.

The results of separately relating the different scales of the evaluation questionaire to verbal productivity thus reveal important relationships which were obscured by the combination of the items with self-report hostility in a total hostility score. The scale providing for the expression of hostility directly toward the experimenter is the only one which shows a significantly positive relation to verbal production. The scales in which hostility is expressed more indirectly tend to relate negatively to verbal productivity. The scale intermediate in directness of hostile evaluations presents a relation with verbal productivity which is somewhere between those of the direct hostility scale and the indirect hostility scales. The reliability of these findings is supported not only by the size of the obtained difference in hostile word production between "friendly" and "unfriendly" Ss in the HA group, but also by the finding of a similar pattern of differences in the LA group.

As a means of further explicating the relationship between the expression of hostility toward the experimenter and verbal productivity, an analysis of variance was performed, using the median split on ratings of unfriendliness to E as the basis for constituting levels of hostility. The results of this analysis are presented in Table 9. The F ratio of 6.35 for the main effects of Levels of Hostility, which is significant at the .025 level,

Table 9

Analysis of Variance of Verbal Production: Levels of Hostility Determined by Ratings of Friendly-Unfriendly Reactions to the Experimenter

Source	df	SS	MS	F	p
Arousal (Ar)	1	273.00	273.00	5.68	.025
Levels of Hostility (Lv)	1	305.30	305.30	6.35	.025
Ar x Lv	1	35.10	35.10	.73	N.S.
Between Ss in Lv x Ar groups (Error "between")	76	3655.20	48.10		
Total Between	79	4268.60			
Hostile-Neutral Words	1	1015.06	1015.06	56.74	.001
H-N x Ar	1	6.82	6.82	.38	N.S.
H-N x Lv	1	139.04	139.04	7.77	.01
H-N x Lv x Ar	1	98.23	98.23	5.49	.025
H-N x Ss in Lv x Ar groups (Error "within")	76	1358.35	17.89		
Total Within	80	2617.50			
Total	159	6886.10			

indicates that significantly more words were produced by Ss unfriendly to the E than by the "friendly" Ss. The significant F ratio for the interaction of Hostile-Neutral categories with Levels of Hostility indicates that the effect of Levels of Hostility is significantly greater for hostile words than for neutral words. The finding of a significant F ratio for the triple interaction of Hostile-Neutral categories by Arousal by Levels of Hostility represents the finding that the difference in verbal output of the "friendly" and "unfriendly" Ss is greatest for the production of hostile words in the High Arousal group.

The results of the analysis based on ratings of unfriendliness toward the experimenter thus yield support for the first hypothesis but not for the second. Upon exposure to an hostility arousing situation, individuals expressing relatively little hostility directly toward the experimenter produced significantly fewer hostile words, but only slightly fewer neutral words than those who expressed greater amounts of hostility.

In summary, hostility scores on the post-experimental questionaire were used to test the hypotheses by means of two separate analyses. The first analysis made use of Total Hostility scores which were obtained by averaging all of the ratings of the evaluation questionaire together with the three adjectives relating to hostile feelings on the self-report questionaire. The results of the first analysis produced no support for either hypothesis and the trend of the results is in a direction opposite of that predicted. In the second analysis, the different scales of the evaluation questionaire were separately analyzed. The

prediction of a positive relationship between the expression of hostility directly toward the experimenter and the production of hostile words in the HA group found support in a highly significant difference between "friendly" and "unfriendly" Ss. The negligible difference between "friendly" and "unfriendly" Ss in production of neutral words failed to provide support for the second hypothesis, however. An unexpected finding in the analysis of post-experimental questionaire ratings was that ratings on scales which provide for the expression of hostility without refering directly to the experimenter (unfavorable evaluations of the testing situation, the value of the experiment, and unwillingness to be associated with the E in further experiments) show a strong tendency to relate negatively to verbal productivity.

B. Findings based on the Rosenzweig Picture Frustration Test.

Extrapunitive scores on the PF Test provided a second kind of measure of the amount of hostility expressed in response to the experimental procedures. In this study, the PF Test was administered in two equated halves, one half before, the other half after frustration. The change in number of extrapunitive responses from the pre-frustration to post-frustration administration was taken as a measure of the amount of hostility expressed in response to the frustrating situation. Changes in the direction of an increased number of E responses are assumed to indicate a relatively hostile reaction, whereas a decreased number of E responses indicates a relative inhibition of extrapunitive hostility. The hypotheses under investigation can then be

restated in terms of the operations used to measure the expression of hostility on the PF Test as follows:

Operational Statement of the Hypotheses (B)

Ss in the HA group who show a relative decrease in extrapunitiveness on the Rosenzweig PF Test after frustration will produce (1) fewer hostile words, and (2) fewer neutral words than Ss showing a relative increase in extrapunitiveness.

The distribution of PF change scores did not permit an equal division of the groups at the median. The procedure used was to divide the Ss into high hostility (HH) and low hostility (LH) groups on the basis of an increase vs. a decrease or unchanged number of extrapunitive responses. This procedure provides 22 HH Ss and 18 LH Ss in the high arousal condition, with 15 HH and 25 LH Ss in the low arousal condition.

The mean number of hostile and neutral words produced by each group is presented in Table 10. It can be seen that the differences in verbal production obtained between HH and LH Ss in the HA group are in the predicted direction for hostile words, but not for neutral words. Among LA Ss, those who show a gain in extrapunitiveness produce more words of both categories than LH Ss. However, an evaluation of the differences in verbal production of HH and LH Ss in the HA group by means of a "t" test shows that differences of this magnitude could easily have occurred by chance. In the LA group, the difference in hostile word production approaches significance. Thus, the hypothesis of a positive relationship between increased extrapunitiveness and

verbal productivity in an hostility provoking situation is not reliably supported by the data.

