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THE EFFECTS OF DEPRESSION AND SEX ON AGGRESSIVE AFFECT
AND BEHAVIOR TOWARD THE SELF AND TOWARD OTHERS

A Dissertation Presented

By

FRED E. KOERNER

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

February 1977

Psychology Department

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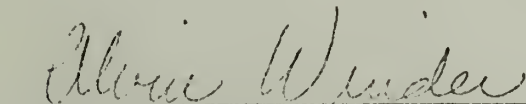
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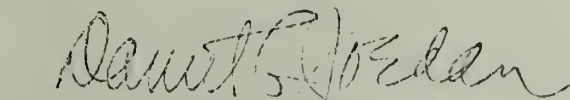
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ABSTRACT

The Effects of Depression and Sex on Aggressive Affect
and Behavior toward the Self and toward Others

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The present study was an examination of the relationship between depression and aggression. The early psychoanalytic writings stressed the role of aggression turned against the self in the genesis of depressive disorders. More recent approaches have suggested alternative etiological explanations, and have tended to view aggression toward the self primarily as a manifestation of depression, rather than as a causal factor. Despite the paucity of empirical research on the subject, statements about the handling of aggression proliferate in the literature on depression. In order to evaluate the role of aggression in depression, the present study was designed to compare the amount and kinds of aggression manifested by high-depressed and low-depressed individuals in the psychological laboratory. Sex differences were explored in order to re-examine the common finding that males are more aggressive than females. A secondary interest was in examining the relationship between locus of control and depression.

Major hypotheses were that more aggression toward the self and less outwardly-directed aggression would be manifested by high-depressed subjects than by low-depressed subjects, and that males would be more outwardly aggressive than females, while females would be more self-punitive. It was also hypothesized that depression would be associated with an expectancy for external control of reinforcement.

Sixty male and sixty female undergraduate students served as subjects in an instigation-to-aggression experiment. A 2^3 factorial design was employed with Condition, Sex, and Depression as the independent variables. Depression was determined by subjects' scores on a depression scale which was administered prior to the experiment as part of a battery of paper-and-pencil tests. Subjects in the experimental group were insulted following a confederate's superior performance on an experimental task; control group subjects were exposed to the identical forced-failure situation, but were not insulted. Following the forced-failure, subject and confederate participated in a task in which subject had the opportunity to punish him/herself as well as the confederate for errors on the task. In addition to the measures of aggressive behavior toward the self and the confederate, measures of hostile affect were obtained.

No consistent differences in aggression-arousal were found between experimental and control group subjects. Overall, high-depressed subjects were more overtly self-

punitive than were low-depressed subjects. While no differences emerged between high- and low-depressed subjects in terms of overt aggression toward the confederate, the high-depressed group was more aggressive in terms of their private evaluations of the confederate and in terms of hostile affect. Males reported more hostile affect than females, although they were not more overtly aggressive toward the confederate. While female subjects were lower on hostility scores, they were more overtly self-punitive. Locus of control was unrelated to depression, and it was suggested that expectancy for control of reinforcement may be curvilinearly related to depression.

The results were discussed in terms of psychoanalytic, cognitive and learning theory perspectives on depression. A unitary approach seemed insufficient to account for the data, particularly in view of the disparity between affective and behavioral manifestations of aggressiveness. The failure to find a straightforward pathway from affect to behavior is testimony to a complex interplay of behavioral and metapsychological factors in the individual's learning to recognize affective states and in the translation of affect into cognitive schemas and behavior. The results support the speculation that depressives and women have well-entrenched sensitivities to the vicissitudes of aggression. It was suggested that the perception of hostile affect in the depressed individual may precipitate a breakdown in

self-esteem which is manifested by a behavioral proclivity or mechanism of turning aggression onto the self. Implications for future research were discussed in terms of the exploration into the ways in which individuals learn to recognize their affective states, and the variables that intervene between affect and psychopathological behavior.

TABLE OF CONTENTS

CHAPTER I. Introduction.....	1
Depression.....	2
Aggression.....	22
Depression and Aggression.....	31
Individual Differences Variables.....	47
Hypotheses.....	50
CHAPTER II. Method.....	52
Subjects.....	52
Experimenters and Confederates.....	53
Design.....	53
Materials.....	54
Pre-testing.....	54
Laboratory experiment.....	57
Procedures.....	59
Pre-testing.....	59
Experimental procedure.....	60
CHAPTER III. Results.....	67
Assignment of Subjects to Depression Groups.....	67
Explanation of Dependent Measures.....	67
The Effect of Order.....	69
The Effectiveness of the Experimental Insult Manipulation.....	71
Depression and Aggression.....	79
Sex Differences in Aggression.....	81
Locus of Control and Exploratory Analyses of Individual Differences Variables.....	83

CHAPTER IV. Discussion.....	86
Depression and Aggression.....	92
Sex Differences in Aggression.....	101
Locus of Control and Exploratory Analyses of Individual Differences Variables.....	104
Conclusion.....	108
REFERENCES.....	111
APPENDIX.....	125

LIST OF TABLES

Table 1.	Descriptive Statistics: Zung Self-Rating Depression Scores.....	61
Table 2.	Intercorrelation Matrix: Aggression Scores....	70
Table 3.	T-test for Differences between Means: Order.....	72
Table 4.	Analysis of Variance of Sex (S) by Condition (C) by Depression (D) Dependent Variable: Number of Chips to Punish Confederate.....	74
Table 5.	Analysis of Variance of Sex (S) by Condition (C) by Depression (D) Dependent Variable: MAACL Hostility Score.....	75
Table 6.	Analysis of Variance of Sex (S) by Condition (C) by Depression (D) Dependent Variable: Number of Negative Traits on Personality Checklist.....	76
Table 7.	Analysis of Variance of Sex (S) by Condition (C) by Depression (D) Dependent Variable: Number of Positive Traits on Personality Checklist.....	77
Table 8.	Analysis of Variance of Sex (S) by Condition (C) by Depression (D) Dependent Variable: Number of Chips to Punish Self.....	78
Table 9.	Intercorrelation Matrix: Depression, Locus of Control, Need for Approval, Generalized Expectancy for Success.....	84

C H A P T E R I

Introduction

This study was an examination of the relationship between depression and the expression of aggression. Since the early psychoanalytic writings on depression, many theoreticians and clinicians have operated on the assumption that depressive symptomatology could be understood, in part, as resulting from the internalization of aggression. While cognitive and learning theories of depression do not specifically posit a causal link between depression and aggression, the clinically-observed inability of depressives to express aggression overtly is consistent with learning theory approaches to the understanding of the behavior of depressed people, as well as with cognitive models which describe the depressive's conceptualizations of his experience as reflecting his own inadequacies. Despite strong theoretical and clinical underpinnings, little empirical research has been directed toward experimentally testing the relationship between depression and aggression. The present study was an investigation of the behavior of depressives and non-depressives in an instigation-to-aggression situation in the psychological laboratory. The amount of overt and covert aggression toward the instigator and toward the self was observed. Sex differences were also examined in order to note the effect of depression on the commonly-observed tend-

ency for males to be more aggressive than females.

Depression

Depression is among the most prevalent forms of psychological maladjustment. The New York Times Magazine (1973), citing a survey by the National Institute of Mental Health, reported that as many as eight million people a year suffer depression severe enough to merit treatment by professionals. While depression is widespread in members of both sexes, epidemiological data indicate that women tend to outnumber men in the incidence of depression; most studies report twice as many women depressives as males in the United States (Dohrenwend, 1973; Gove & Tudor, 1973). While clinicians generally agree about the symptomatology of depression, theories regarding etiology are varied, reflecting the likely interaction of a number of causal factors. Depression has been conceptualized as a syndrome, symptom, and disease entity. Distinctions have been drawn along various dimensions, reflecting different taxonomic schemas. Among the more common dimensions are neurotic/psychotic, endogenous/exogenous, reactive/chronic, retarded/agitated, and unipolar/bipolar. Although such distinctions may lead to an understanding of different manifestations of depression, they often serve to obscure the commonalities across diagnostic categories of depression, as well as the similarities between depression and normal fluctuations of mood. Srole et

al. (1962) suggest that as many as 23 per cent of the general population may show feelings of depression that in most cases are not severe enough to require treatment. In addition, Wessman and Ricks (1966) have provided empirical support for the conclusion that depressed moods of normal subjects show many similarities to more profound affective disturbances, such as clinically observed depression. These investigations reflect the philosophy that psychopathology can be understood as a continuum of disturbance. Thus, normal, neurotic, and psychotic manifestations differ in degree, and not in kind (Buss, 1966a, pp. 32-35; Chodoff, 1974, p. 57). According to this view, sub-groups of depressives are essentially homogeneous, differing as a function of quantitative, rather than qualitative elements. According to the continuity position, the study of depression in normal subjects may provide important information regarding the more serious manifestations of depression.

The symptomatology of depression can be understood in terms of cognitive, affective, and motor disturbances. The central feature of depression, or, the one which is most readily apparent to clinicians, is the dejected mood, with accompanying feelings of guilt, failure, worthlessness, hopelessness and helplessness. A number of cognitive manifestations often exacerbate, and contribute to, the affective disturbances. Beck (1967) refers to low evaluations of the self, self-blame, self-criticism, distortion of bodily

image, negative expectations, pessimism, and suicidal thoughts. Physical manifestations of depression include psychomotor retardation manifested in slow speech and thought, fatigue, disturbances of sleep, loss of appetite, and a diminished tendency to initiate meaningful sequences of instrumental behavior (Buss, 1966a, p. 175; Seligman, 1974, p. 88).

Attempts to understand the etiology of depression have been many and varied, and theories regarding causation cite factors such as intrapsychic, interpersonal, learning-historical, and physiological. A brief overview of some of the major theoretical perspectives on depression will be presented.

Most of the early work on the psychogenic origins of depression derived from psychoanalytic schools of thought. The earliest notions viewed depression as an interplay of drives and affects such as oral needs, feelings of loss, and guilt (Abraham, 1911, 1916). The depression-prone person was thus seen as dependent, sensitive to loss of love, and having basic defects in self-esteem. Freud (1917) compared depression to mourning, and speculated that in both, loss of a love-object was the precipitating cause, although in depression the loss may be more symbolic than in mourning, where the loss is real. The lessening in self-esteem, which characterizes depressed individuals, was originally viewed as "reproaches against a love-object which have been

shifted onto the patient's own ego" (Freud, 1917, p. 158). Specifically, the real or imagined loss of a narcissistically important love-object activates the oral incorporative mechanism of introjection, whereby the ego over-identifies with the abandoned love-object in order to preserve it. The introjection of the object protects the person against outwardly directed efforts at retaliation which might entail serious complications with reality, for example, by endangering the relationship with the need-fulfilling person. Consequently, the hostility toward the object is directed inward toward the individual's own ego, which depletes the energy available to the ego, and diminishes self-esteem (Freud, 1917, pp. 162-163). Rado (in Gaylin, 1968) saw depression as a despairing cry for love, and stressed the dependency of depressives, as well as their unexpressed hostility to loved ones (p. 74). Fenichel (in Gaylin, 1968) was struck by the passive dependency of depressives, and pointed out the conflict with aggressive tendencies. Specifically, he suggested that depressed individuals tend to react to frustration with violence, as for example, in the child's temper tantrum. In order to avoid feelings of rage associated with deprivation, the child over-identifies with the need-fulfilling object and develops the fantasy that he is himself responsible for the deprivation because of the intensity of his need and his rage. Strategies of ingratitude and submission develop as a compromise with a harsh

super ego as a defense against the child's rage. Klein (1934) theorized that a predisposition to depression in adulthood was to be found in individuals who felt deprived of love as children and failed to master feelings of frustration, helplessness and guilt (the depressive position). This constellation endangers the individual's capacity to establish a sense of self-esteem independent of mother's affection.

It seems clear that early psychoanalytic theoreticians stressed the instinctual aspects of depression in their emphasis on oral frustrations and oral recovery mechanisms (identification, introjection, incorporation). According to these thinkers, the role of aggressive drives is central in depression because, by withdrawing libido from external attachments and focussing on itself, the ego then carries out on an intrapsychic level its struggle to allay the disappointments it has suffered at the hands of frustrating external love objects. Consequently, feelings of rage (oral sadism) which are felt toward these external objects are re-directed against the ego itself, and are experienced as depression, self-criticism, guilt, and feelings of suicide. As psychoanalytic thinking has evolved, there has been a gradual broadening of the concept of orality, as well as a loosening of its biological roots, so that more recently, orality is understood as "synonymous with traits expressing excessive dependency and exaggerated affectional and sup-

portive needs" (Chodoff, 1974, p. 64). A concomitant of this liberalization in the definition of orality is that the tendency to view depression as the result of the ego's conflict with instinctual drives has diminished, and greater emphasis has been placed, instead, on the organization of the ego itself in regulating feelings of self-esteem. Thus, the postulation of "aggressive drives" turned against the self has diminished in importance. A noteworthy example of this liberalization in psychoanalytic thought is Bibring (1953) who sees depression as the "emotional correlate of a partial or complete collapse of the self-esteem of the ego," resulting in inhibition of ego functions (p. 27). The decrease in self-esteem in the depressed person is seen as the ego's awareness of its helplessness and inability to live up to narcissistically significant aspirations while they are strongly maintained (p. 39). Bibring suggests further that narcissistic aspirations (and frustrations) may derive from any developmental crisis, and not exclusively from traumas at the oral level. Rapaport (1967) observes that Bibring's formulations represent an important departure from traditional psychoanalytic conceptions of the etiological role of aggression in depression, since Bibring sees depression as an ego state which is capable of developing independently of the dynamics of aggressive drives. Thus, while instinct-oriented psychoanalysts postulated that aggression turned against the self causes depression, Bibring

contends that inwardly-directed aggression is only one possible consequence of the ego's feeling of helplessness.

More recent ego psychologists have expanded on Bibring's formulations to articulate other ego attitudes which correspond with depressive states. Meyersburg et al. (1974) outline a depressogenic psychic mechanism which consists of a "reverberating interplay of impulsivity, perfectionism, guilt, and self-punitiveness, usually in response to traumatic experience" (p. 372). They cite the role of anxiety in overwhelming the ego and potentiating this reverberating interplay. Self-punitiveness and guilt are seen as defensive postures to protect the individual against the perception of painful experiences such as object loss, deprivations, and failure of omnipotence (p. 377). Here, too, it is evident that aggression toward the self (ideationally or behaviorally) is viewed as a consequence of depression, rather than its cause.

Recent psychiatric and psychoanalytic efforts have been devoted to delineating distinctive personality characteristics which predispose individuals to depressive disorders. The attempt to define the "depressive personality" has resulted in some agreement, but, as Chodoff (1974) points out in a critical review, "we are very far from consensus about the characteristics of such a putative personality pattern predisposing to depression" (p. 55). However, there does seem to be general agreement about the depressive's reliance

on external narcissistic supplies for the regulation of his self-esteem. This pattern, which contains elements of the oral character, cannot be regarded as providing conclusive information about the etiology of depression, since, as Chodoff points out, it may be that "personality patterns in depression have their chief effect in coloring and altering the symptoms of depressive illnesses, rather than in predisposing to them" (Chodoff, 1974, p. 67). One can see a trend in the psychoanalytic literature toward more sophisticated and less instinct-bound explanations for the phenomenon of depression. A consequence of this increasing theoretical sophistication has been that conceptions about the etiology of depression have been less definitive than was the case in the early days of psychoanalysis. Thus, for example, early conceptions cited the turning of anger against the self as a causal factor in depression, whereas more recent thinking de-emphasizes anger-turned-inward as causal, or sees it as one possible manifestation in a broader personality configuration predisposing to depression.