Table 10

Production of Hostile and Neutral Words for Ss Varying in the Direction of Extrapunitive Change Following Frustration

PF Change	High Arousal Group	HW	NW	PF Change	Low Arousal Group	HW	NW
Increase	Mean	21.18	14.59	Increase	Mean	19.66	13.20
(N = 22)	S.D.	9.07	5.03	(N = 15)	S.D.	7.11	4.18
Decrease or	Mean	19.39	15.33	Decrease or	Mean	15.96	12.44
No Change (N = 18)	S.D.	5.71	3.71	No Change (N = 25)	S.D.	6.48	4.23
	t	.71	-.52		t	1.69	.56
	p[1]	.25	N.S.		p[2]	.10	N.S.

[1]One-tailed probability.
[2]Two-tailed probability.

Further information about the relationship of PF extrapunitiveness and verbal productivity can be gained by considering the pre-frustration (PF-A) and post-frustration (PF-B) E scores separately. It was contended earlier that prediction of behavior from tests of hostility is enhanced when the measures of hostility are obtained in a situation in which hostility is aroused. From this we would expect the predicted relationship between extrapunitiveness and production of hostile words to be stronger on the PF-B measures than on the PF-A measures. Confirmation of this reasoning is found by comparing the production of hostile words

among Ss with two or more E responses (High E) with that of Ss giving zero or one E response (Low E).

In the high arousal condition, the mean number of hostile words produced by the 21 PF-A High E Ss is 20.68, as compared with an almost identical 20.10 for the 19 Low E Ss. For the 28 Ss giving two or more E responses on the PF-B, the average number of hostile words was 21.75, as compared with 17.17 for the 12 Low E Ss. This difference yields a "t" ratio of 1.77, which is significant at the .05 level. Thus, the rationale of administering tests of hostility in a situation in which hostility is aroused is supported by the data.

This finding also finds some support among Ss in the low arousal condition. Here, the PF-A High E Ss tended to produce fewer hostile words than Low E Ss (15.74 vs. 18.81; N = 19 and 21 respectively), whereas on the PF-B, High E Ss tended to produce more hostile words than Low E Ss (18.10 vs. 16.53; N = 21 and 19 respectively). Although neither of these differences are statistically significant, the results are in the expected direction, i.e., measures of hostility on the PF Test relate positively to the production of hostile words only when the test is given after frustration.

Intercorrelations Among Verbal Productivity and Other Variables

The results obtained in the above analyses suggest that relationships between hostility and verbal production differ for different measures of hostility and also differ somewhat from the HA to the LA condition. An intercorrelational analysis, presented in Tables 11 and 12, provides an overview of some of these

relationships.[1] Also, the relation of different measures of hostility to each other and to anxiety, verbal intelligence, and parental education are presented.

In can be seen in Tables 11 and 12 that the hostility scores derived from average ratings on the post-experimental questionaire show negligible correlations with verbal productivity in both the HA and LA groups. The marked differences in the relation of the separate items of the evaluation questionaire to verbal productivity are obscured by the combination of items. The other measure of hostility, PF extrapunitive change, shows a tendency, falling short of statistical significance, to correlate in the predicted direction with the production of hostile words in both groups and with the production of neutral words in the LA group. This result parallels the findings of the earlier analysis based on an increase vs. no change or decrease comparison.

An unexpected result of correlating anxiety adjective ratings with verbal productions is the finding that anxiety tends to correlate positively with verbal productivity in the HA condition, and negatively in the LA condition. Another interesting incidental finding is the difference between HA and LA groups in the correlation of verbal intelligence with verbal productivity. Verbal intelligence is shown to correlate significantly with production of neutral and hostile words only in the HA group, indicating that differences in verbal ability affected verbal

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[1]Thanks are due to James Clark of the MSU Computer Laboratory for assistance in the preparation of the data for analysis by the MISTIC computer.

Table 11

Intercorrelations Among Verbal Production and Other Variables - High Arousal Group (N = 40)

	HW	NW	E-H	SR-H	TH	SR-A	PF Change	Verbal Intell.
Neutral Words	+.43							
Evaluation Host.	-.07	-.20						
Self-Report Host.	+.08	+.13	+.28					
Total Hostility	-.01	-.07	+.84	+.75				
Self-Report Anx.	+.22	+.06	+.18	+.35	+.32			
PF Change	+.17	+.02	+.08	-.09	+.01	-.11		
Verbal Intell.	+.38	+.34	-.01	+.05	+.01	+.22	-.03	
Parental Educ.	+.16	+.04	+.11	+.18	+.18	+.02	-.10	+.04

Note.- $r_{.05} = .31$ (two-tailed); $r_{.05} = .26$ (one-tailed)

Table 12

Intercorrelations Among Verbal Production and Other Variables - Low Arousal Group

(N = 40)

	HW	NW	E-H	SR-H	TH	SR-A	PF Change	Verbal Intell.
Neutral Words	+.57							
Evaluation Host.	+.06	+.03						
Self-Report Host.	+.10	-.01	+.54					
Total Hostility	+.09	-.02	+.85	+.90				
Self-Report Anx.	-.12	-.30	+.37	+.59	+.56			
PF Change	+.20	+.20	+.19	+.05	+.13	-.13		
Verbal Intell.	+.07	+.15	-.08	-.05	-.08	-.22	-.02	
Parental Educ.	+.07	+.04	-.16	-.29	-.26	-.30	+.10	+.14

Note.- $r_{.05}$ = .31 (two-tailed); $r_{.05}$ = .26 (one-tailed)

behavior under conditions of psychological stress but not in the non-threatening situation. The relation of the educational level of the Ss' parents to verbal production is insignificant, suggesting that the differences in social class origin reflected by this measure contributed very little to differences in verbal productivity.

The intercorrelations among the various measures of hostility shown in Tables 11 and 12 are generally rather low. There is, however, a tendency for Ss in the LA condition to be somewhat more consistent than HA Ss in their expression of hostility on the different measures. The correlation of only .28 between average ratings on the evaluation questionaire and self-report ratings of hostile feelings shows that there were wide discrepancies between subjective feelings of hostility and the expression of hostility among Ss in the HA condition. Correlations between PF extrapunitive change and the questionaire measures of hostility are so low as to be negligible in both the HA and LA groups. This finding, together with the finding that the PF study failed to discriminate between the HA and LA groups casts further doubt on the validity of the PF study.

In both the HA and the LA groups, there are significant positive correlations between ratings of anxiety and hostility adjectives on the self-report questionaire. This finding reflects the presence of a generalized arousal level, but the correlations are doubtlessly also influenced by the existence of rating scale response sets which are independent of the particular adjectives being rated. Some discrimination in the self-report ratings is

implied, however, in that correlations of subjective anxiety with evaluation hostility are lower than those of subjective hostility with evaluation hostility.

Other Findings: General Effects of Frustration on Verbal Productivity.

The question of the general effect of frustration on verbal productivity is given a relatively clear cut answer by the data. More words of both hostile and neutral categories are produced by the Ss in the high arousal condition than in the low arousal condition. The significant F ratio for the main effects of arousal which was found in the analysis of variance (Tables 7 and 9) indicates that the obtained differences are reliably different from chance when neutral and hostile word productions are considered together. The non-significant N-H x Arousal interaction indicates that the same effect is present in both hostile and neutral word production. An evaluation of the differences between HA and LA groups on neutral and hostile words separately by means of "t" ratios is presented in Table 13.

Since no predictions were made in advance, the two-tailed test is appropriate. The obtained values of the "t" ratio permit the rejection of the null hypothesis at the .05 level for the difference in the production of neutral words, but not for hostile words, despite the greater difference between the groups in the production of hostile words. We may conclude that the effects of frustration are to increase verbal productivity among college males. This increase is statistically significant only for the production of neutral words, however.

Table 13

Mean number of hostile and neutral words produced by Ss in the HA and LA groups

Group		Hostile Words	Neutral Words
High Arousal (N = 40)	Mean	20.38	14.92
	S.D.	7.62	4.32
Low Arousal (N = 40)	Mean	17.35	12.72
	S.D.	6.79	4.12
	t	1.88	2.32
	p (two-tailed)	.10	.05

The differences in the number of words produced by the HA and LA groups over 30-second time intervals is plotted in Figures 2 and 3. Figure 2 shows that the HA and LA groups produce about the same number of hostile words in the first 30-second interval. The difference between the groups appears in the succeeding intervals where the HA Ss maintain a higher rate of verbal production than the LA Ss. The difference in the number of hostile words produced during the last two minutes approaches statistical significance (t = 1.91). Thus the arousal procedure had a motivating effect on hostile word production which tended to persist over the three-minute interval.

Figure 3 shows that the motivating effects of frustration were relatively transient for the production of neutral words. The HA Ss produce a greater number of words during the first minute, but thereafter the two curves cross and remain at about the same level. A comparison of the number of neutral words