Beck (1967, 1971) proposed a cognitive explanation for depression which emphasizes the individual's conceptualization of his experiences. Originally operating within an analytic framework, Beck recognized the importance of developmental factors in the acquisition of attitudes about the self and the world. Beck (1974) considers two childhood antecedents which predispose an individual to a depressogenic

construction of his experiences: irrevocable loss, and failure to learn adequate coping strategies to handle serious interpersonal difficulties or failures. However, he questioned the primacy of the affective sphere and suggested a more parsimonious explanation in terms of cognitive schemas. As a result of early experiences of loss or failure, Beck suggests, the individual later reacts with pessimism and self-blame to components of rejection or deprivation in a situation. These perseverative conceptualizations serve to distort the objective stimulus situation in terms of loss or danger, and the depressed individual responds with a negative self-view and a sense of hopelessness which characterized his childhood reactions. Thus, according to Beck, "idiosyncratic cognitive schemas shape ideational content by determining the way in which experiences are received, processed, interpreted and stored" (Beck, 1971, p. 500). Under stressful conditions, these schemas are activated and supersede a more realistic construction of experience. It is the individual's conceptualization of his behavior and experiences in self-defeating terms which accounts for the depressed mood and the subsequent depressive behaviors. Beck views the psychoanalytic hypothesis of internalized rage as a "convoluted pathway" (Beck, 1974, p. 11), and offers an alternative explanation for the self-criticism and self-blame so often seen in depressed individuals. Specifically, Beck (1976) suggests that, once a loss activates the depresso-

genic cognitive schemas, individuals become critical of attributes in themselves which they had previously valued highly (p. 114). Although Beck contests the etiological importance of anger in depression, he does seem to emphasize the importance of the expression of anger in ameliorating depressive symptomatology. He suggests that the expression of angry feelings by the depressed patient may serve to "shake loose positive affect because it changes the cognitive set from self-blaming to other-blaming"; it is a behavior which provides the individual with a sense of control over his environment, and consequently enhances self-esteem (Beck, 1976, p. 296). Beck's conceptualizations about depression are consistent with Meyersburg et al.'s (1974, cited earlier) postulation of a reverberating psychic interplay, although in the former the emphasis is on cognitive changes, while in the latter, cognitive changes are seen as defenses against the perception of overwhelming affective states. In both perspectives, however, the turning of anger against the self is seen as a common manifestation of the depressive's construction of his experience, rather than as a primary etiological factor. Ellis' (1962) model of psychopathology is also consistent with a cognitive perspective, and postulates that disturbed behavior is caused by irrational, self-defeating and catastrophizing interpretations of experience. The role of aggression in depression is not addressed in Ellis' theoretical formulations.

Early learning theories viewed depression as the consequence of a sudden or gradual reduction of reinforcement. Loss of reinforcement was defined broadly to include, in addition to concrete losses, such subjective experiences as loss of hope, self-respect, and security. With the passage of time, the reduction in reinforcement results in a decreased response frequency, which is a cardinal feature of depression. The individual remains depressed unless he finds new sources of reward to replace the lost object, or unless other available sources of reinforcement are revalued (Ullmann & Krasner, 1969). Furthermore, depression is maintained because it brings about secondary gains from the environment, such as solicitude or sympathy, which further reinforce the avoidant, maladaptive behaviors which the depressed person exhibits. This results in a further decrement in the frequency of constructive behaviors which are available for reinforcement (Ferster, 1965; Ullmann & Krasner, 1969), and accounts for the vicious cycle which often characterizes depressive symptomatology. Later learning theory approaches to depression retained the emphasis on the reduction of reinforcement, but elaborated on earlier models to expand on the definition of positive reinforcement, and to include consideration of the individual's subjective evaluation of his experience. Lewinsohn (1972) suggests that depressive behavior is related to low rates of response-contingent reinforcement. That is, if the individual does

not recognize rewards as being contingent on his instrumental responses, then, in effect, it is as though he is not receiving reinforcement. Rotter (1954) attempts an integration of cognitive and reinforcement theories, and views behavior as a function of the expectancy that a particular reinforcement will occur in a given situation as a result of the individual's behavior, and the reinforcement value of various rewards available to the individual. In social learning theory terms, then, depression is the result of 1) low expectancy of obtaining satisfaction from reinforcements, 2) high standards for what constitutes positive reinforcement, and 3) an expectancy for response-contingent reinforcement, that is, a generalized expectancy for internal control of reinforcement (Phares, 1972). The depressive's symptoms of worthlessness, self-blame and low self-esteem are understandable within this social learning framework. Research relating depression to expectancy for control of reinforcement will be reviewed in a later section.

Also operating within a learning theory framework, Lewinsohn and Shaffer (1971) emphasize that behavior takes place in an interpersonal context, and they regard deficiencies in social behavior as instigators of depression. Ferster (1974) elaborates on this, and cites early mother-child interactions as providing a basis for the learning of inadequate patterns of interpersonal behavior. Specifically, he suggests that a child whose interactions with its mother

are primarily associated with its own deprivations, will ultimately be "blocked from developing an adequate perception of other people, and hence, adequate ways of interacting with them" (Ferster, 1974, p. 41). Such a child does not learn to interact in close correspondence with other people and consequently develops fewer interpersonal behaviors for reinforcement. Ferster also notes that one of the behaviors that is frequently learned in childhood is the suppression of aggressive or angry behavior, because such behavior tends to be punished. He argues that suppression can be construed as behavior in its own right, and that "the repression of punished behavior appears to be a potentially serious contributor to depression because it commits such a large part of a person's repertoire to activities that do not produce positive reinforcement" (Ferster, 1974, p. 44).

Coyne (1976) expands on an interactional conceptualization of depression and stresses the mutually maintaining relationship between the depressive's symptoms and the response of the social environment. The interactional or dialectical nature of this system is evident in Coyne's emphasis on the collusive quality of the interaction of the depressed person and others in his environment: (While the depressed person) "has played a major role in the creation of his social system, the emergence of the system has also required the cooperation of others" (p. 35). Coyne describes the interpersonal system of the depressive as one in which

feedback cannot be received, and efforts to change become system-maintaining (p. 39). He suggests that the depressed individual seeks reassurance and validation from others by means of his symptoms, and that these symptoms, when persistent, tend to be aversive and guilt-inducing to others in the social field. This situation inhibits the direct expression of annoyance and hostility from others, and creates an interpersonal context which, while intended to relieve the depressive symptoms, actually serves to reinforce them. A salient aspect of this interpersonal matrix involves the cultivation of hostility. While hostility is not seen as necessarily a causal factor, Coyne emphasizes that the manipulations, frustrations, and provocations which characterize the interactions between the depressive and his environment, are indications of veiled reciprocal hostility which may be the result of mutual inhibition of appropriate expressions of hostility and annoyance in all parts of the system.

Seligman and his colleagues (Seligman, Maier, & Solomon, 1971) offer a learned helplessness model which is consistent with other learning theory formulations about depression. In their research with dogs, they found that uncontrollable aversive shock interfered with later acquisition of responses which were instrumental in controlling the shock. Seligman (1974) points out the similarities between the animal's helpless response to uncontrollable aversive stimulation and depressive symptomatology in humans. Both

learned helplessness and depression dissipate over time, result in anorexia and weight loss, depletion of brain nor-epinephrine, and retardation in learning that responses can be instrumental in controlling trauma (Seligman, 1974, p. 88).

Psychological theories regarding depression seem to be in agreement as to the primary manifestations of depression. Etiological explanations vary, from the psychoanalytic, which postulates inverted rage, to the cognitive, which cites faulty cognitive schemas, and the learning-oriented theories, which, though diverse, are unified in their emphasis on the reduction of reinforcement. As Seligman (1974) aptly points out, what unifies the three major psychological perspectives (psychoanalytic, cognitive, and learning) is the observation that, for one reason or another (and the reasons vary among the theoretical perspectives) the depressed person "learns or believes that he cannot control those elements of his life that relieve suffering or bring satisfaction" (Seligman, 1974, p. 98).

Recent psychiatric research has attempted to identify biological processes correlated with depression, with the intent to demonstrate a possible biological etiology. There are genetic findings (e.g., Winokur, 1971) to suggest that biopolar (manic-depressive) manifestations of depression, and to a lesser extent, unipolar (neurotic) depression may be inherited. However, Angst (1972) questioned the role of

biological factors in reactive depressions. While the evidence is not conclusive, indications are that affective disorders, particularly of the endogenous variety, may have a heritable component. The greatest progress in psychiatric research on the biological substrates of affective disorders has been in establishing a link between the mood disorders and changes in central nervous system biochemistry. Perhaps the most powerful research area has been the monoamine hypothesis (e.g., Schildkraut, 1965), which posits that depression is associated with a deficiency of available biogenic monoamines (chemical mediators of nerve impulse transmission) at functionally important sites in the brain, particularly the hypothalamus. Three major amines have been foci for investigation--norepinephrine and dopamine (catecholamines) and serotonin (an indole amine). Two major research strategies (drug and clinical studies) have been used to test the hypothesis of lowered levels of monoamines in depression. Drug studies are based on early observations that drugs associated with mood changes in man affected amine metabolism in animal brains. The strategy here is to administer a known mood-altering psychotropic drug to an experimental animal and to observe changes in CNS amine activity, with the assumption that similar changes may contribute to mood disturbances in the human brain. The first links between affective state and amine action were observed when Harris (1957, cited in Schildkraut & Kety, 1967) noticed that his

patients who were treated for hypertension with reserpine often experienced severe depressions with continued use of the drug, and that the depressions abated when the drug was discontinued. At about the same time, Shore et al. (1957, cited in Schildkraut, 1965) found that reserpine significantly lowered the content of catecholamines and indolamines in animal brains. Later research (Giarman et al., 1964) revealed that reserpine exerted its amine-depleting effect by interfering with the intra-cellular binding of norepinephrine. Haggendahl and Lindquist (1964, cited in Schildkraut & Kety, 1967) dramatically illustrated that the reduction of amine levels in animals was the most important factor in reserpine-induced sedation, and speculated that similar biochemical processes accounted for the behavioral effects of reserpine-caused depression in man. Studies with both major classes of anti-depressant psychotropic drugs (the tri-cyclics and the monoamine-oxidase inhibitors) also support the hypothesis that the anti-depressant effect of these drugs is mediated through the monoamines, and that by different biochemical mechanisms of action, both drugs increase available monoamines at brain adrenergic receptor sites. In an interesting study, Stein and Wise (1971) found evidence that a particular norepinephrine-depleting metabolite (6-Hydroxydopamine), when injected into rats, caused degeneration of peripheral sympathetic nerve terminals in the noradrenergic reward system, which controls goal-directed

behavior. They speculated that a process of neural damage by 6-Hydroxydopamine may be operative in endogenous depression. Bunney (1972) reported a decrease in total norepinephrine concentration in the brains of animals treated with lithium carbonate. The results of this and related studies support a hypothesis that lithium carbonate exerts its anti-manic effect by decreasing the availability of amines at receptors and making possible their access to breakdown by monoamine oxidase.

Clinical studies of patients with affective disorders add further credence to the monoamine hypothesis. The strategy is to select patients with affective disorders, and to measure concentrations of monoamine metabolites in the urine and cerebrospinal fluid in order to infer levels of these substances in the brain. Schildkraut et al. (1971) found an increase in urinary MHPG (a major metabolite of brain norepinephrine) during amphetamine-induced hypomania, and a decrease in MHPG during the depression which follows amphetamine withdrawal. Bunney et al. (1972) measured urinary catecholamine daily in a group of manic-depressive patients, and found an increase in catecholamine excretion before and during the manic episode. Bond et al. (1972) found a decrease in catecholamine excretion during the depressed phase of a manic-depressive cycle.. These and other studies present almost incontrovertible evidence that biochemical processes, particularly involving the metabolism of monoamines,

are important factors in depression. Rubinstein (1973) points out that the evidence for the biochemical factor in depression is particularly striking in endogenous depressions. However, she cautions that biochemical events can be part of the pathological process without necessarily being the causal factor. For example, it has yet to be determined whether biochemical abnormalities are primary contributors to depression, or whether biochemical changes are secondary responses to overwhelming psychological stress. Nonetheless, it is evident that biological processes are implicated in some kinds of depression, and an awareness of their importance is crucial for an understanding of the etiology, and particularly the treatment of depressive disorders.

Clearly, an adequate understanding of depression acknowledges the complex interplay among environmental, psychological, historical, interpersonal and physiological factors. The present investigation represents an interest in the psychogenic origins, and psychological manifestations of depression. The speculation that depressed individuals express aggression toward themselves which they feel toward others is consistent with formulations from all psychological perspectives on depression, although it is particularly germane to the early psychoanalytic theories. Although other, perhaps more cogent explanations have been offered to account for depression, the hypothesis of internalized aggression nonetheless seems to remain firmly entrenched in

clinical practice and theoretical discourse (Klerman, 1974, p. 137; Beck, 1974, p. 11). It is most surprising that this hypothesis has received only little attention from experimental investigators. While it is impossible to establish conclusively a causal link between depression and aggression, the finding of certain distinctive patterns of aggressive behavior among depressives would shed some light on the viability of the hypothesized relationship. It was the purpose of this investigation to examine the ways in which depressed and non-depressed individuals display aggressive behavior and affect toward themselves and toward another person, when provoked. While some studies have looked at the depressive's aggressive behavior toward others, there seems to have been few experimental observations of depressed persons' aggression toward themselves in comparison to other-directed aggressive behavior. Research on aggression has proliferated in the psychological literature, and experimental paradigms have emerged which offer the investigator a number of methodologies for studying aggression as a dependent variable. One such paradigm involves the instigation of aggressive behavior by various experimental procedures. To this writer's knowledge, depression has never been considered in relation to this instigation-to-aggression paradigm. A methodology derived from this paradigm was used in the present study in order to examine the effects of depression on instigated aggressive behavior. Thus, while

the primary focus of this investigation was to highlight some behavioral manifestations of depression, a research methodology drawn from research on aggression was used as a tool in the service of augmenting our understanding of the direction of aggressive behavior in depression. Before discussing the relationship between depression and aggression in a theoretical context, and before reviewing the research that is germane to the hypotheses, a brief overview of major theoretical perspectives and research on aggression will be presented.

Aggression

The frighteningly high incidence of violent crimes of all descriptions (Fromm, 1973) serves to underscore the importance of understanding the nature of human aggression in its various aspects. While not all manifestations of aggressiveness are destructive or antisocial, man is generally believed to be more harmfully aggressive than his evolutionary ancestors (Davie, 1929; Dart, 1953). Fromm (1973) distinguishes between defensive (benign) and malignant aggression, and emphasizes that man's destructiveness often serves sadistic purposes. That is, the propensity to kill or torture others does not serve biological or social purposes in humans, nor is such a propensity instinctive. Fromm suggests that cultural, social, and psychological factors interact to produce the kind of aggressiveness which is peculi-

arly human (p. 16). It is not surprising, then, that psychologists have devoted an increasing amount of energy to the study of aggressive behavior in an attempt to understand what factors lead individuals to attack or harm other human beings.