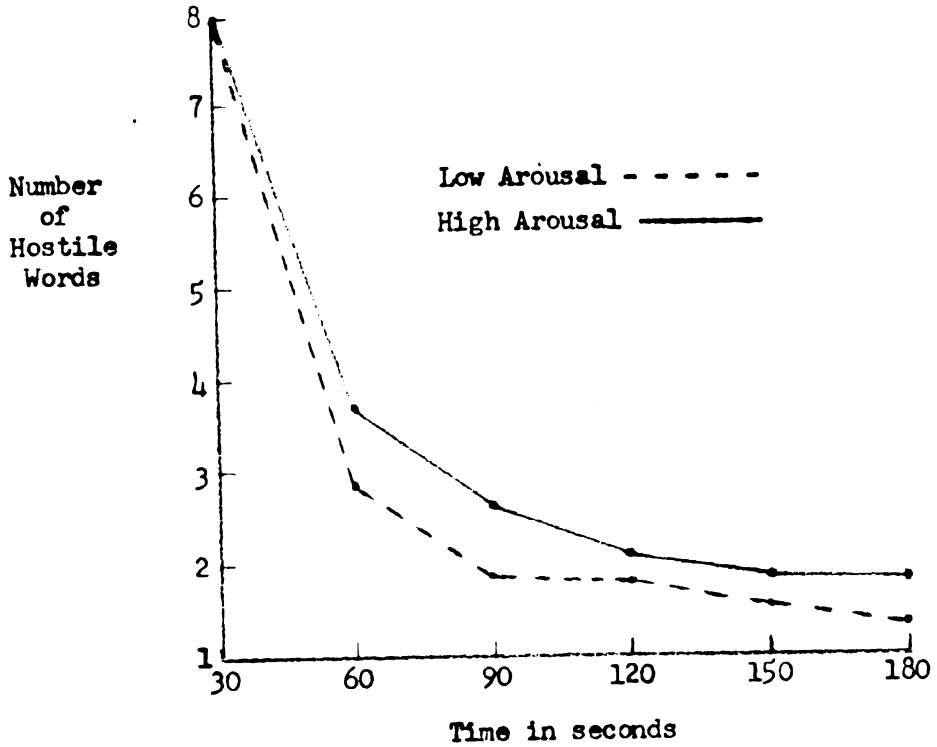

Figure 2

Comparison of LA and HA Groups on Rate of producing Hostile Words

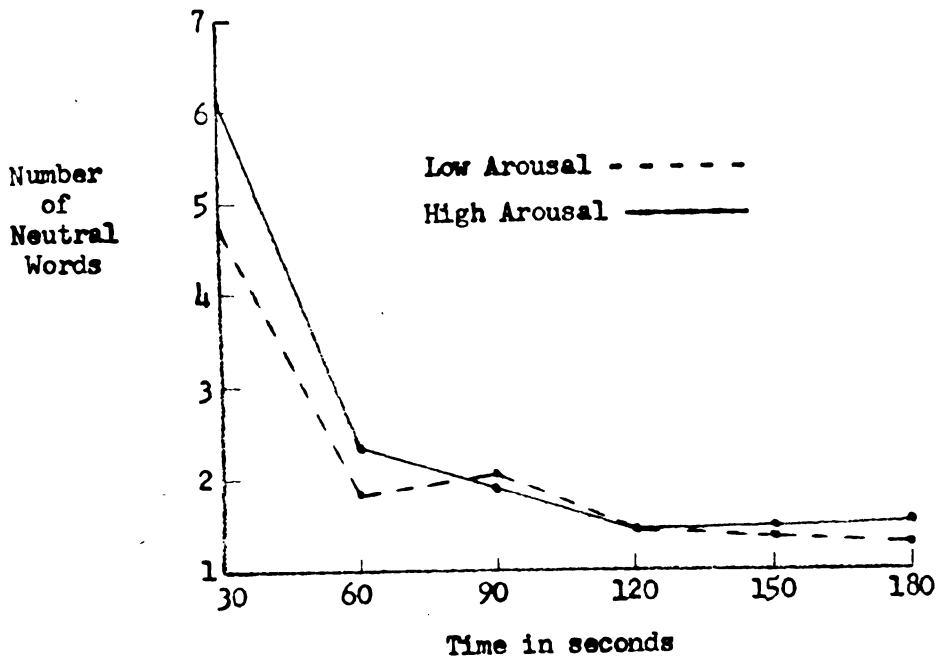

Figure 3

Comparison of LA and HA Groups on Rate of Producing Neutral Words

produced by the two groups in the last two minutes yields a non-significant "t" ratio.

CHAPTER VI

DISCUSSION

The major purpose of this investigation was to test the hypothesis that individual differences in patterns of managing hostility are significantly related to verbal functioning in a situation in which hostility has been aroused. Specifically, the investigation involved an attempt to demonstrate that those individuals who are relatively incapable of expressing hostility show a relative inability to produce words with hostile connotations, as well as neutral words, when compared with others who are able to express appropriate hostility when the situation warrants it. The results of the investigation provide evidence that the management of hostility is related to verbal functioning in a frustrating situation, but that the relationship holds only for the production of hostile words.

The Arousal of Hostility.

The formulation of the problem required that verbal production take place in a situation in which hostility was aroused. There can be little doubt that this requirement was fulfilled in the high arousal condition. From a definitional standpoint, the presence of frustration was assured in that the Ss were thwarted in their efforts to successfully complete the stencil design patterns, and were subjected to harassing and disparaging remarks. In addition, the E's unreasonable, demanding, and accusatory

attitude was calculated to invite an aggressive reaction toward himself and to minimize any tendency toward self-blame for failure on the test. That these procedures had the required effect of arousing hostility is shown by the highly significant differences between the HA and the LA Ss in their post-experimental evaluations and in their ratings of subjective hostility. Furthermore, the item showing the greatest discrimination between the groups is that of unfriendliness to the experimenter, HA Ss giving an average rating of 54 as compared with 31 for the LA Ss. The highly reliable differences between the doubly frustrated HA Ss and the Ss in the LA group, who were subjected to a single arousal procedure, suggests that frustration had a cumulative effect in the HA group.

The quantitive findings are supported by informal observations of the Ss in the HA condition, and by their comments at the conclusion of the experiment. While no physical violence was attempted, signs of anger and irritation were frequently evident in tone of voice and facial expressions, in tensed muscles, and more rarely, in muttered words. One of the Ss, at the conclusion of the experiment, fairly well described what appeared to be the most typical reaction when he said, "Seems like my face is a little red. I really was angry, but tried not to show it." Another HA S clearly revealed his struggle with hostile impulses when he remarked that he had not done very well on the task of producing hostile words because, "I was too busy trying to get over being mad."

The Hypotheses

Throughout the investigation, an emphasis was placed on the

conflictual nature of aggressive tendencies. The remarks just quoted illustrate the conflict in which the HA Ss found themselves. It was assumed that different methods of managing hostility would be exhibited in the solutions of the conflict. Formulations derived from psychoanalytic theory and from Miller's approach-avoidance conflict theory led to the hypothesis that individuals characterized by a relatively inhibitory method of managing hostility would have difficulty in producing words associated with the expression of hostility. On the basis of a presumed generalizing effect of the processes associated with the inhibition of hostility, it was further hypothesized that such individuals would also manifest a relative deficit in the production of words not associated with aggression. In testing these hypotheses, measures of hostility taken immediately following a second frustrating experience were used to assess the individual's method of managing hostility. The results bearing on the two hypotheses are summarized below:

Hypothesis 1. Upon exposure to an hostility arousing situation, individuals identified as inhibiting hostility produce fewer hostile words than those who tend to express hostility.

a. Total hostility scores derived from ratings on the post-experimental questionaire failed to show a positive relation with the production of hostile words. On the contrary, this analysis showed a non-signifcant trend for low scoring Ss to produce more words than high scoring Ss.

b. A separate evaluation of the items on the evaluation questionaire revealed that ratings of unfriendliness

to the experimenter were highly associated with the production of hostile words ($p < .01$). Ratings providing more indirect expressions of hostility showed a tendency to relate negatively to hostile word production.

c. Ss who obtained an increased number of extrapunitive responses on the Rosenzweig Picture Frustration Test after frustration do not differ significantly from other Ss in the number of hostile words produced, although the obtained differences are in the predicted direction.

Hypothesis 2. Upon exposure to an hostility arousing situation, individuals identified as inhibiting hostility produce fewer neutral words than those who tend to express hostility.

a. Neither total hostility scores from the post-experimental questionaire nor any of the separate items of the evaluation questionaire show a significantly positive relation to the production of neutral words.

b. No appreciable relation was found between increased extrapunitiveness on the PF Test and production of neutral words.