Early explanations described aggression as an inherent aspect of man's basic nature. Freud (1932) postulated an independent death instinct, Thanatos, which was responsible for man's aggression. According to Freud's view, man was under the influence of an impulse to destroy either himself or others. Aggression, then, was not primarily a reaction to external stimuli, but rather, an impulse rooted in the constitution of the human organism. Fromm (1973) criticizes Freud's theory of aggression, saying that it "has greatly obscured the analysis of the phenomenon of aggression by following the custom of using the term for the most different kinds of aggression, thus facilitating (Freud's) attempt to explain them all by one instinct" (Fromm, 1973, p. 16). Nonetheless, instinctivist theories of aggression still prevail today. An example is Lorenz (1966), who asserts that man is aggressive by his nature, for species-survival reasons, and that man's aggressive/destructive energy is ever-flowing and difficult to control.

Many social scientists have rejected or revised instinctivist notions about man's aggressiveness, and have preferred, instead, to search for specific situational an-

tecedents of aggression. An early attempt to explain aggression parsimoniously was the "frustration-aggression hypothesis" (Dollard et al., 1939). According to this view, the occurrence of aggressive behavior was always in response to frustration (the blocking of goal-directed behavior), and, conversely, the existence of frustration always eventuated in some form of aggression. Soon after the original statement of the theory, this view was modified by one of the principal contributors (Miller, 1941), and allowed that frustration could instigate a variety of responses, only one of which was aggression. Although the frustration-aggression hypothesis has been challenged, its importance lies in having generated a great deal of research on aggressive behavior as a function of various situations. However, Buss (1961) has noted that the emphasis on frustration led to a neglect of other antecedents of aggression. In two experiments, Buss (1963, 1966b) manipulated the magnitude of frustration by varying the value of the goals which subjects could obtain as rewards for successful performance on a learning task. The frustrator, a confederate of the experimenter, prevented subjects from attaining these goals. The results of the studies clearly indicated that level of frustration had only a minimal effect on subsequent aggression displayed by subjects, measured in terms of the amount of electric shock subjects administered to confederates. Subsequent experiments have regarded frustration as only one

determinant of aggression, and have investigated other variables. The most potent form of aggressive instigation in the laboratory has been found to be insult or attack (Brown, 1966; Geen & Berkowitz, 1967; Epstein & Taylor, 1967; Geen, 1968). In a now classic study, Geen (1968) was able to separate the frustration and attack components of the experimental manipulation, and thereby to compare the relative effectiveness of frustration and insult as instigators of aggression. In the "personal frustration" condition, subjects were given five minutes to solve a jigsaw puzzle which had been shown to be soluble. The confederate interfered with the subject, but did not show any hostility toward the subject, or insult him in any way. In the "insult" condition, subjects worked on the same soluble puzzle, while the confederate did the same in an adjoining room. Subjects were allowed to complete the puzzle. At the conclusion of the solving period, the confederate "remarked that his puzzle had been more difficult than the subject's and went on to deliver a completely gratuitous insult to the subject's intelligence" (Geen, 1968, p. 317). After the experimental manipulations, subject and confederate participated in a code-learning task, in which the confederate was arbitrarily designated the learner. The subject was then allowed to punish the confederate's errors by administering various intensities of electric shock. It was found that subjects in the "insult" condition administered more shock to the con-

federates than subjects who were frustrated, but not insulted. The importance of these results lies in the suggestion that the intention of the aggressor is a more potent instigator of aggression than frustration without the perception of aggressive intent. Epstein and Taylor (1967) and Kaufmann (1965) have also emphasized the important role of aggressive intention in instigating aggressive behavior.

A social learning theory of aggression (Bandura, 1973) posits that exposure to aversive treatment of any kind serves to induce heightened emotional arousal. The heightened arousal may then, in turn, enhance the frequency or strength of later aggressive behavior under conditions where aggression represents a dominant behavior in the individual's response hierarchy (p. 56). According to behaviorally-oriented researchers, aggression is most usefully viewed as behavior learned in specific situations, either directly by reinforcement, or by modeling (Buss, 1961; Kaufmann, 1970). The important variables to study, then, are the antecedent conditions which instigate aggression, and the reinforcing consequences which affect the occurrence and the strength of aggressive responses. It is not surprising, given the behavioral orientation of researchers in this area, that there has been a wealth of experiments investigating a vast array of situational variables in relation to the instigation of aggressive behavior. Some of the major variables which have received attention include the effect of contextually-arous-

ing stimuli in the environment (Berkowitz & Le Page, 1967), the cue properties of the victim (Berkowitz & Geen, 1967), the effect of feedback that the victim is suffering (Bramel et al., 1968; Baron, 1971), the degree of realism in the modeling sequence (Feshbach, 1972), and the effect of uncomfortable environmental conditions (Baron & Bell, 1975). Also, a wealth of studies has been conducted investigating the hypothesis that the witnessing of, or actual participation in, aggressive activity lowers the subsequent tendency to aggress (the "catharsis hypothesis"--for example, Bandura, Ross & Ross, 1963; Mallick & McCandless, 1966; Baron & Kepner, 1970; Berkowitz, 1970; Geen et al., 1975). Most of the results of these studies indicate that the catharsis hypothesis is untenable, and that, in fact, the vicarious or actual participation in aggression increases, rather than decreases the subsequent incidence of aggressive behavior.

Another area that has received a considerable amount of attention is sex differences in aggressive behavior. Oetzel (1966), in a review of sixty studies, noted that, almost invariably, men have been found to be more aggressive than women on behavioral, projective test, self-report, and dream analytic measures of aggression. She noted that an occasional exception was for women to outscore men in measures of verbal aggression. Differences in aggression between men and women are explainable in the context of several theoretical viewpoints. Schaeffer (1971) points out that, from a

cultural perspective, men are more aggressive because of their cultural role and expectations, whereas women are more passive due to identifications with the prevailing role of womanhood. Thus, men are the culturally accepted agents of aggression (p. 92). From a social learning point of view (Mischel, 1966), the differential aggressiveness of males and females can be understood in terms of the learning of sex-typed behaviors, that is, behaviors which typically elicit different rewards for one sex than for the other. The male's exposure to a wide variety of aggressive behaviors leads him to acquire an elaborate repertoire of aggressive responses, including physical or antisocial aggression. However, such manifestations of aggression are less sanctioned for girls, who tend to be rewarded for prosocial aggressive behavior. A psychoanalytic explanation accounts for sex differences in aggression in terms of differences in oedipal development. According to Freud (1925) the oedipus complex in girls is a secondary formation reminiscent of early castration fears, which are experienced as narcissistic wounds. "Whereas in boys, the oedipus complex succumbs to the castration complex, in girls, it is made possible and led up to by the castration complex" (p. 195). The resolution of oedipal strivings in the girl consists of her eventual repression of aggressive strivings, and identification with the mother in order to symbolically receive the father. In contrast, the boy's aggressive strivings are mobilized

during the oedipal period because of his competition with father, and the necessity to protect himself against the perceived threat of castration. Thus, in the process of resolving the oedipus complex, Freud (1925) suggests, it is functional for girls to suppress aggressive feelings, while it is precisely these feelings which help the boy to identify with his father.

In contrast to research focussing on situational determinants of aggressive behavior, little attention has been devoted to exploring organismic or personality variables associated with aggression. It seems highly probable that, in addition to situational determinants of aggression, differences in personal characteristics would also affect the tendency to behave aggressively. That is, individual differences along personality dimensions might account for the differential susceptibility of people to the arousal of aggression. Epstein and Taylor (1967) suggest that, in addition to studying under what conditions aggression is apt to be elicited, research should be devoted to exploring what kinds of subjects tend to behave aggressively (p. 287).

Singer and Singer (1972) point out that most studies of aggression examine a situationally-induced variable, and tend to ignore personality variables (p. 388). Fromm (1973) remarks dramatically that the emphasis on "behavior itself, separated from the behaving person" does not do justice to the study of a phenomenon as complex as aggression (p. 43).

A few studies have examined personality correlates of aggression. For example, Barker et al. (1941) demonstrated that subjects with well-developed ego controls show less aggression in a frustrating situation than subjects with inadequate ego controls. Holzberg et al. (1955) found that subjects who over-reported and under-reported aggressive implications on four TAT cards had more "aggressive tension" as measured by the learning efficiency on tasks including neutral and aggressive materials, when compared to subjects who reported an average number of aggressive implications. Otis and McCandless (1955) used a motivational basis for their predictions of reaction to frustration, and found that children with high needs for dominance and power were more aggressive than children with high needs for love and affection. Worchel (1957) found that subjects with low self-ideal discrepancy (i.e., high self-esteem) expressed significantly greater aggression towards an instigator than subjects with high self-ideal discrepancy (i.e., low self-esteem). The studies on personality correlates of aggressive behavior cannot be regarded as providing conclusive evidence of specific personality factors in aggression. Unfortunately, most of these studies assessed aggression only by means of paper-and-pencil measures, and rarely employed a direct behavioral measure. Nonetheless, it seems likely that personality factors have an effect on aggression, and that an adequate understanding of aggression must take such

factors into account. Although most of the research on aggression has excluded the organismic variables, the need for their systematic study seems apparent. The use of depressed and non-depressed subjects in this study represents a consideration of one organismic variable (depression) in relation to an instigation-to-aggression paradigm; however, as stated earlier, the primary interest is in clarifying a hypothesis relating to depression.

Depression and Aggression

The present study was a comparison of the behavior of high-depressed and low-depressed individuals in an aggression-arousal situation in the psychological laboratory. The major hypothesis is that depressed people will respond less aggressively toward others and more aggressively toward themselves when insulted by a confederate, than will people who are not depressed. The hypothesis that less outward aggression will be exhibited by depressed than by non-depressed subjects has theoretical underpinnings from a variety of theoretical frameworks. An intuitive reason for studying the relationship between depression and aggression derives from the early frustration-aggression hypothesis (Dollard et al., 1939), which construes aggression to be a response to frustration. Depression also has been thought of as, in part, a reaction to frustration, particularly by the psychoanalytic theorists, as well as Beck (1967, 1971, 1974, 1976)

and Seligman (1974). Since both depression and aggression have been linked theoretically with frustration, one might expect the two tendencies or behaviors to be related in some fashion. The most immediately apparent theoretical link between aggression and depression stems from the psychoanalytic model, which originally postulated a causal relationship between depression and the internalization of aggressive tendencies onto the self. While it is impossible to demonstrate such a causal relationship, the finding of less externally-directed aggression and more self-directed aggression in depressives would lend some credibility to the psychoanalytic notion that depressives have conflicts with aggressive tendencies which result in the retroflection of aggression onto the self. More importantly, analytic thinkers after Freud emphasized the depletion of ego resources and low self-esteem in the description of the depressive (Bibring, 1953; Meyersburg et al., 1974). Research cited earlier (Otis & McCandless, 1955; Worchel, 1957) suggests that individuals with poor self-esteem and depleted ego resources express less overt aggression than individuals with feelings of adequacy. Therefore, depressives, whose defining characteristic has been considered to be poor self-esteem, might be expected to show less aggression toward others, than individuals who are less depressed. Furthermore, low self-esteem might be expected to be associated with increased self-punishment. The expectation of diminished levels of

aggression-out in depressives is also consistent with a cognitive framework (Beck, 1967). According to such a framework, under stressful conditions, depressed individuals view their experiences in terms of their own deficiency. If this is indeed the case, one might well expect less overt displays of aggression toward others from depressives. In addition, the finding of more self-directed aggression in depressives would corroborate Beck's (1974) conviction that depression is self-induced lowering of self-esteem. Learning theories point to the similarity between depressive behavior and the learning of helplessness in the face of uncontrollable aversive stimulation (Seligman, 1972, 1974). It might be expected that depressed subjects, with their pervasive feelings of helplessness, and the concomitant impoverishment in their capacity to learn behaviors to control their situation, would fail to engage in retaliatory behavior toward the aggressor. Learning theories also postulate that aggressive behavior will occur to the extent that aggression is a dominant response in the individual's behavioral repertoire (Bandura, 1973). It is conceivable that depressives have a reinforcement history which, rather than encouraging assertive or aggressive behaviors in social situations, encourages the learning of passivity (Lewinsohn & Shaffer, 1971; Ferster, 1974). Therefore, aggression would not be a response which is dominant in their behavioral repertoires, and consequently, would not be expected

on the basis of learning principles. However, while the learning of passivity (inhibition of other-directed aggressive behavior) is consistent with learning theory approaches to depression, increased displays of self-directed aggression would not necessarily be expected according to learning principles.

The relationship between depression and aggression remains unclear because of several factors in the previous research on the subject. As was mentioned earlier, the aggression studies typically fail to account for personality variables of subjects. Clinical studies of depression generally utilize a psychiatric population, and employ indirect methods of measuring aggression, such as retrospective reports of patients. In addition to the contaminating factor that patients are receiving treatment, results of clinical studies are questionable because adequate control groups are generally difficult to find. Therefore, the use of subjects from the general population seems to present fewer methodological problems to the researcher who is interested in depression, and affords the opportunity to observe manifestations of depression without the encumbering variables inherent in the clinical studies. Many researchers (e.g., Gershon et al., 1968; Kendell, 1970; Chodoff, 1974) have pointed out that the difficulty with investigating the anger-turned-against-the-self hypothesis, as with most hypotheses derived from psychoanalytic theory, is that it is incapable

of being confirmed or refuted. Kendell (1970) notes that investigations designed to test hypotheses from psychoanalytic theory are difficult to evaluate because "observable changes in behavior are attributed to intrapsychic events which cannot be observed, only inferred" (p. 308). Although it seems to be true that at times there is "a great distance from underlying psychoanalytic assumptions to specific hypotheses" (Gershon et al., 1968), it is also true that hypotheses can be revised in such a way as to be empirically testable. Furthermore, as Silverman (1976) has emphasized in a recent evaluation of psychoanalytic research, the dynamic formulations of analytic theory (for example, that depression involves a conflictual hostile wish) can be tested empirically without having to invoke such metapsychological propositions as "aggressive instinctual drives," and others, which go beyond the empirical data. Silverman goes on to stress that Freud himself attested to the non-essentiality of such metapsychological propositions to the essence of psychoanalytic thinking (Silverman, 1976, p. 622). Thus, for example, the investigation of the relationship between depression and aggression can proceed without postulating what defense mechanisms account for the expression or inhibition of aggressive behavior. The continued investigation of this relationship can refine our views on psychopathology, as well as the clinical phenomena that can be expected in depressed individuals. The present study was formulated in

the spirit of investigating a hypothesis derived from psycho-analytic theory, in an attempt to evaluate how adequately that theory, and other theoretical frameworks, fit the data that emerge.

Despite the relative paucity of controlled studies relating depression and aggression, there is some research which is suggestive of a powerful relationship between the two. Opinions differ, however, on the presence and direction of aggression in depression. Phillips and Zigler (1964) point out that, because depressives tend to incorporate society's values to a great extent, they experience guilt and anxiety about not meeting these standards. Therefore, they manifest symptoms which signify turning against the self, including a fear of their own hostile impulses. Friedman (1970) found that acutely depressed patients were less overtly aggressive than normals, using ratings of verbal hostility. Forrest (1971) gave subjects the opportunity to engage in either self-punitive or extra-punitive behaviors toward a confederate after an aggression-arousal manipulation. He found that depressed subjects chose the self-punitive counter-response more often than non-depressed subjects. In addition, depressed subjects exhibited a cathartic-like rapid autonomic arousal reduction when a self-punitive response was made in reaction to the confederate's aggression. The non-depressed subjects exhibited a similar arousal reduction only when they exhibited an extra-punitive counter-response.