It is apparent that the findings fail to provide any support for the second hypothesis. Nothing in the data indicates that individuals characterized by a relatively inhibitory method of managing hostility differ from other individuals in the number of neutral words produced when frustrated. This finding indicates that the processes involved in the inhibition of hostility apparently do not generalize to all types of verbal production. Since only one neutral word category was employed in this study,

it is possible that this category was atypical and that a generalization of inhibition might be found with other neutral word categories. While this possibility deserves exploration, it is felt that the present category of neutral words provided maximal opportunity for such generalization to occur. Although not inherently related to the expression of hostility, words with a-t-i-o-n endings may easily become involved in the process of expression and inhibition of hostility when produced in a situation provocative of aggression. Thus, along with such innocuous words as station, nation, elevation, and recreation, words related to hostility (e.g., damnation, devastation, accusation, indignation) and to guilt or anxiety (e.g., consternation, trepidation, masturbation, castration) were sometimes produced. It was assumed that stimulation of hostile impulses would elicit repressive forces among the inhibitors which would result in blocking such conflictual associations, and that the net effect would be lowered productivity of words ending in a-t-i-o-n. One would suspect that verbal categories less susceptible of association with hostile meanings (e.g., names of U.S. cities, or names of birds) would be even less likely to show a relationship with methods of managing hostility. The absence of any supporting findings in the data thus presents rather damaging evidence against the proposition that those who tend to inhibit hostility are characterized by a lack of fluency with words not inherently related to aggression.

The tests of the first hypothesis provided some unanticipated results, the sum of which are interpreted as offering support for the existence of a relationship between methods of managing

hostility and fluency with hostile words, in the population from which the sample was drawn. In view of the relatively tenuous support for the validity of the Rosenzweig Picture-Frustration test in this study (as in others; cf. Lindzey and Goldwyn, 1954), it is perhaps not suprising that comparisons based on this measure failed to relate significantly to hostile word production. That the obtained differences are in the predicted direction is, at best, an indication that this data is consonant with the findings based on the more valid post-experimental questionaire.

The tendency for total hostility scores on the post-experimental questionaire to relate negatively to hostile word production is, at first glance, apparent evidence for the rejection of the first hypothesis. Assuming that production of hostile words in the arousal situation represents the expression of aggression, these findings also point to an inconsistency (not the first to be reported in the literature!) between the expression of aggression in two different situations. This apparent lack of consistency between the expression of aggression in verbal production and in questionaire ratings led to a closer inspection of the questionaire items. It was reasoned that such lack of consistency could result because of a difference in the degree of directness of aggression in the two situations. The recitation of hostile words in the presence of the frustrating experimenter may be regarded as potentially very direct aggression. However, most of the items on the evaluation questionaire provided for indirect expressions of aggression, and the self-reports of feelings of hostility were not expressions of aggression but descriptions of subjective

hostility. Thus it was hypothesized that the questionaire item providing for the most direct expression of aggression (unfriendly reactions to E) would show a positive relation to the production of hostile words. The marked differences in hostile word production between "friendly" and "unfriendly" Ss provides highly significant support for this hypothesis.

The finding that of the five scales, only one is found to relate significantly in the predicted direction may be grounds for some skepticism. Certainly these findings require replication in another study. However, there are several reasons for accepting the present findings as something more than a random, one chance out of five, success. First of all, the comparison was based on a prediction derived from external evidence of a difference between the test items and consonant with the reasoning developed elsewhere in the study. Secondly, the significance level of the obtained difference is far beyond the minimal level needed for rejection of the null hypothesis. Thirdly, the differences between "friendly" and "unfriendly" Ss is in the direction opposite that of the general trend for the other scales and represents a relationship which could not be assumed from the relation of total hostility scores to hostile word production. Finally, the presence of a uniformly similar pattern of findings in the LA group represents essentially confirming results in a replication at a low level of arousal.

The major finding in relation to the first hypothesis is that only the expression of aggression toward the frustrating agent is found to relate positively to fluency with hostile words in

a frustrating situation. It is not the total amount of aggression, but the amount of aggression focused directly on the instigator that matters.

These results can be interpreted in terms of Miller's (1944) approach-avoidance conflict model in relation to individual differences in avoidance tendencies. Miller posits that in a conflict situation, the tendency to approach or avoid a goal is stronger the nearer the S is to the goal. The slope of the avoidance gradient is steeper than that of approach, so that the two may cross. When the gradients intersect at some distance from the goal, avoidance tendencies become increasingly predominate with proximity to the goal, and goal-oriented behavior is replaced by retreat from the goal. In the context of the present study, approach tendencies are based on the strength of hostile drives, and avoidance tendencies on fears of retaliation (either internally or externally imposed). Since the questionaire measure of total hostility did not relate positively to the production of hostile words, the findings cannot be interpreted as showing consistent individual differences in the level of hostile drive. An explanation congruent with the findings is provided by assuming the presence of consistent individual differences in the slope of the avoidance gradient. In this framework, the presence of relatively strong avoidance tendencies among certain Ss inhibited their recitation of hostile words in the presence of the frustrating experimenter. These same strong avoidance tendencies prevented these Ss from expressing a great deal of unfriendliness to the experimenter, whereas unfavorable ratings of the testing situation or of the

value of the experiment, being farther removed from the goal, were not so inhibited. The tendency for the unfavorable ratings not directly focused on the experimenter to relate negatively to hostile word production is accounted for in this framework by assuming that the avoidance gradients of "expressors" and "inhibitors" intersect. Thus, as the distance from the goal increases, avoidance tendencies drop off more rapidly in the "inhibitors," reaching the point where "inhibitors" express more hostility than "expressors." These formulations would explain findings of both consistency and lack of consistency between the expression of hostility in two different situations. Strongly emphasized in this approach are the interactions of individual differences with situational variables in determining the expression or inhibition of hostility.