Rutstein and Goldberger (1973) presented aggressive and neutral stimuli subliminally and supraliminally to 64 female hospitalized patients, half of whom had made serious suicide attempts. They found that the suicidal subjects were more depressed following the presentation of subliminal aggressive stimuli than following the presentation of neutral stimuli. However, the supraliminal presentation of aggressive stimuli resulted in increased hostility in the suicidal subjects (as measured on the Rorschach). The investigators concluded that aggressive drives result in pathological adaptations such as depression and self-destructiveness only when the suicidal patients were not consciously aware of their presence. The usefulness of encouraging depressed patients to get in touch with their aggression is recognized by many clinical practitioners. For example, Lewinsohn and Shaffer (1971) used a learning model to treat a depressed man who responded unassertively to his wife's brutal attacks. They reported that the symptoms of depression abated after the man was taught to express anger toward his wife. The "Tuscaloosa Plan" (Taulbee & Wright, 1971, cited in Seligman, 1974) is a therapeutic strategy for depressed patients which derives its rationale from the hypothesized relationship between depression and inverted aggression. It involves the induction of anger by abusing the patient with a variety of insults. The authors contend that this method is curative because it forces the depressed patient to emit one

of the most powerful responses for exerting control over others; by dragging the angry response out of the patient's depleted repertoire, the self-esteem is enhanced. Beck (1974) also notes the usefulness of anger-induction as a therapeutic ploy to change depressive symptomatology. These studies, and the anecdotal evidence from clinical practice just cited, as well as the writings of Holt (1970) and Bach and Goldberg (1974) indicate that the suppression of natural aggression and anger can have deleterious consequences for mental health, and that such an inhibition of aggression is characteristic of depressives.

However, there is also some evidence to challenge the viability of the retroflected aggression hypothesis in depressives. Wessmann et al. (1960) found that the frequency of extra-punitive verbal responses was significantly higher in depressed than non-depressed college women. In addition, they found no significant differences between the depressed and non-depressed subjects in their intra-punitive responses. Friedman (1964) found that, while psychotically depressed patients differed from normal controls on measures of self-perception, they did not differ on measures of ego functions such as structured cognitive and perceptual tasks. The author concluded from his results that while the depressed patient has a subjective deficit in self-esteem, his actual ability and performance is not impaired. While these results are interesting, the measures used in Friedman's study

do not really tap into the kinds of aggressive/assertive ego functions necessary for coping with the stresses of daily intercourse with the environment, and therefore, these results do not really address the role of aggression in depression. Schless et al. (1974) studied 37 hospitalized depressed patients, and found approximately an equal number of patients with a predominance of hostility-out as hostility-in, as measured on paper-and-pencil questionnaires. Klerman and Gershon (1970) tested the hypothesis that the therapeutic effect of imipramine was in its mobilization of hostility. Their results indicated that, although imipramine led to significant clinical improvement, there were no differences between pre- and post-imipramine administration periods in amount of hostility-out on a paper-and-pencil measure.

The most striking recent evidence to challenge the belief that depressed people are less aggressive than non-depressed people comes from a research project by Weissman and Paykel (1974). They compared the social behavior of forty depressed women in outpatient treatment to the behavior of forty control subjects. They used various ratings to determine the degree of aggressiveness manifested by the subjects in a variety of situations. According to interviewer's ratings of verbal hostility and resistance (passive hostility), the depressed women did not differ from the normal controls. However, based on the women's reports of their own behavior outside of the interview situation, the depressed women were

more overtly aggressive toward intimate associates with whom they had a dependent relationship. The authors conclude that the commonly-held view that externally-directed aggression should be diminished in depression may be fallacious. They also challenge the psychoanalytic tenet that the internalization of aggression necessarily implies a decrease in externally-directed aggression. However, there are several considerations which must serve to temper the conclusiveness of Weissman and Paykel's findings. As one of the authors has pointed out (Paykel, 1971), the aggressive behavior of depressed people seems to apply to individuals who also manifest notable hysterical and other personality disorders (similar findings were obtained by Gershon et al., 1968). Methodological difficulties also complicate the Weissman and Paykel findings. The finding of increased externally-directed aggressive behavior outside of the interview situation was based on subject's self-report ratings of their behavior, and no efforts were made to corroborate the self-reports. More importantly, the interviewers were not blind as to whether subjects were patients or normal controls, and, consequently, their judgments may well have been influenced by their prior expectations of subjects' behavior.

To summarize, the research on the relationship between aggression and depression is inconclusive. The studies can be divided into two groups--those which use a behavioral measure of aggression, and those in which the measure of

aggression is less overt, such as projective data and paper-and-pencil indices. Anecdotal evidence from clinical practitioners (e.g., Lewinsohn & Shaffer, 1971; Taulbee & Wright, 1971), while not experimental, is nonetheless empirical, and uses behavioral measures of aggression. This evidence suggests an inverse relationship between aggressive behavior and depressive symptomatology. Results of studies using verbal hostility as a measure of aggression have been equivocal. Friedman (1970) found depressed patients to be less aggressive than normal controls using verbal hostility to measure aggression. However, two studies provide evidence against the expectation of inhibited aggression in depressives. Wessman et al. (1960) found depressed college students to be more extra-punitive than non-depressed subjects. Gershon et al. (1968) also found high levels of verbal hostility-out in depressed patients, but they used a small sample ($N = 6$), and failed to compare their results with a control sample of non-depressed individuals. They did, however, find a significant relationship between severity of depression and aggression against the self. One study (Weissman & Paykel, 1974) found depressives and non-depressives to be indistinguishable in terms of verbal hostility toward others. Only one study (Forrest, 1971) has employed a rigorous behavioral measure of aggression in the psychological laboratory, and the findings of this research suggest that depressed people are more aggressive toward themselves than non-de-

pressed people, who tend to express more aggression toward the aggressor. The other study using a behavioral index (Weissman & Paykel, 1974) relied on subjects' self-reports of their behavior outside of the experimental setting. The results of this study are the most powerful evidence against the hypothesis of less aggressive behavior toward others in depressives. However, as was articulated earlier, the validity of the findings must be questioned because of methodological impurities in the study. Thus, of the studies using behavioral measures of aggression, the results are equivocal, but tend to favor slightly the finding that depressives are less aggressive toward others and more aggressive toward themselves, than are non-depressed individuals. In addition to the fact that studies in this area have been scarce, many of them have sacrificed methodological rigor, and consequently, the question of the direction of aggressive behavior in depressives remains unresolved. Other studies in this area have employed more covert measures of aggression, such as projective test and paper-and-pencil data, and seem to be tapping aggressive affect, rather than aggressive behavior. Studies by Otis and McCandless (1955), Worchel (1957), Gershon et al. (1968), and Rutstein and Goldberger (1973) support the view that depressed people tend to experience more aggressive feelings toward themselves and less aggressive feelings toward others, compared to non-depressed people. No study has found depressives to be less

self-aggressive than non-depressives on affective measures of aggression. However, two studies (Klerman & Gershon, 1970; Schless et al., 1974) report no differences in amount of "hostility-out" versus "hostility-in" among depressed patients. Thus, the results of studies assessing aggressive affect seem to parallel the results of studies measuring aggressive behavior. Although the research on both the affective and behavioral manifestations of aggression is inconclusive, the evidence seems to point toward more aggression toward the self, and less aggression toward others in depressed people than in non-depressed people. As was articulated earlier, these findings are consistent with what might be expected on the basis of psychoanalytic, cognitive, and learning theory frameworks on depression, although learning theory formulations would not necessarily predict more self-aggression in depressives.

The presumed inverse relationship between depression and aggression has guided clinicians and theoreticians for many years. In fact, as has been pointed out by Klerman (1974), Beck (1974) and Chodoff (1974), formulations derived from the aggression-against-the-self hypothesis remain firmly entrenched in most theoretical discourse on depression. However, in view of the paucity of experimental research directed toward examining the relationship between aggression and depression, the equivocal findings, and the methodological impurities in many of these studies, the evidence for

the direction of the relationship remains inconclusive. It is crucial to have empirical support for the guiding assumptions used in clinical practice and theoretical discourse. Therefore, the present study proposed to examine the behavior and affect of high-depressed and low-depressed subjects in an instigation to aggression situation in the psychological laboratory. Both male and female subjects were used in order to determine sex differences in aggression, as well as the interactions, if any, between depression and sex of subject. In order to avoid the methodological difficulties inherent in using a psychiatric population, normal subjects were used. Depression was assessed on a paper-and-pencil measure which has been used to diagnose depression in inpatients, out-patients, and normal subjects (Zung, 1965; Zung et al., 1965). The use of a non-psychiatric subject population is consistent with the view that psychopathology is manifested on a continuum of disturbance, and that, therefore, the depressed moods of normal individuals may be expected to bear important similarities to the more severe manifestations of depression found in clinical populations (Wessman & Ricks, 1966; Buss, 1966a; Chodoff, 1974).

Since previous investigations of aggressive behavior leave little doubt that the most powerful instigator of aggression is insult or attack (Brown, 1966; Geen & Berkowitz, 1967; Geen, 1968), the present investigation used insult as the experimental aggression-arousal manipulation. The pro-

cedure was similar to the one employed by Geen (1968). Subject and confederate were asked to solve block puzzles which the confederate was pre-trained to solve rapidly. After being insulted by the confederate for his/her slow performance, subject and confederate participated in a learning task in which subject had the opportunity to punish him/herself as well as the confederate for errors on the task. Thus, for each subject, measures of punishment toward the self and toward the confederate were obtained.

This procedure, that is, the use of money, is somewhat in contrast with many previous studies, which have typically used the intensity of electric shock administered by subjects as the measure of aggression (Buss, 1963, 1966b; Epstein & Taylor, 1967; Geen & Berkowitz, 1967; Geen, 1968). The use of electric shock presented several problems to the investigator. While the delivery of electric shock to another person satisfies the criteria for an experimental measure of aggression, the ethics of administering physically injurious stimuli to another person for experimental purposes are questionable. It is also questionable to lead subjects to believe that they are delivering painful stimuli to another person, when, in fact, they are not. Beyond the ethical considerations involved in the use of shock to measure aggression, such a measure seems contrived in view of the complex ways in which individuals actually express aggression in real social situations. Aggression is not

only, or for that matter, not generally, expressed in terms of physical harm to another person. In fact, as is evident from reviewing the literature on the topic, aggression is manifested on a variety of levels, ranging from the overt behavioral expression of aggression to the internal experience of aggressive affect. Therefore, the present study employed, in addition to the overt measure of aggressive behavior toward the self and the confederate, a number of paper-and-pencil measures designed to assess aggressive feelings toward the confederate (see Method). In order to assess the effectiveness of the experimental insult manipulation in arousing aggression, a group of subjects participated in the identical procedure, except that these subjects were not insulted by the confederate. This group of subjects corresponded to the "frustration group" in Geen's (1968) study. Thus, subjects in this group were exposed to the same frustrating experimental situation as were the insult-group subjects. Thus, while it was expected that the control group would foster less aggression by virtue of the absence of the insult, both groups were viewed as treatment groups in which aggression would be aroused. Intercorrelations among aggression scores were obtained, and analyses of variance were performed on each aggression score in order to determine the main and interactional effects of experimental condition, depression, and sex.

Individual Differences Variables

While the primary focus of the study was on the relationship between depression and aggression, several other variables were included in order to permit examination of personality patterns among depressives. Locus of control is an important variable in the general psychological literature, and, more recently, specifically in the literature on psychopathology. It refers to the extent to which an individual perceives a contingent relationship between his behavior and subsequent outcomes. The generalized expectancy that behavioral outcomes are related to one's own ability and effort (i.e., internal control) vs. the generalized expectancy that outcomes are determined by powerful others, luck, chance, or fate (i.e., external control) constitutes the locus of control dimension (Rotter, 1966; Phares, 1972; Lefcourt, 1976). Intuitively, one would expect the generalized expectancy for control of reinforcement to influence the extent to which an individual is prone to a variety of psychological disturbances. Rotter (1966) has suggested that people at either extreme of the locus of control dimension may be expected to be maladjusted. In a review of this area, Strickland (in press) points out that there are a number of findings linking externality to many psychiatric entities, as well as to severity of diagnosis, notably schizophrenia.

Regarding depression, Phares (1972) hypothesized that

one might expect depression to be associated with individuals "who possess a strong generalized expectancy that outcomes are their own responsibility" (p. 466). However, as Strickland points out, and as is evident from much of the theoretical writing on depression, depressive symptomatology can also be understood as the individual's feeling of powerlessness and inability to control one's life. Pertinent in this regard is the learned helplessness model of depression (Seligman, 1972) and the research generating from this model. For example, Hiroto (1974) found that externals were slower to engage in instrumental escape behavior than internals. The view of depression as learned helplessness would suggest a strong relationship between depression and an expectancy for external control of reinforcement. In fact, there is much empirical support for this relationship; Abramovitz (1969), Goss and Morosko (1970), Wareheim and Woodson (1971), Dinardo (1972), Calhoun et al. (1974), Strickland and Hale (1974), and Prociuk et al. (1976) have presented evidence of a significant correlation between externality and depressive feelings or symptoms. Strickland (in press) cautions, however, that there are several considerations which may serve to temper the conclusiveness of these findings. She cites a study by Lamont (1972) which reveals a tendency for the external items on the Rotter (1966) scale to be more depressing in content than the internal items. Another source of confusion has been the significant relationships between

need for approval (social desirability) and internality, often found with the Rotter scale, suggesting that approval-motivated people may be more prone to deny psychopathological tendencies. However, studies controlling for social desirability (e.g., Abramovitz, 1969; Strickland & Hale, 1974) have still found significant correlations between externality and depression. Strickland (in press) concludes that the confusion between the theoretical expectation (Phares, 1972) of a relationship between internality and depression, and the aforementioned empirical support for the relationship between externality and depression may reflect the multi-dimensional nature of depression, stylistic biases in the Rotter scale, and the possibility that depressed individuals may have selective expectancies for control of reinforcement, i.e., that they may accept responsibility for negative events, but take little personal credit for positive outcomes (Strickland, in press, p. 18). The present study examined the relationship between locus of control and depression, and controlled for social desirability.

An additional individual difference variable which was assessed in the study is generalized expectancy for success, which is "the expectancy held by an individual that in most situations s/he will be able to obtain positive reinforcements or to attain his/her desired goals" (Hale & Fibel, 1976, p. 1). According to a social learning framework of behavior (Rotter, 1954), expectancy is a valuable construct

which can aid in the prediction of behavior, particularly in novel situations. Hale and Fibel (1976) report some preliminary findings indicating that there is an inverse relationship between expectancy for success and depression. This finding is understandable within the context of theoretical perspectives which focus on the importance of negative cognitive sets in depressives (Seligman, 1974; Phares, 1972; Beck, 1967, 1974). A measure of generalized expectancy for success was obtained in this study, and intercorrelations between that variable and various traits and behaviors of subjects, including depression, were presented for exploratory purposes.

Hypotheses

1) To provide a check of the effectiveness of the experimental insult manipulation, it was hypothesized that more aggression toward the confederate would be exhibited by subjects in the experimental group than in the control group. Exploratory analyses were performed in order to examine differences in aggression toward the self between experimental and control groups.