The findings of this study may also be interpreted in the context of psychoanalytic theory. From the psychoanalytic standpoint, it may be assumed that the S brings into the experimental situation a pattern of relating to authority figures which reflects earlier patterns of relating to the primary authority figures of childhood. The frustrating and punitive experimenter brings out conflicts in relating to authority, the solution of which may be expected to resemble earlier patterns. Repressive elements in these solutions are reflected in the inability to produce words with hostile connotations (derivitives of hostile impulses). In addition, the self-imposed limitations on the ability to express aggression in the production of hostile words constitutes additional frustration, which contributed to a greater

level of hostility in the second frustrating situation. This increased drive level is reflected in the tendency for overall questionaire hostility to be associated with the lowered production of hostile words. But in the questionaire situation, repressive forces are still at work to prevent expressions which would bring hostile impulses toward the experimenter (as a respresentative of the primary authority figures) into awareness. Such repressive forces would be exemplified in a relative inability to adequately identify the authority figure as the source of frustration. Thus Ss with low ratings on the scale which clearly involves the experimenter tend to be those who produced relatively few hostile words. The greater level of hostile drive in the repressive Ss, and the mobility of the hostile impulses in seeking expression, is manifested in a displaced or more diffuse hostile reaction, viz., in ratings not carrying the label of the experimenter.

It is apparent that, despite differences in terminology, the integration of the results into these two theoretical orientations show many common features. In fact, each formulation is enriched by the other. The bridge which was needed to relate the situationally oriented approach-avoidance theory to the phenomena of consistent individual differences was the assumption of subject differences in avoidance tendencies--an assumption implicit in psychoanalytic theory. On the other hand, the relative inattention to systematic formulations of situational determinants in psychoanalytic theory is supplemented by borrowing from approach-avoidance conflict theory the situational variable of nearness to the goal. That the present findings are congruent with such formulations is

not to be taken as proof of their validity, since the marked differences between the questionaire items were not anticipated prior to undertaking the study. It remains for further research to determine whether hypotheses drawn from these formulations will stand the acid test of empirical prediction. In view of the findings in the study, it is suggested that a sound foundation for such research requires careful preliminary attention to determining successive degrees of nearness to the goal in the particular setting in which aggression is to be measured.

In this study, the requirement of securing measures of hostility after frustration made it necessary to measure hostility near the end of the experiment, after verbal production had taken place. Hence it is not possible, strictly speaking, to say that verbal functioning was predicted from questionaire ratings. Instead, the relationships noted between the production of hostile words and hostility expressed on the questionaire are taken as evidence of relatively consistent patterns of managing hostility in two situations, one providing for verbal expression of hostility, the other for non-verbal expression. Independent and dependent variables are somewhat relative in this situation. The data would be interpreted in much the same way if the production of hostile words was used as the basis of predicting the expression of hostility on the questionaire. Viewing the ability to produce hostile words as an independent variable, it is possible that proficiency with hostile words in a frustrating situation may represent an important clue to methods of managing hostility. In view of the emphasis on handling aggression verbally in our society, the

individual who has an inadequate supply of appropriate words to convey his hostility is at a disadvantage in expressing aggression toward an instigator. Thus he may be forced to rely on less direct means of expressing hostility (at a greater distance from the goal), such as displacement, self-punishment, or withdrawal from communication. On the other hand, if the instigation persists, the inability to drain off hostility verbally may lead to a more direct physical expression of hostility. The production of hostile words may thus eventually prove to be of some value as a clinical tool.

One of the reasons for selecting a sample from a college population in this study was the assumption that social expectations in this group tends to confine aggression largely to verbal aggression. In a population in which less emphasis is placed on the verbal expression of hostility, the relation between the production of hostile words while frustrated and indications of the management of hostility derived from other measures may be less substantial or even non-existent. Thus, any generalization of the findings to groups other than the population from which the sample was drawn is unwarranted. Further research is needed to explore the extent to which the present relationships obtain among other groups. Since strong sex differences appear in much of the research done on hostility, there is also a need to extend the study of management of hostility and verbal functioning to females as well as males.

Other Findings

In addition to the prediction of a relationship between the management of hostility and verbal functioning in a frustrating situation, this study was also designed to answer the question of whether the same relationships are exhibited when verbal production occurs in a relatively non-frustrating situation. The results of the analyses in the low arousal situation show consistent trends of relationships similar to those in the HA group, but the differences in no case reach acceptable levels of statistical significance. In interpreting these results, it should be pointed out that failure to obtain significant relationships in the LA group may have resulted from a less successful differentiation of methods of managing hostility. The available evidence in this study and in others (Berkowitz, 1960; Vander Linde, 1955) suggests that proper differentiation of methods of managing hostility may be enhanced when the measures of hostility are secured at the time hostility is aroused. This is, of course, especially applicable to an instrument such as the post-experimental questionaire. While an attempt was made to arouse hostility in all Ss just prior to testing for hostility, the findings clearly show that greater hostility was aroused in the doubly frustrated HA Ss than in the LA Ss who were frustrated only once. Since measures of hostility in the LA group were secured in a situation of relatively mild arousal, it would not be surprising if these measures do not reflect differences in the management of hostility as well as those obtained from the HA Ss. In view of this possibility, the failure to obtain significant relationships

between measures of the management of hostility and verbal functioning in the LA group does not present strong grounds for rejecting the possibility of such relationships. The presence of consistent trends in the data suggest that further exploration here may prove fruitful.

Another question posed in this study was that of the general effect of frustration on verbal productivity. The findings in this study contrast with those of Lantz (1945) who found that frustration lowered the production of words unrestricted as to category in nine year old children. However, the differences in age of subjects and in the nature of the tasks and experimental situation make comparisons between the two studies difficult to interpret. That frustration increased production of both neutral and hostile words in the present study, would suggest that the increased drive produced by frustration did not selectively affect verbal production which was drive relevant. These findings are congruent with the Hullian tenet that all habit tendencies activated by a given stimulus are multiplied by the drive strength then operating. However, the results must also be seen in the light of inhibitory factors, the effects of which appear to be of equal significance with drive variable for the production of hostile words. Taking into account the higher level of inhibition associated with the production of hostile words in the presence of the frustrator, the effects of frustration may be interpreted as generating both greater drive and greater inhibition for the production of hostile words. The net result, therefore, is that hostile word production shows no greater increase in the HA group than neutral

word production, which was not so affected by inhibitory forces. The differences in rate of verbal production, shown in Figures 2 and 3, are congruent with this interpretation. The continuing higher rate of production of hostile words by HA Ss may be interpreted as an indication that the inhibition associated with the production of hostile words in the presence of the instigator contributed to the maintenance of drive. The merging of the production curves for neutral words after one minute suggests that, in the absence of inhibition, the drive effects of frustration on neutral word production were transient.