2) Among subjects in the experimental insult condition, it was expected that there would be more aggression toward the self in high-depressed subjects than in low-depressed subjects.

3) Among subjects in the experimental insult condition, it was expected that high-depressed subjects would be less aggressive toward the confederate than low-depressed subjects.

4) Among subjects in the experimental insult condition, it was expected that males would be more aggressive toward the confederate than females.

5) Among subjects in the experimental insult condition, it was expected that females would be more aggressive toward themselves than males.

6) It was expected that there would be a significant positive correlation between depression and expectancy for external control of reinforcement.

For exploratory purposes, analyses were performed in order to determine whether level of depression affected sex differences in aggressiveness, i.e., sex by depression interactions. Additional exploratory analyses were performed in order to examine correlations between locus of control and aggression, locus of control and expectancy for success, expectancy for success and depression, and expectancy for success and aggression.

C H A P T E R I I

MethodSubjects

One hundred and twenty undergraduate students, 60 males and 60 females, enrolled in psychology courses at the University of Massachusetts/Amherst, served as subjects in the experiment. They were selected on the basis of prior testing from among 193 (94 male, 99 female) original respondents to a paper-and-pencil depression scale (described below). For each sex separately, approximately the top one-third and bottom one-third were selected as subjects, and assigned respectively, to the high-depressed and low-depressed groups. Thus, there were 30 high-depressed males, 30 low-depressed males, 30 high-depressed females, and 30 low-depressed females. Of the 120 subjects in the experiment, ten ultimately had to be replaced; five female subjects and one male subject had to be eliminated because they were suspicious of the experimental procedure, and four male subjects failed to appear for the experiment. In each case the subject was replaced by a subject from the original pool who had had a comparable depression score. After assigning subjects to the depression condition, equal numbers of high- and low-depressed male and female subjects were randomly assigned to the experimental/control and order conditions. All subjects were given course credit for their participa-

tion in the pre-testing and laboratory phases of the experiment.

Experimenters and Confederates

Two male and two female undergraduate students served as experimenters and confederates in the experiment. In order to avoid any potential complications involving the expression of aggression by one sex to another, the sex of experimenter and confederate coincided with that of the subject. The assistants were juniors and seniors with a considerable background in psychology. They met regularly with the investigator to discuss various facets of the experimental procedure, and on five occasions rehearsed the entire procedure while the investigator and other graduate students served as "subjects." During the training sessions, particular care was taken to standardize the timing of the confederate's completion of the Block Design puzzles, the delivery of the insult, and the experimenter's handling of the de-briefing procedure. Following the training sessions, the experimenters and confederates ran a small pilot study of ten subjects, in order to ensure the credibility of the experimental procedures. The assistants received course credit for their participation in the experiment.

Design

A 2 x 2 x 2 x 2 between-subjects design was obtained by

considering the following independent variables: Experimental Condition (Insult/No Insult), Depression (High/Low), Sex (Male/Female), and Order (Subject Teacher First/Subject Learner First). The order variable was included for the purpose of allowing a comparison of the effect of having subject punish him/herself first (learner first condition) vs. having subject punish the confederate first (teacher first condition). Dependent variables consisted of the number of chips used to punish the self, the number of chips used to punish the confederate, a hostility score, and the subject's positive and negative evaluation of the confederate (see Materials).

Materials

Pre-testing. As a prerequisite for participation in the laboratory experiment, all subjects completed a series of questionnaires. These consisted of the following:

- 1) A consent form explaining that the purpose of the questionnaires was to obtain information about psychological expectancies and belief systems, and to screen respondents for use as subjects in an experiment (see Appendix).

- 2) An identification sheet (see Appendix) with various demographic and informational items such as subject's name, student ID number, telephone number, sex, major, and grade-point average.

- 3) The "Personal Reaction Inventory," a measure of so-

cial desirability, or need for approval ((NAPP), Crowne & Marlowe, 1960). This assessment instrument (see Appendix) is a 33-item true-false questionnaire designed to measure the extent to which individuals report themselves to engage in behaviors which are highly socially desirable, but which are unlikely to actually occur.

4) The Internal/External (I/E) Locus of Control Scale (Collins, 1974). This scale, entitled "Debatable Issues" (see Appendix), assesses the extent to which individuals perceive contingent relationships between their behavior and subsequent outcomes. The items on the Collins I/E scale correspond exactly to the 23 internal and 23 external alternatives of Rotter's (1966) forced-choice I/E scale. However, the scoring of the Collins differs from that on the Rotter in that each of the 46 items is scored for internality/externality. Furthermore, in addition to providing an overall measure of I/E locus of control, Collins (1974) provides factor-analytic evidence that the items cluster into four distinct sub-groups on the basis of the individual's perception of the world as difficult/easy, just/unjust, predictable/unpredictable, and politically responsive/politically unresponsive.

5) A self-rating depression scale (Zung, 1965). This scale was constructed on the basis of clinical diagnostic criteria most commonly used to characterize depressive disorders. It consists of twenty items, ten worded symptom-

tically positive, and ten, symptomatically negative; the items refer to moods and behaviors typically associated with a positive and negative feeling state (see Appendix). Subjects scored the extent to which each item describes him/her, on a five-point scale. The self-rating depression scale has been found to be a reliable and valid measure of depression in an in-patient and out-patient setting, as well as with normal subjects. Zung et al. (1965) found that mean scores on the self-rating depression scale for patients with depressive reactions were significantly different from those obtained by patients in other diagnostic categories. Furthermore, scores on this scale have been found to have a significant positive correlation with the Depression scale on the Minnesota Multiphasic Personality Inventory (Zung, 1965).

6) A generalized expectancy for success scale ((GESS), Hale & Fibel, 1976), designed to assess the expectancy held by an individual that in most situations, s/he will be able to obtain positive reinforcements or achieve his/her goals. The instrument (see Appendix) consists of 30 items, each rated on a five-point scale in terms of the respondent's estimation of the probability or improbability that s/he will be successful in the situation described in the particular item. Preliminary results with a college population indicate that the GESS has high internal consistency and acceptable test-retest reliability. In addition, evidence for the

construct validity of the GESS is suggested by inverse relationships between scores on the GESS and measures of depressive cognition, and by its positive correlation with level of aspiration (Hale & Fibel, 1976).

7) A feedback sheet (see Appendix) explaining what the questionnaires were intended to measure.

Laboratory experiment. Materials used in the laboratory phase of the investigation included the following:

1) A consent form explaining the nature of the tasks subjects would be asked to perform during the experiment, and ensuring subjects that no harm would come to them in any form, and that they were free to withdraw from the experiment at any time (see Appendix).

2) Block-Design Puzzles. Two puzzles, number 6 and number 9, from the Block-Design sub-test of the Wechsler Adult Intelligence Test (Wechsler, 1955) were used in the experiment. Blocks consisted of nine red and white cubes. Large reproductions of each of the designs were placed on 8-1/2" x 11" paper.

3) The Multiple-Affect Adjective Check List ((MAACL), Zuckerman & Lubin, 1965) was used on two occasions during the experimental procedure. The MAACL is a test which provides a measure of three clinically relevant negative affective states--anxiety, depression, and hostility. It consists of 132 adjectives describing both positive and negative affects (see Appendix), and subjects check only those which

apply to them. The check list is constructed and scored in such a way as to control for the influence of response set. Investigations by Zuckerman et al. (1967) indicate that the MAACL provides reliable and valid indices of negative affects particularly in patient populations. While generally, they found that the MAACL was less adequate in making reliable differentiations within the restricted range of affect seen in normal subjects, they did find the hostility score to be highly correlated with fantasy hostility on the Thematic Apperception Test. Thus, the MAACL is seen as providing a reliable assessment of hostility in normal subjects.

4) Anagrams. Two lists of anagrams were used (see Appendix). Each list consisted of eight, five-letter combinations, each of which was printed on a 4" x 6" index card. Of the eight combinations in each list, five were soluble (i.e., words) and three were insoluble (i.e., nonsense syllables). The soluble anagrams were taken from a list by Tresselt and Mayzner (1966), and selected in such a way that the total mean solution times for the five soluble anagrams in each list were identical, according to the published norms. This was done in order to control for potential differences in the ease of the two lists.

5) A stopwatch was used for the purpose of timing performance on the anagrams task.

6) Poker chips and Penalty Box. One-hundred standard poker chips were used during the anagrams task. The number

of poker chips placed in the "penalty box" was used as a behavioral index of aggression.

7) Personality Traits Check List. This consisted of a list of eleven favorable, and eleven unfavorable personality traits (see Appendix). The traits which subjects checked provided a measure of subjects' positive and negative evaluations of the confederate. The list of personality traits was used in a study by Miller and Bugelski (1948) to measure subjects' aggressive feelings toward an instigator.

8) A post-experimental questionnaire consisting of four questions was used (see Appendix). The questions were open-ended, and solicited the subject's understanding of the purposes of the experiment, especially the subject's perceptions of any deceptions in the procedure. The purpose of this questionnaire was to determine which subjects would be eliminated on the basis of their suspicions of the confederate and/or the experimental manipulation.

9) A sheet providing feedback on the experiment (see Appendix) thanked the subject for participating in the experiment and explained the purpose of the study.

Procedures

Pre-testing. During the Spring, 1976 semester, the experimenters solicited subjects from several undergraduate psychology classes. They announced that one experimental credit would be offered for participating in the pre-testing

and that, on the basis of "some of the test responses," many of the respondents would be contacted to participate in the second phase of the study, which would consist of a laboratory experiment on the effects of punishment on learning. Students were told that, to save time, subjects would be run in pairs. Pre-testing sessions occurred on nine occasions during the semester. Although the questionnaires were self-explanatory, either one of the experimenters or the investigator was present at each testing session to clarify the instructions and to answer questions. After signing the consent form and completing the identification sheet, respondents filled out the scales. With the exception of the Zung, which was completed directly on the questionnaire sheet, all the remaining scales were filled out on standard IBM-type answer sheets. After completing the battery of tests, respondents were given an experimental credit, and a feedback sheet. Within one month after the pre-testing period, respondents who qualified for participation as subjects by virtue of their depression scores (see Subjects) were contacted. Descriptive statistics on the depression scores for subjects are presented in Table 1.

Experimental procedure. The experimenter introduced him/herself to the subject and to the confederate, who posed as a subject. The experimenter took the subject and the confederate into the experimental room, and asked them each to sit at a desk. The experimenter then described the experi-

Table 1

Descriptive Statistics: Zung Self-Rating Depression Scores

<u>Subjects</u>	<u>N</u>	<u>Range</u>	<u>Mean</u>	<u>Mode</u>	<u>S.D.</u>
HIGH-DEPRESSED					
Male	30	22 to 44	27.7	22	10.19
Female	30	24 to 52	30.4	24	10.58
Sub-total	60	22 to 52	29.0	24	10.31
LOW-DEPRESSED					
Male	30	9 to 18	13.5	18	8.93
Female	30	5 to 17	12.5	14	9.97
Sub-total	60	5 to 18	13.0	14	9.23
TOTAL	120	5 to 52	21.0	24	9.63

ment using the following explanation:

This experiment attempts to study the transfer of learning from one situation to another. There will be two learning tasks. The first task will involve some block puzzles, which you will be asked to solve as quickly as you can. Following the completion of the puzzles, a second phase of the experiment will begin in which you will be asked to unscramble some word puzzles. This phase of the experiment studies the effects of punishment on learning. Punishment in this experiment is defined as the number of chips, each representing a certain amount of money, which you take away for each error in the word puzzles task. Although many studies have demonstrated that positive reinforcement increases learning, there has been less research devoted to exploring the effects of punishment on learning. This is part of the reason that this experiment is being conducted. No shocks or other aversive stimulation will be used. You are free to discontinue your participation in the experiment at any time. Are there any questions?

The experimenter explained that, prior to beginning the "learning situations" it was important to get a sense for how subjects were feeling, and then distributed a Multiple Affect Adjective Check List, requesting that the subject and confederate check each word that applies to how they feel now. After the administration of the MAACL, the experimenter explained the instructions for the Block Design puzzle, mentioning that it is a sub-test of an intelligence test used to measure perceptual/motor coordination. This explanation was used in order to maximize subjects' involvement in the experiment and their motivation to do well. The blocks and the first design were placed on each desk, and the nature of the blocks demonstrated. The experimenter

then said: "It is important that you copy the design exactly, and that you work as quickly as possible. Please let me know when you have finished." Subject and confederate were instructed to begin the puzzle. The confederate, pre-trained to complete the puzzle very rapidly, always finished before the subject. After the confederate informed the experimenter that s/he had completed the puzzle, s/he glanced at the subject's unfinished design and, in the Experimental condition, remarked, "Oh, haven't you finished yet?" Subject and confederate then began the second design, according to the same instructions as the first. Upon completion of the second design, the confederate again turned to the subject and said, "Gee, that was pretty simple. Anybody could do that--well, just about anybody!" Subjects in the control (no insult) group were exposed to the identical procedures, except that they were not insulted by the confederate following the confederate's completion of the puzzles.

The experimenter then distributed a second MAACL form, and again asked the subject and the confederate to answer in terms of their current feelings.

The next phase of the experiment involved the second learning task (Anagrams). The experimenter explained that anagrams are "scrambled-up words," and that this part of the experiment required a teacher and a learner. Since the confederate had finished the Block Designs first, s/he could decide which role s/he wanted to play. (Actually, since sub-

jects and confederates would ultimately participate as both teacher and learner, it was necessary to randomize the effects of order (teacher first, learner first). Consequently, the confederate chose to be the teacher first half the time, and the learner first half the time, on the basis of a pre-arranged schedule.)

When the confederate chose the learner role, the subject was thereby the teacher, and the experimenter instructed the subject to present each anagram to the confederate for thirty seconds, using a stopwatch to time the confederate's performance. The confederate was told to try and unscramble the words, and that the experimenter would inform the subject (teacher) as to whether the confederate (learner) had solved the anagram correctly. The poker chips and "penalty box" were placed on the subject's desk, and the experimenter asked the subject to imagine that each chip represented twenty-five cents that the confederate could earn. However, for each incorrect response in the anagrams task, the subject was required to punish the confederate by depriving him/her of at least one chip per error, but as many as the subject wished, depending on the subject's appraisal of the amount of punishment that would facilitate the confederate's learning. To facilitate the experimenter's recording of the number of chips, subjects were asked to place the chips in the "penalty box." Because, by design of the experiment, the confederate had foreknowledge of the soluble

words, s/he always gave correct solutions of the five soluble items within the allotted thirty seconds. For the three insoluble anagrams, the confederate either allowed the time to elapse without responding, or said "I don't know," thereby scoring three errors for the subject to punish.

When the first set of anagrams was completed, the experimenter replaced it with a new set of anagrams, and explained that now the subject and confederate would switch roles, the subject thereby becoming the learner, and the confederate the teacher. The instructions on the second anagrams task was identical to the preceding instructions, except that the subject was instructed to punish him/herself for his/her own errors on the anagrams.

To summarize the procedure for the anagrams task: all subjects served as both teacher and as learner; to control for the effect of order, half the subjects were teacher first and then learner, while half the subjects were learner first and then teacher. As teacher, subjects punished the confederate by depriving him/her of poker chips following each of the confederate's errors. As learner, subjects punished themselves by depriving themselves of poker chips following each of their own errors. Thus, for each subject, two measures of punishment were obtained, i.e., one toward the confederate, and one toward him/herself.