CHAPTER VII

SUMMARY

The purpose of this study was to investigate the relationship between individual differences in patterns of managing hostility and verbal functioning in a situation in which hostility is aroused. As compared with studies emphasizing the situational determinants of the expression of hostility, the present investigation focused attention on individual differences in response to an objectively constant hostility-provoking situation. In this study, individual differences in the expression of hostility are seen primarily as manifestations of different methods of managing hostility, and are assumed to represent relatively enduring patterns of behavior. The existence of a relationship between the management of hostility and verbal functioning in a frustrating situation was inferred from psychoanalytic formulations of the processes involved in impulse inhibition, as well as from Miller's approach-avoidance conflict model. These formulations suggested that individuals characterized by a relatively inhibitory method of managing hostility experience difficulty in the production of words associated with the expression of hostility. That such individuals may also be at a disadvantage in producing words not inherently related to aggression was inferred from the possibility of a generalization of the processes involved in the inhibition of hostility. Although such relationships have been observed in clinical settings, there has been no previous attempt to investigate

these relationships in a controlled experiment which provides for the objective measurement of the variables involved. This study was therefore an attempt to provide a more rigorous test than has previously been conducted of the proposed relationships between the management of hostility and verbal productivity.

Two hypotheses were formulated as a means of subjecting the proposed relationships to an empirical test:

Hypothesis 1: Upon exposure to an hostility arousing situation, individuals identified as inhibiting hostility will produce fewer hostile words in a standard unit of time than individuals who tend to express hostility.

Hypothesis 2: Upon exposure to an hostility arousing situation, individuals identified as inhibiting hostility will produce fewer neutral words in a standard unit of time than individuals who tend to express hostility.

In testing these hypotheses, a sample was drawn from among male students enrolled in introductory psychology classes at Michigan State University. Eighty Ss were seen in individual experimental sessions. Ss were randomly assigned to one of two experimental conditions, termed the high arousal (HA) and low arousal (LA) conditions. Prior to verbal production tasks, the 40 HA Ss were frustrated by contriving their failure on a test said to predict creative potential, and by the experimenter's harassing and insulting behavior. For the 40 Ss in the LA group, frustration prior to verbal production was minimal. The verbal production tasks consisted of oral production of words in restricted categories. The hostile word category consisted of words used to

describe someone whom one hates or dislikes, such as: dope, stupid, ugly, etc. The neutral word category consisted of words ending in a-t-i-o-n, such as: nation, station, elevation, etc. The number of words produced in each category within a three-minute period constituted the dependent measures of verbal productivity. Measures of the management of hostility were obtained near the end of the experiment, immediately following a procedure for inducing hostility which was standard for all Ss. These measures consisted of: (1) ratings on a post-experimental questionaire which provided for the expression of hostility in unfriendly reactions to the experimenter and in unfavorable evaluations of the testing situation or the experiment, and (2) extrapunitive responses on a modified, multiple choice version of the Rosenzweig Picture Frustration Test, which was administered in equivalent halves before and after frustration.

A comparison of the HA and LA groups on the post-experimental questionaire ratings indicated that the HA Ss were considerably more hostile than the LA Ss in response to the experimental procedures. This finding was taken as evidence of the effectiveness of the arousal procedure in producing the required hostility in the HA group, and also as support for the validity of the post-experimental questionaire. The failure of the PF Test to reliably discriminate between HA and LA Ss was interpreted as casting further doubt on the validity of a technique that has been shown by other investigators to have serious weaknesses.

The hypotheses to be tested concerned only the relationships between hostility scores and verbal production measures in the

HA group. The method of testing the hypotheses was to compare the number of words produced by Ss whose hostility scores fell above the group median (expressors) with that of Ss who received hostility scores below the group median (inhibitors). Support for the hypotheses was contingent upon finding that inhibitors produced fewer hostile words and fewer neutral words than expressors. The results bearing on the hypotheses may be summarized as follows:

Hypothesis 1: Total hostility scores derived from ratings on the post-experimental questionaire failed to show a positive relation with the production of hostile words. On the contrary, this analysis revealed a non-significant trend for low scoring Ss to produce more words of both categories than high scoring Ss. A separate analysis of the itmes on the evaluation questionaire revealed that ratings of unfriendliness to the experimenter were highly related to the production of hostile words ($p < .01$), whereas ratings providing more indirect expressions of hostility showed a tendency to relate negatively to hostile word production. Ss who obtained an increased number of extrapunitive responses on the PF Test after frustration did not differ significantly from other Ss in number of hostile words produced, although the obtained differences were in the predicted direction.

Hypothesis 2: Neither total hostility scores from the post-experimental questionaire nor any of the separate items of the evaluation questionaire showed a significantly positive relation to the production of neutral words. No appreciable relationship was found between increased extrapunitiveness on the PF Test and production of neutral words.

The negative findings in regard to the second hypothesis were interpreted as casting serious doubt on the proposition that the individual who tends to inhibit hostility is characterized by a relative lack of fluency with words not inherently related to the expression of hostility.

In interpreting the results bearing on the first hypothesis, it was considered significant that ratings expressing hostility directly toward the instigator relate positively to the production of hostile words, whereas more indirect expressions of hostility tend to relate negatively. These findings were regarded as providing some support for the first hypothesis, while at the same time suggesting an additional refinement of this hypothesis. On the basis of these findings, it was suggested that it is not the indiscriminate expression of hostility, but the ability to express hostility directly toward the instigator that relates positively to the ability to produce hostile words when frustrated. These results were seen as consistent with psychoanalytic theory and with a variation of Miller's approach-avoidance conflict model which assumes the presence of individual differences in avoidance tendencies. Attention was called to the possible significance of proficiency with hostile verbalizations as affecting patterns of managing hostility. The failure to obtain the significant differences predicted in comparing Ss who showed different directions of change in the number of PF extrapunitive responses after frustration was taken as a reflection of the relatively low validity of this instrument. It was pointed out that the sample chosen represents a group in which social expectations confine

hostility largely to verbal aggression, and that generalizations from the findings of this study must be confined to the population from which the sample was drawn. Present findings are regarded as indicating the need for further research in this area.