Upon completion of the anagrams task, the experimenter distributed the Personality Traits Checklist and asked the

subject and the confederate to check the traits which seemed to describe the other person, according to their experiences with him/her during the experiment. The experimenter explained that these personality impressions would be looked at after all subjects had been run, and that they would be used to determine which subjects would be invited to participate in a future experiment for money.

In order to determine subjects' suspicions about the confederate and the experimental manipulations, a post-experimental questionnaire was distributed and filled out. The subject was then de-briefed by having him/her read the Feedback on the Experiment sheet (see Appendix). To further ensure that the subject was aware of the true nature of the study, and the reasons for the procedures which were employed, the experimenter reviewed the major points of the de-briefing. The experimenter emphasized that the insult was unrelated to the subject's performance, since it was a pre-arranged experimental manipulation. Reactions of subjects to the experiment were solicited, and time was spent ensuring that the subject left with no ill feelings. The subject was asked not to discuss the experiment with other people, and was given an experimental credit.

C H A P T E R I I I

ResultsAssignment of Subjects to Depression Groups

Scores on the Zung self-rating depression scale were used to assign subjects to the high- or low-depressed group. Cut-off scores for the males were 22 and above for the high-depressed, and 18 and below for the low-depressed group; corresponding scores for female subjects were 24 and 17, respectively (see Table 1). A t-test for the difference between means revealed that the high- and low-depressed groups were significantly different ($T = 2.417$; $p < .01$).

Explanation of Dependent Measures

Five aggression scores were used as dependent measures in the analyses to evaluate the hypotheses relating depression and aggression. These scores provided four measures of aggression toward the confederate, and one measure of aggression toward the self. Aggression toward the confederate was assessed in terms of the number of chips the subject used to punish the confederate following a total of three errors on the Anagrams task. The MAACL, given on two occasions, provided a paper-and-pencil assessment of hostility before the insult, after the insult, and a change score calculated in terms of the difference between hostility scores on the first and second administrations of the MAACL. Since the Pearson

product-moment correlation between MAACL Hostility score #1 and MAACL Hostility score #2 was quite large ($r = .502$, $p < .001$), and since both scores were also highly correlated with the change score ($r = .584$, $p < .001$; and $r = .606$, $p < .001$, respectively), it was decided to use only one of the MAACL measures to define the subject's hostility toward the confederate. The second MAACL hostility score was used in the analyses because it represented the subject's hostility directly following the experimental insult manipulation. The Personality Traits Checklist afforded two scores, one measuring the number of negative traits the subject checked to describe the confederate, and one measuring the number of positive traits. Each of these scores was used in the analysis of the data. Aggression toward the self was assessed in terms of the number of chips the subject used to punish him/herself in the learner condition of the Anagrams task. However, it will be recalled that, in contrast to the confederate, who because of foreknowledge of the soluble items always made three errors (see Procedure), the subject entered the Anagrams task naively, and consequently often made more than three errors. In order to allow a meaningful comparison of aggression toward the self and aggression toward the confederate, the total number of chips used for self-punishment was pro-rated on the basis of three errors. This transformation allowed standardization of the measures of self- and other-directed aggression in terms of number of errors

for which punishment was administered.

Intercorrelations among aggression scores used as dependent measures in the data analysis are presented in Table 2. While some high and significant correlations appeared among the dependent measures, there were also some surprisingly low correlations, e.g., the negligible relationship between MAACL Hostility scores and the number of chips used to punish the confederate. The implications of this and other relationships among aggression scores in terms of the interpretation of the data are discussed in Chapter IV.

The Effect of Order

Prior to investigating the hypotheses which were proposed in the study, it was necessary to consider the effect of the Order variable on subjects' aggression. The order in which the subject participated as teacher and learner determined the sequence in which the punishment was administered to the self and to the confederate. Thus, when the subject was "teacher first" s/he punished the confederate first and then him/herself. Subjects in the "learner first" condition administered punishment in the reverse order. It will be recalled (see Design) that to counter-balance for any effects of order, half the subjects were teacher first, while half were learner first. Thus, the Order variable was included in the design of the experiment for the purpose of statistical control. It was not assumed that the Order va-

Table 2

Intercorrelation Matrix: Aggression Scores

<u>Variable</u>	<u>Number of chips to punish self</u>	<u>Number of chips to punish conf.</u>	<u>MAACL-- Hostil- ity</u>	<u>Number of positive traits</u>	<u>Number of negative traits</u>
Number of chips to punish self	1.000	.717***	-.107	.089	.178
Number of chips to punish conf.		1.000	.055	-.094	.216*
MAACL Hostility			1.000	-.321***	.308***
Number of positive traits				1.000	-.694***
Number of negative traits					1.000

*p < .05

***p < .001

riable would affect subject's behavior, and this variable was not considered to be germane to the hypotheses which were proposed. In the interest of examining the effects of the Order variable, two-tailed t-tests were performed on each aggression measure. An examination of Table 3 reveals that in no case were there significant differences or trends in the mean amount of aggression expressed by the "teacher first" and "learner first" groups. On the basis of the non-essentiality of the Order variable to the hypotheses, and the finding that, in fact, no differences emerged on the Order variable, this variable was eliminated from further consideration in the analyses of the data. Thus, the final analyses of variance used to investigate the hypotheses were based on a 2 x 2 x 2 design using Depression, Sex, and Condition as independent variables, with fifteen subjects per cell.

The Effectiveness of the Experimental Insult Manipulation

Hypothesis 1 proposed that there would be more aggression toward the confederate in the experimental group than in the control group. This prediction was based on the expectation that the experimental insult manipulation would be effective in arousing aggression. Tables 4-7 present the analyses of variance on the dependent measures: Number of chips used to punish the confederate, MAACL Hostility, number of negative personality traits, and number of positive

Table 3

T-test for Differences between Means: Order

Dependent Variable: Number of Chips to punish self

Groups	Mean	SD	T	p < (2-tailed)
Subject Teacher First	12.52	7.36	0.148	.882
Subject Learner First	12.31	7.48		

Dependent Variable: Number of Chips to punish confederate

Groups	Mean	SD	T	p < (2-tailed)
Subject Teacher First	9.98	6.47	-1.015	.312
Subject Learner First	11.20	6.66		

Dependent Variable: MAACL Hostility Scores

Groups	Mean	SD	T	p < (2-tailed)
Subject Teacher First	11.38	4.89	1.325	.187
Subject Learner First	10.05	5.23		

Dependent Variable: Number of Negative Traits

Groups	Mean	SD	T	p < (2-tailed)
Subject Teacher First	.550	.891	.189	.850
Subject Learner First	.517	.997		

Dependent Variable: Number of Positive Traits

Groups	Mean	SD	T	p < (2-tailed)
Subject Teacher First	5.11	2.88	-.094	.925
Subject Learner First	5.17	2.92		

personality traits, respectively. An examination of these tables reveals that no main effect for experimental condition was found in terms of the number of chips used to punish the confederate ($\underline{F} = 1.124$, $p > .25$; Table 4) or in terms of MAACL Hostility ($\underline{F} = .095$, $p > .50$; Table 5). However, as Table 6 shows, there was a trend for subjects in the experimental insult group to check more negative traits to describe the confederate than subjects in the control group ($\underline{F} = 2.915$, $p < .10$). There was also a trend for subjects who were exposed to the insult manipulation to evaluate the confederate with fewer positive traits than subjects in the no-insult control group ($\underline{F} = 2.732$, $p < .10$; see Table 7). Although no prediction was made about the effect of the experimental insult manipulation on self-punishment, it was decided to examine this effect for exploratory purposes in order to elucidate the effects of the experimental manipulation. Table 8 presents the analysis of variance of the number of chips subjects used to punish themselves, and reveals a trend in the direction of fewer chips in the experimental group than the control group, that is less self-punishment among subjects who were exposed to the insult than among those who were not ($\underline{F} = 2.681$, $p < .10$). These confusing results are discussed in Chapter IV. However, it can be concluded that Hypothesis 1 is not supported, and that the experimental insult manipulation was not uniformly effective in arousing aggression. Therefore, Hypotheses 2

Table 4

Analysis of Variance of Sex (S) by Condition (C) by
Depression (D)

Dependent Variable: Number of chips to punish confederate

<u>SV</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Total	119	43.117		
S	1	37.408	0.851	< .36
C	1	49.409	1.124	< .29
D	1	54.675	1.244	< .27
S x C	1	27.008	0.560	< .44
S x D	1	37.408	0.851	< .36
C x D	1	0.675	0.015	> .50
S x C x D	1	0.008	0.008	> .50
Error (S/SCD)	112	43.950		

Cell Means

Sex	Male=10.03	Female=11.15
Condition	Experimental=9.95	Control=11.23
Depression	High=11.27	Low=9.92
Sex x Condition	Male/Exptal=8.90 Male/Control=11.17	Female/Exptal=11.00 Female/Control=11.30
Sex x Depression	Male/High=11.27 Male/Low=8.80	Female/High=11.27 Female/Low=11.03
Condition x Depression	Exptal/High=10.70 Exptal/Low=9.20	Control/High=11.83 Control/Low=10.63

Table 5

Analysis of Variance of Sex (S) by Condition (C) by
Depression (D)

Dependent Variable: MAACL Hostility Score

SV	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Total	119	18.567		
S	1	70.533	4.124*	< .05
C	1	1.633	0.095	> .50
D	1	192.533	11.257**	< .002
S x C	1	0.033	0.002	> .50
S x D	1	4.800	0.281	> .50
C x D	1	14.700	0.859	< .36
S x C x D	1	9.633	0.563	< .46
Error (S/SCD)	112	17.104		

*significant at $p < .05$ **significant at $p < .01$

Cell Means

Sex	Male=8.33	Female=6.80
Condition	Experimental=7.68	Control=7.45
Depression	High=8.83	Low=6.30
Sex x Condition	Male/Exptal=8.43 Male/Control=8.23	Female/Exptal=6.93 Female/Control=6.67
Sex x Depression	Male/High=9.40 Male/Low=7.27	Female/High=8.27 Female/Low=5.33
Condition x Depression	Exptal/High=8.60 Exptal/Low=6.77	Control/High=9.07 Control/Low=5.83

Table 6

Analysis of Variance of Sex (S) by Condition (C) by
 Depression (D) Dependent Variable:
 Number of Negative Traits on Personality Checklist

<u>SV</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Total	119	.923		
S	1	.133	0.144	> .50
C	1	2.700	2.915	< .09
D	1	2.623	2.823	< .10
S x C	1	.300	0.324	> .50
S x D	1	0.000	--	> .50
C x D	1	.033	0.036	> .50
S x C x D	1	.833	0.900	< .35
Error (S/SCD)	112	.926		

Cell Means

Sex	Male=.567	Female=.500
Condition	Experimental=.683	Control=.383
Depression	High=.667	Low=.400
Sex x Condition	Male/Exptal=.667 Male/Control=.467	Female/Exptal=.700 Female/Control=.300
Sex x Depression	Male/High=.700 Male/Low=.433	Female/High=.633 Female/Low=.367
Condition x Depression	Exptal/High=.833 Exptal/Low=.533	Control/High=.500 Control/Low=.267

Table 7

Analysis of Variance of Sex (S) by Condition (C) by

Depression (D) Dependent Variable:

Number of Positive Traits on Personality Checklist

<u>SV</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Total	119	12.089		
S	1	27.075	2.808	< .10
C	1	32.009	2.732	< .10
D	1	60.208	5.246*	< .03
S x C	1	3.675	.320	> .50
S x D	1	.408	.036	> .50
C x D	1	1.875	.163	> .50
S x C x D	1	23.008	2.028	< .18
Error (S/SCD)	112	11.476		

*Significant at $p < .05$ Cell Means

Sex	Male=9.13	Female=10.08
Condition	Experimental=9.10	Control=10.12
Depression	High=8.90	Low=10.32
Sex x Condition	Male/Exptal=8.80 Male/Control=9.47	Female/Exptal=9.40 Female/Control=10.77
Sex x Depression	Male/High=8.37 Male/Low=9.90	Female/High=9.43 Female/Low=10.73
Condition x Depression	Exptal/High=8.27 Exptal/Low=9.93	Control/High=9.53 Control/Low=10.70

Table 8

Analysis of Variance of Sex (S) by Condition (C) by
Depression (D)

Dependent Variable: Number of chips to punish self

<u>SV</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Total	119	54.631		
S	1	326.699	6.342*	< .02
C	1	132.300	2.681	< .10
D	1	192.533	3.737*	< .03
S x C	1	5.633	.109	> .50
S x D	1	16.133	.313	> .50
C x D	1	53.333	1.035	< .32
S x C x D	1	4.800	.093	> .50
Error (S/SCD)	112	51.515		

*significant at $p < .05$

Cell Means

Sex	Male=10.77	Female=14.10
Condition	Experimental=11.35	Control=13.50
Depression	High=13.68	Low=11.15
Sex x Condition	Male/Exptal=9.50 Male/Control=12.05	Female/Exptal=13.20 Female/Control=14.90
Sex x Depression	Male/High=12.40 Male/Low=9.15	Female/High=14.95 Female/Low=13.15
Condition x Depression	Exptal/High=13.30 Exptal/Low=9.43	Control/High=14.10 Control/Low=12.80

through 5, which rest on the effectiveness of the experimental manipulation, will be evaluated by examining main effects across both experimental and control conditions, as well as the interactional effects which were hypothesized.

Depression and Aggression

Hypothesis 2 predicted that, among subjects exposed to the experimental insult manipulation, more aggression toward the self would be expressed by high-depressed subjects than by low-depressed subjects. In order to test this hypothesis, a $2 \times 2 \times 2$ analysis of variance was performed using the number of chips to punish the self as the dependent variable. The results of this analysis can be seen in Table 8. An examination of the Condition \times Depression interaction reveals that there were no appreciable differences in the number of chips used to punish the self among the four cells involved in the interaction ($F = 1.035$, $p > .25$). However, an examination of the overall main effect of depression across both experimental and control conditions reveals a significant tendency for high-depressed subjects to punish themselves more than low-depressed subjects ($F = 3.737$, $p < .05$). Thus, although the hypothesis as phrased originally was not supported by the analysis, the data do support the prediction that high-depressed subjects would be more aggressive toward themselves than low-depressed subjects.

It was hypothesized that, among subjects in the insult

group, the high-depressed subjects would be less aggressive toward the confederate than the low-depressed subjects (Hypothesis 3). The hypothesis of a Condition x Depression interaction was not borne out by the analyses of variance. For all four dependent measures of aggression toward the confederate, the F-values were too small to yield significant probability values ($F = .015$, $p > .50$ for number of chips, see Table 4; $F = .859$, $p > .25$ for MAACL Hostility, see Table 5; $F = .036$, $p > .50$ for number of negative traits, Table 6; and $F = .163$, $p > .50$ for number of positive traits, Table 7). In order to further evaluate the prediction of less aggression toward the confederate in high-depressed than low-depressed subjects, the main effect of Depression is considered. Table 4 shows that no differences emerged in terms of the number of chips used by high- and low-depressed subjects to punish the confederate ($F = 1.244$, $p > .25$). However, as shown in Table 7, there was a significant difference in the number of positive traits high- and low-depressed subjects check to describe the confederate. An examination of the cell means reveals that high-depressed subjects evaluated the confederate less positively than low-depressed subjects ($F = 5.246$, $p < .05$). There was also a trend for the high-depressed subjects to describe the confederate using more negative traits than for the low-depressed subjects ($F = 2.823$, $p < .10$; see Table 6). A striking finding was the effect of depression on hos-

tility, as measured by the MAACL. As shown in Table 5, there was a highly significant difference in MAACL Hostility scores, with high-depressed subjects expressing more hostile affect than low-depressed subjects ($F = 11.257, p < .01$). The findings that high-depressed subjects expressed more aggression than low-depressed subjects in terms of MAACL Hostility, number of positive traits, and number of negative traits, run contrary to those which were proposed. Therefore, the data analyses do not support Hypothesis 3.