The design of this study also permitted comparisons within the LA group. An evaluation of the extent of the relationship between the management of hostility and verbal productivity among LA Ss revealed non-significant trends of essentially the same relationships which were exhibited in the HA group. In discussing these results, conclusions were qualified by the possibility that a less valid identification of individual differences in the management of hostility was secured in the LA condition.

A comparison of the HA and LA groups also permitted an evaluation of the effects of frustration on verbal productivity, exclusive of individual differences. The results showed that frustrated Ss produced more words of both categories than non-frustrated Ss. That the motivating effect of frustration was more transient for neutral words was seen as consistent with the assumption that greater inhibition is associated with the production of hostile words in the presence of the instigator.

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APPENDIX A

Rosenzweig Picture Frustration Test

SCORE SHEET

Experiment No. _____ Name _____

Date _____

Cartoon number		Part A E	Part A I	Part A M	Cartoon number		Part B E	Part B I	Part B M
1.	1.	2	3	1	11.	1.	2	3	1
13.	2.	1	2	3	14.	2.	1	2	3
7.	3.	2	1	3	9.	3.	2	1	3
12.	4.	3	2	1	3.	4.	3	2	1
4.	5.	1	3	2	6.	5.	1	3	2
22.	6.	3	1	2	24.	6.	3	1	2
19.	7.	3	2	1	21.	7.	3	2	1
15.	8.	2	1	3	8.	8.	2	1	3
16.	9.	3	1	2	20.	9.	3	1	2
10.	10.	1	2	3	23.	10.	1	2	3
18.	11.	2	3	1	17.	11.	2	3	1
2.	12.	1	3	2	5.	12.	1	3	2

APPENDIX B

Post-Experimental Questionaire

No._____

A. EVALUATION QUESTIONAIRE

In research of this kind, it is necessary to get the subject's viewpoint and evaluations in order to get a complete picture of the meaning of the results. It is recognized that a variety of extraneous factors, including the nature of the testing situation, the personality of the examiner, and the subject's reactions to him, add significant dimensions to the subject's performance. In this questionaire, you will be given an opportunity to express your own evaluations of a variety of these factors. Be as frank and honest as possible. Make a check mark (X) anywhere along each of the scales below at the point that best represents your evaluations.

1. The effect of the testing situation on my performance was:

Very Favorable ——————————————————— Very Unfavorable

2. The effect of the experimenter's behavior on my performance was:

Very Unfavorable ——————————————————— Very Favorable

3. My reactions to the experimenter are:

Very Friendly ——————————————————— Very Unfriendly

4. In my opinion, the value of this experiment is:

Entirely Worthless ——————————————————— Very Valuable

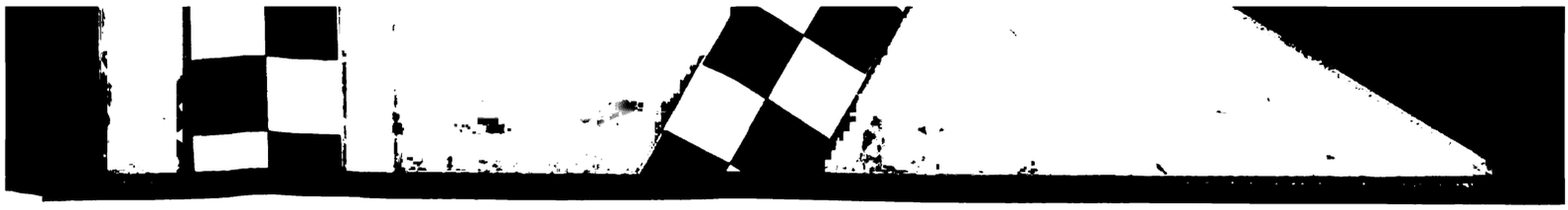
5. If I were given a chance to participate in a follow-up study with this experimenter, I would be:

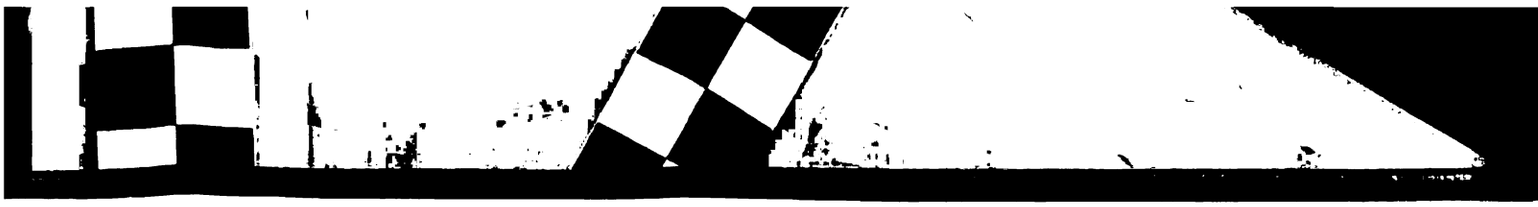
Very Willing ——————————————————— Very Unwilling

B. SELF-RATING SCALE

Psychological testing of this type is accompanied by various subjective feelings and reactions. This rating scale does not have any right or wrong answers; you are asked only to report your feelings and reactions as accurately as possible. Please make a check mark (X) anywhere along each of the scales below at the point that best indicates your typical feelings during this experiment.

	Low	High
COMPETENT		
IRRITATED		
UNEASY		
SATISFIED		
ANGRY		
COMPOSED		
DISTRESSED		
ANNOYED		
VULNERABLE		
CALM		
APPREHENSIVE		
	Low	High





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