It bears mentioning that the Zung self-rating depression scale, which was used to determine high- and low-depressed subjects, is a measure of depression as a trait. The MAACL depression score provides a "state" measure of depression. The two measures of depression were highly correlated ($r = .268, p < .01$). Although the Zung scores were employed in evaluating the hypotheses about depression, it is noteworthy that when exploratory analyses were performed to test the hypotheses using the MAACL depression scores, there was no difference in predictability as compared with scores on the Zung. That is, both trait and state measures of depression yielded the same conclusions about the hypotheses.

Sex Differences in Aggression

In Hypothesis 4, it was predicted that males in the insult condition would be more aggressive toward the confeder-

ate than would females. Positive results would be reflected in a significant Condition x Sex interaction. On all the dependent measures of aggression toward the confederate, negligible F-ratios and p-values of greater than .50 were obtained for the interaction effects of sex and condition (see Tables 4 through 7). However, an examination of the main effect of sex across both the experimental and control groups does suggest some sex differences. Males scored significantly higher than females on MAACL Hostility ($F = 4.124$, $p < .05$; see Table 5). Additionally, as Table 7 depicts, there was a trend for males to check fewer positive items to describe the confederate than females ($F = 2.708$, $p < .10$). However, no significant sex differences emerged in terms of the number of chips (Table 4) or the number of negative traits (Table 6). The results suggest some support for the sex differences in aggression toward the confederate as predicted in Hypothesis 4.

Sex differences in aggression toward the self were proposed in Hypothesis 5, which predicted that, among subjects in the experimental insult group, females would be more aggressive toward themselves than males. The analysis of variance as displayed in Table 8 shows that no differences among the Sex x Condition groups emerged in terms of the number of chips subjects used to punish themselves ($F = .109$, $p > .50$). However, when the overall main effect of sex was considered, significant differences were found. As pre-

dicted, females punished themselves with a significantly greater number of chips than males ($F = 6.342, p < .05$). Thus, Hypothesis 5 receives some support from the analysis.

Although no hypotheses were formulated regarding interactional effects of sex and depression, it is of interest to note whether level of depression altered patterns of aggressive responding among males and females. In fact, no significant Sex by Depression interactions emerged in the analyses of variance on any of the dependent measures of aggression. Consequently, it can be concluded that sex differences in aggression, such as those which were found in Hypothesis 4 and Hypothesis 5, did not change significantly as a function of depression.

Locus of Control and Exploratory Analyses of Individual Differences Variables

Hypothesis 6 presented the prediction that an expectancy for external control of reinforcement would be related to depression. The Pearson product-moment correlation was negligible ($r = .069, p > .50$). Hypothesis 6 is, therefore, not supported. For exploratory purposes, it was decided to examine intercorrelations among depression, locus of control, need for approval, and expectancy for success. These are presented in Table 9. A noteworthy finding was that, while no relationship obtained between depression and locus of control, depression was correlated with low need for ap-

Table 9

Intercorrelation Matrix: Depression, Locus of Control,
Need for Approval, Generalized Expectancy for Success¹

<u>VARIABLE</u>	<u>Depression</u>	<u>Locus of Control</u>	<u>NApproval</u>	<u>GESS</u>
Depression	1.000	.069	-.197*	-.472***
Locus of Control		1.000	-.246**	-.409***
NApproval			1.000	.288**
GESS				1.000

¹For depression, Need for Approval, and GESS measures, higher scores indicate a greater amount of the quality being assessed; for Locus of Control, high scores indicate exte-rnality, and lower scores, internality.

*p < .05

**p < .01

***p < .001

proval ($r = -.197$, $p < .05$). Also of note is that internal-
ity was found to be related to need for approval ($r = -.246$,
 $p < .01$), and to expectancy for success ($r = -.409$, $p < .001$). Because of the significant correlations between
need for approval and both locus of control and depression,
a partial correlation was obtained in order to assess the
relationship between depression and locus of control with
the effect of need for approval removed. Controlling for
need for approval did not result in a substantial change in
the correlation of locus of control and depression; the par-
tial correlation was found to be $r = .022$, $p > .50$. GESS
scores were highly correlated with need for approval ($r = .288$,
 $p < .01$), and there was a strong inverse relation be-
tween expectancy for success and depression ($r = -.472$, $p < .001$). Other relationships emerged from the intercorrela-
tion matrix of all variables with one another, and two, in
particular, are worthy of mention. Generalized expectancy
for success was related to low anxiety as measured on the
MAACL ($r = -.425$, $p < .001$). Also, it was found that sub-
jects with an expectancy for internal control of reinforce-
ment tended to use a greater number of chips to punish the
confederate ($r = -.195$, $p < .05$).

C H A P T E R I V

Discussion

The present study was an examination of the relationship between depression and the expression of aggressive affect and behavior toward the self and toward an aggression-arousing confederate. It was hypothesized that depression would be associated with heightened levels of aggression toward the self and diminished levels of aggression toward the confederate. These predictions were derived primarily from psychoanalytic and cognitive theoretical frameworks, which have generally conceptualized depression within the context of low self-esteem. The early psychoanalytic theorists specifically posited a causal link between the depressive's low self-esteem and the internalization of aggression. The results of this study indicate that depression and aggression are in fact related; however, the handling of aggressive tendencies in depressed people cannot be considered simply in terms of the internalization of aggressive feelings with the resultant inhibition of outwardly-directed aggressive behavior. The relationship seems, in fact, quite complicated. Hypotheses were also articulated with respect to sex differences in aggression toward the self and toward the confederate, and, indeed, some differences did emerge. In order to draw conclusions from the results of this study, several methodological considerations must be taken into ac-

count.

The hypotheses as they were originally presented were formulated on the basis of the expectation that whatever differences in aggression were found would apply only to subjects in the experimental group. That is, it was expected that the experimental insult manipulation would be effective in arousing aggression, and that subjects in the control group would not be aroused to aggressive behavior. However, the analyses of variance indicate that differences in aggression between experimental and control group subjects were minimal and inconsistent. Although there were trends for subjects in the insult group to check more negative traits and fewer positive traits to describe the confederate than was the case for the control group, no differences were found in terms of MAACL hostility scores, which provide a reliable measure of hostile affect. Likewise, no differences were obtained between experimental and control groups in the number of chips subjects used to punish the confederate, which was the most rigorous behavioral measure of aggression toward the confederate used in the study. As far as aggression toward the confederate is concerned, then, it seems that the experimental insult manipulation was somewhat impactful in arousing negative perceptions of the confederate, but not uniformly effective in arousing hostile affect or overt aggressive behavior. In order to further elucidate the effects of the experimental manipulation, an

exploratory analysis examined the effect of the insult on aggression toward the self, using a behavioral measure, number of chips, as the index of aggression-in. This analysis revealed the interesting finding of a trend for subjects in the control group to engage in more self-punishment than did subjects who were exposed to the insult manipulation. This unexpected effect would seem to cast further doubt on the effectiveness of the insult in arousing aggression. That is, one might have expected either no differences, or more self-punishment in the experimental group. The emergence of a trend for more aggression toward the self in the control group suggests the possibility that the control group was not devoid of the potential to arouse aggressive responding. Although clearly aggression toward the self and toward the confederate are not the same variable, there was a marked tendency for the two responses to correspond ($r = .717$, $p < .001$; Table 2). This correlation suggests the likelihood that when subjects were aroused to an aggressive response, they often tended to respond with both inwardly and outwardly-directed aggression. With this in mind, the trend for more aggression toward the self in the control group than in the experimental group can be seen as an indication that the arousal of aggression was not restricted to the experimental group.

It appears, then, that the experimental insult manipulation was not sufficient to arouse more aggressive responses

in the experimental group than in the no-insult control group. In fact, the failure to find a consistent main effect for insult on aggression toward the confederate, in conjunction with the finding of more aggression toward the self in the control group, suggests that aggressive responses were manifested in both the experimental and control conditions. The ineffectiveness of the insult manipulation is reflected, not only in the absence of main effects for experimental condition, but also, understandably, in the absence of significant interactions between condition and the other variables which were germane to the hypotheses, specifically depression and sex. However, when main effects for depression and sex were examined across both experimental and control groups, differences in aggression did, in fact, begin to emerge more clearly. This fact has two implications. First, as was explained earlier, the hypotheses regarding aggression were considered in terms of the entire sample of 120 subjects, rather than on the basis of experimental group subjects only. However, a perhaps more important ramification of the minimal effectiveness of the experimental manipulation pertains to the design of the study. Specifically, it is suggested that the "control" group was not a pure control group in the strict sense of the concept as it is employed in experimental designs, and that, therefore, it may not be too surprising that differences between the two groups were minimal and inconsistent. Structurally,

the experimental and control groups in this study were identical except for the manipulation of insult; that is, all factors were held constant with the exception of the insult, which constituted the only difference between the procedure followed in the two groups. A close examination of the procedure followed in the control group suggests why aggression might have been expected to be aroused in that group as well as in the experimental group. Subjects in the control condition were not exposed to a no-treatment situation, as is usually the case in pure control groups. In fact, although control group subjects were not exposed to the insult "treatment," they were exposed to the identical frustration situation as the experimental group subjects (i.e., the confederate's rapid completion of the Block Design puzzles, and the subjects' resultant "failure"). Geen (1968) demonstrated that the most amount of aggressive counterresponding is manifested by subjects who are insulted, a lesser amount by subjects who are frustrated, but not insulted, and the least amount by subjects in a control or neutral condition which involves neither insult nor frustration. Clearly, the present study differed from Geen's in not including a control group which contained no elements of frustration. In fact, the "control group" in this study corresponds to Geen's "frustration group," and in that respect can be considered a treatment group, as opposed to a no-treatment control group. The failure of the insult to excite more aggressive

behavior in as consistent a way as was the case in the Geen study is understandable because, in contrast to that study, the present study did not separate the frustration and insult components of the experimental manipulation. A further check of the effectiveness of the experimental manipulation would have been the addition of a purer control group, that is, a third group in which the experimental procedures contained elements of neither frustration nor insult. Since this was not done, it can only be assumed that, while the insult was not a significant factor in arousing aggression, the frustration inherent in both the insult and the no-insult groups was sufficient to instigate aggressive responding in both. It is within the context of viewing the no-insult group as a variant of the experimental group, rather than as a no-treatment control group, that the results of this study are considered most meaningfully. That is, the effects of depression and sex can be evaluated on the basis of the entire sample of subjects, all of whom were exposed to a frustrating, and therefore, aggression-instigating experimental procedure. Aside from the issue of the control group, there are two other methodological factors which bear mentioning. First, the Zung depression scores in this sample of subjects were significantly lower than those found in Zung's (1965) groups. One might expect the results of the present study to be somewhat tempered by the relatively narrow range of responses on the depression measure. On the

other hand, it is noteworthy that, even within the limited range of depressed affect seen here, the high- and low-depressed groups were significantly different, and differences in aggression did emerge. Another methodological factor concerns the homogeneity of the subjects in terms of age and other demographic variables. Perhaps a more balanced sample of subjects would have evoked more significant differences on the dependent measures. Future research endeavors might profitably be devoted to a refinement of the methodology along the lines suggested here, in the hope of clarifying the relationship between depression and instigated aggression.

Depression and Aggression

The findings of the present study support the hypothesis that high-depressed individuals punish themselves more than low-depressed individuals. This finding is consistent with what might be expected on the basis of theoretical perspectives which emphasize the depressive's low self-esteem, and cite self-punitiveness as one dimension of low self-esteem (e.g., Abraham, 1911; Bibring, 1953; Meyersburg et al., 1974). Beck (1974, 1976) specifically posits that depression can be considered a self-induced diminution of self-esteem in response to frustration, with self-reproach and self-punishment as common manifestations. Learning theories do not specifically predict a higher frequency of self-pun-

ishment among depressed individuals, although, as will be discussed shortly, such a finding can be explained inferentially by invoking principles derived from learning theory frameworks on depression. The emergence of a clear-cut difference in the amount of self-directed aggression in depressives is consistent with previous research on the subject, which has almost uniformly found depressives to be more self-aggressive than non-depressed individuals (Otis & McCandless, 1955; Worchel, 1957; Gershon et al., 1968; Forrest, 1971; Rutstein & Goldberger, 1973). As Gershon et al. (1968) have pointed out, previous studies have typically drawn the conclusion that depressives are more self-punitive than non-depressed individuals on the basis of paper-and-pencil measures of hostility-in, which are contaminated by the inclusion of depressed affect. The more rigorous behavioral measure of aggression toward the self used in the present study (i.e., the number of chips subjects used to punish themselves) was not contaminated by such a bias. Consequently, the results here lend further support to the conclusiveness of previous research on the relationship between depression and manifestations of aggressiveness toward the self. It is also noteworthy that the finding of more aggression toward the self in the normal population used in this study challenges the conclusion drawn by Schless et al. (1974) that the relationship between depression and aggression-inward obtains only for a psychiatric population

(Schless et al., 1974, p. 91).

Although the finding of self-punitiveness in depressives lends itself readily to explanation by most theoretical frameworks, a more difficult problem arises when one attempts to conclude on the basis of this isolated finding, that depressives have "conflicts" with aggressive "drives" which result in the retroflection of aggression onto the self. This theoretical position, derived from early psychoanalytic conceptualizations, rests on the assumption of a struggle between the tendency to express aggression outwardly vs. the turning of aggression onto the self. Consequently, the viability of such a theoretical viewpoint can only be evaluated when the depressive's aggression toward the self is observed in conjunction with the findings about outwardly-directed aggression. It was predicted that high-depressed subjects would be less aggressive toward the confederate than low-depressed subjects. Of the four dependent measures of aggression toward the confederate, in no case did the high-depressed subjects emerge as less aggressive than the low-depressed subjects. In fact, the high-depressed group was more aggressive toward the confederate in terms of their private evaluations of the confederate and in terms of hostile affect. The failure to find differences on the behavioral measure, number of chips, is interesting. A plausible explanation is that the public quality of the aggression served to inhibit subjects from punishing the con-

federate. This explanation is supported by the observation that differences in aggression did emerge on the other measures, which afforded subjects the opportunity to express aggressive affect (MAACL) and to thwart the confederate's opportunity to participate in a future experiment for money (Personality Traits Checklist) without the confederate's awareness. Thus, it appears that depressed subjects had more aggressive feelings toward the confederate than subjects who were less depressed, but that the public nature of punishing the confederate overtly, and perhaps the fear of the consequences, inhibited the behavioral expression of aggression on the part of the depressed subjects. The different findings for the "public" versus the "private" measures of aggression underscores the importance of specifying and defining the measure of aggression before drawing global conclusions as to "how much" aggression depressed people "have." This point has been emphasized by Schless et al. (1974). The findings of this investigation are consistent with the findings of more verbal and paper-and-pencil aggression among depressives (Wessman et al., 1960; Gershon et al., 1968), and challenge the more common findings that depressed individuals are less aggressive than individuals who are not depressed (Friedman, 1970; Forrest, 1971), or that there is no difference between depressives and non-depressives in their experience of aggressive affect toward others (Schless et al., 1974; Klerman & Gershon, 1970). The only study to find more overt aggressive behavior in depres-

sives is that of Weissman and Paykel (1974). The findings of the present investigation cast doubt on the results of the Weissman and Paykel study. As was explained earlier, their conclusions were drawn on the basis of subjects' self-reports of aggressive behavior. It is of note that when a rigorous measure of aggressive behavior is employed, as was the case in the present study, the higher frequency of aggressive behavior in depressives does not obtain. One can speculate that the depressed subjects in Weissman and Paykel's research may have been inaccurate in their self-reports, or that they may have erroneously equated aggressive feelings with actual aggressive behavior.

The present research suggests that there are differences between high- and low-depressed individuals in aggressive behavior toward the self, and in aggressive feelings toward others. The characteristic pattern which distinguished the high-depressed group was the tendency to feel more hostile, behave more aggressively in private, i.e., when there was no risk of retaliation, and to be more self-punitive. The fact that depressed subjects were not significantly more or less overtly aggressive toward the confederate is very interesting, particularly in conjunction with the heightened levels of aggressive affect found in these subjects. It appears that, while the high-depressed subjects experienced more negative feelings toward the confederate than the low-depressed subjects, when given the opportunity to retaliate against the object of their hostility,

they were no more likely to retaliate than were the low-depressed subjects, in whom less intense hostile affect was aroused. Indeed, the high-depressed subjects did express more aggression behaviorally, but only in the form of self-punishment. These results suggest that depressed individuals differ from non-depressed individuals in terms of their handling of aggressive feelings. Although nothing in the data points to an etiological role of aggression in the genesis of depression, as psychoanalytic theory postulates, the striking pattern that distinguishes the high-depressed subjects does support the belief that the psychodynamics of depression are not independent of a concern over aggressive tendencies. The composite of affective and behavioral patterns found in this study justifies the speculation that the heightened levels of aggressive behavior toward the self may have served as an alternative to overt expression of aggression toward the confederate. This speculation receives some support from the observation that the depressed subjects did, in fact, feel more hostile toward the confederate. While statements about etiology cannot be made, it does appear that the turning of aggressive feelings toward the self is a "mechanism" or behavioral proclivity that characterizes depression. The data are also consonant with the theoretical position taken by Beck (1976). He suggests that developmental factors predispose depressed individuals to negative cognitive constructions of their experiences, especially un-

der conditions of stress or frustration. With this in mind, it is conceivable that the depressed subjects, when frustrated, interpreted the experimental failure experience in terms of their own inadequacies, and that the heightened levels of aggressive behavior toward the self may have been the behavioral expression of their construction of the frustrating experimental failure situation in self-defeating terms.

A perspective which seems to incorporate aspects of both a cognitive and a psychoanalytic framework, and one which is useful in understanding the data, is one which emphasizes the role of self-esteem (Bibring, 1953; Meyersburg et al., 1974). According to this point of view, depressive disorders are seen as deficits in self-esteem, originally in response to frustration, failure or stress. A current failure, frustration, or stress engenders a further breakdown in self-esteem, which results in a series of attitudes and behaviors that indicate a collapse of ego functioning (cf. Bibring, 1953, p. 27). The breakdown in self-esteem can also be precipitated by the failure to achieve narcissistically-held aspirations, one of which is not to be angry (Bibring, 1953, p. 39). The emergence of hostile or angry affect in response to the confederate's frustration of the subject appears to be handled differently by the depressed subject than by the non-depressed subject. Specifically, the depressive's self-esteem appears to be threatened by the

emergence of hostile affect. The breakdown in self-esteem under the influence of intense affect is manifested by self-punishment and failure to retaliate against the confederate. Bibring and Meyersburg et al. might also speculate that the self-punitive response, and depression itself, represent a defensive posture to protect the individual from overwhelming affective experience. Although the validity of this particular explanation is not addressed by the data in the present investigation, this seems to be a fruitful area for future research.

Learning theories do not specifically implicate the role of aggression in the etiology of depression, but some of the findings of this study can be explained on the basis of learning principles. Although the high-depressed subjects did not differ from the low-depressed subjects in aggressive behavior toward the confederate, the depressive's failure to retaliate can be seen as the consequence of a learning history which fails to develop reinforcement contingencies which encourage the learning of assertive or aggressive behaviors. In the context of the finding that the depressed subjects felt more aggressive affect, one can speculate that learning not to retaliate may take place in conjunction with a certain emotional climate. Specifically, it may be that depressed individuals learn not to behave aggressively when they feel hostile, that is, that this learning is specific to a particular emotional state, i.e., hos-

tility. The finding of more self-directed aggressive behavior is very interesting from a learning theory point of view. Although concepts such as the learning of helpless behavior (Seligman, 1974) and the depressive's failure to learn adequate patterns of interpersonal behavior (Lewinsohn & Shaffer, 1971; Ferster, 1974) do not specifically suggest increases in self-punishment, one can speculate about how this behavioral tendency comes about. Ferster (1974) emphasizes that the depressed individual develops inadequate patterns of interpersonal behavior as a consequence of early experiences of deprivation and failure. He suggests that the punishment of assertive and angry behavior eventuates in the learning of suppression. It seems possible that, in conjunction with learning to suppress outwardly-directed aggressive behaviors, the matrix of reinforcement contingencies in the depressed individual includes the inadvertent reinforcement of self-punitive behaviors. In this regard, Mischel (1968) has pointed out that self-punitive behavior is often the consequence of the withdrawal of reinforcement for behavior which had been previously rewarded. Thus, the self-punitive behavior of depressed individuals appears to be the result both of the absence of reinforcement for outwardly directed aggressiveness and a concomitant reinforcement of an alternative behavior pattern of self-punitiveness. How this comes about, the emotional factors which intervene in this learning, and the manifestations of this learning are not

clear, but these seem to be valuable topics for further research on depression viewed from a learning theory framework.

Sex Differences in Aggression

The finding of more hostile affect in males than in females, and the trend for males to evaluate the confederate less positively, are in line with the results of previous research which has typically found men to be more aggressive than women on all measures of aggressiveness (Oetzel, 1966). The failure to obtain significant differences on the behavioral measure of aggression toward the confederate (number of chips) may have been a function of the relative ineffectiveness of the experimental procedure in arousing a wide range of aggressive responding. A more potent aggression-arousal situation might, in fact, have revealed more aggressive behavior on the part of males than females. On the other hand, it may also be that the minimal differences in overt aggressive behavior may be due, in part, to changing stereotypes of women, with concomitant equalization in the tendency to engage in antisocial aggressive behavior. It is conceivable, then, that women have acquired a repertoire of aggressive responses which is more similar to that acquired by men than was the case ten years ago, when studies on sex differences in aggression proliferated. Also a possibility is that men have become less prone to aggressive responding

as a consequence of social changes. It would be interesting to establish, by means of further investigations, whether sex-typing of aggression has changed, and what factors account for the changes.

Although no behavioral differences emerged, the differences in hostile affect which were found suggest that men may experience aggressive feelings differently from women. Males in the study were more often aroused to a hostile affective response than were women. A plausible explanation is that, while males may no longer be more overtly aggressive than females, they are more likely to respond internally to aggressive cues in a situation than are women. This explanation is consistent with a social learning approach which postulates that men are more sensitized to aggression by virtue of their exposure to a wide range of aggressive situations (e.g., Mischel, 1966). The finding of more intense hostile affect in the male subjects also seems compatible with Freud's (1925) observation that it is functional for girls to suppress aggressive strivings in the process of resolving Oedipal conflicts, whereas the recognition of aggressive feelings aids boys in their attempts to resolve this developmental crisis by identifying with a threatening father (identification with the aggressor). While the results here certainly do not address such metapsychological explanations as Freud proposed, it does seem to be the case that aggressive feelings are more readily mobilized in males

than in females.

While male subjects were more easily made to feel hostile toward the confederate than were female subjects, the females engaged in more aggressive behavior toward themselves than the males. A plausible explanation resides in the postulation of a reinforcement history in women which supports the avoidance of aggression and secondarily reinforces self-punitive behaviors. However, one is puzzled by the observation that the women reported less hostile affect. If they were less hostile than the men, then the increased frequency of self-directed aggressive behavior seems to have developed in the absence of intense hostile affect.. Although clearly, hostile affect and aggressive behavior are not identical, it is difficult to imagine that they are unrelated, and intuitively one might expect hostile affect to be a precursor of aggressive behavior. A useful approach for reconciling this disparity is the suggestion that the self-administered MAACL, on which the hostility scores were based, was sensitive to only one "level" of hostile affect. Thus, while female subjects reported less hostility than male subjects, the possibility remains that they actually felt more hostile, and that the self-punitiveness was an expression of the intensity of hostile affect, manifested in the kind of behavior that was available to these subjects. That is, it is suggested that women have learned not to recognize hostile affect, and that the failure to acknowledge hostility

occurs in conjunction with the reinforcement of self-destructive behavior. Rutstein and Goldberger's (1973) research supports the suggestion that unrecognized hostility plays a role in self-destructiveness.

Although no specific hypotheses were articulated in reference to interactional effects of sex and depression, there was an interest in examining whether such effects would emerge. For example, it would have been interesting to find that the self-punitive behavior of female subjects was affected by level of depression, or that the depressed subjects' heightened levels of hostile affect changed as a function of whether the subject was male or female. The failure to find any interaction effects suggests that sex of subject and level of depression is each a determinant of aggressive affect and behavior, but that the two variables do not act in a lawful cumulative fashion in the determination of aggressiveness. A likely explanation is that patterns of behavior, such as the depressive's self-punishment, and affective response such as the male's hostility, are relatively firmly entrenched in the individual's repertoire. That is, an individual learns characteristic ways of responding to situations with both affective and behavioral elements.

Locus of Control and Exploratory Analyses of Individual Differences Variables

The absence of any systematic relationship between lo-

cus of control and depression was surprising, particularly in view of the previous research, which has typically found high correlations between depression and the expectancy for external control of reinforcement. One explanation which may account for this difference is that, in contrast to previous studies, which have used the Rotter (1966) I/E Scale, the present study employed the Collins (1974) scale. A more likely explanation, and one to which Rotter (1966) and Strickland (1973) have alluded, is that the locus of control variable may be related to psychopathology in a curvilinear, rather than a linear, fashion. That is, if extreme scores on the locus of control measure were associated with depression, then the correlations may have cancelled out, thereby accounting for the negligible correlation coefficient. The finding of a high correlation between internality and social desirability (need for approval), in conjunction with the significant tendency for high scorers on the social desirability scale to report less depression, support the speculation by Strickland (1975) that approval-motivated individuals may be more prone to deny psychopathological tendencies or symptoms. It also appears that need for approval may "contaminate" the relationship between locus of control and depression.

An interesting finding which demonstrates the usefulness of locus of control in aiding prediction about behavior is the emergence of a significant negative correlation be-

tween expectancy for control and the number of chips used to punish the confederate. That is, internal subjects tended to be overtly aggressive toward the confederate. This finding is particularly striking since, it will be recalled, no other variable was found to be useful in predicting high levels of aggressive behavior toward the confederate. This finding is consistent with what is known about the characteristic responses of internal and external locus of control individuals. For example, Hiroto (1974) found that internals were quicker to engage in instrumental escape behavior in an experimental learned helplessness situation than were externals. It is understandable that assertive or aggressive behaviors are more readily available to individuals who perceive their behavior as being instrumental in determining subsequent outcomes. Although one can only speculate about what the "subsequent outcome" was which subjects were concerned about in the experimental situation in this study, a strong possibility is that it involved the subject's self-esteem. The likelihood that individuals with high self-esteem tend to be more aggressive toward an instigator than individuals with self-esteem deficits has already been established by Worchel (1960). The implication can be drawn that the internal subjects in the experiment had a greater facility in regulating their self-esteem by means of their behavior, and that they viewed retaliation against the confederate as instrumental in maintaining their self-esteem in

the face of a frustrating experimental situation.

The correlations between generalized expectancy for success and other variables can be viewed as providing support for the predictive utility of this psychological expectancy, as well as corroborating the preliminary findings of Hale and Fibel (1976) regarding the psychometric soundness of the Generalized Expectancy for Success Scale. The significant relationships between GESS and internality as well as between GESS and social desirability are similar to those which Hale and Fibel reported, although in the present study, the relationship between GESS and social desirability obtained for male as well as for female subjects. Perhaps the most crucial finding regarding the expectancy for success variable was its highly significant inverse correlation with depression. The tendency for depressed individuals to have a low expectancy for successful attainment of their goals is consistent with conceptualizations of depression which emphasize a negative cognitive set. This result consequently lends support to the construct validity of the Generalized Expectancy for Success Scale. Hale and Fibel (1976) have suggested that future research be devoted to exploring relationships between GESS and measures of other personality variables. While this was not the task of the present investigation, a fortuitous finding was that subjects who were low in anxiety on the MAACL had a high expectancy for success. Although more research needs to be conducted

with other variables, it appears that the GESS may measure a generalized psychological well-being, and that it is a promising instrument in terms of its predictive utility.

Conclusion

The instigation-to-aggression paradigm provides a useful experimental procedure for studying the relationship between depression and aggression. It is crucial to define and specify the measures of aggression in order to allow comparisons of aggressive affect and behavior. The use of several measures of aggression in this study made it possible to observe disparities between behavioral and affective expressions of aggressiveness, and to make statements about the handling of aggressive feelings among depressed individuals. The study revealed a number of differences between depressed and non-depressed subjects. The high-depressed group tended to feel more hostile, to behave more aggressively when there was no risk of retaliation from the confederate, and to be more behaviorally self-punitive. Sex differences also emerged, with males reporting more hostile affect than females, and females engaging in more overt self-punitive behavior than males.

An attempt to account for the patterns which were found in the study by means of a single theoretical approach seems simplistic and inadequate. What emerged most prominently was that the pathway from affect to behavior is not a

straightforward one. It is noteworthy, for example, that the depressive's hostile affect is not reflected in increased displays of aggressive behavior toward the confederate, and to cite another example, that the female's self-punitive behavior occurs in spite of lowered levels of aggressive affect. The results of this study raise some question as to whether behavior is to be understood solely in terms of learning factors. Strictly speaking, of course, every piece of behavior is a function of learning variables. However, the factors that enter into these learnings may be highly complex. In terms of depression, it appears that depressed individuals have well-entrenched (learned) sensitivities to hostile affect, although the precursors of such concerns were not specifically addressed in the present investigation. The depressive's self-punitive behavior may well be the result of early learning about the manner in which aggressive feelings may be expressed, and, as suggested earlier, it is likely that the matrix of reinforcement contingencies is consonant with the depressive's conflicts over aggressive expression, and with the implications of aggression for the depressive's self-esteem. Whatever the antecedent learning circumstances are found to be, it seems likely that the turning of aggression onto the self is indeed a mechanism or behavioral proclivity among depressed individuals.

The speculation that behavior is the result of a com-

plex interplay of affect and learning is further supported by the sex differences in aggression which emerged in the study. The male's heightened arousability to aggressive affect was not reflected in increases in aggressive behavior, and the female's lowered levels of hostile affect occurred in conjunction with a higher frequency of self-directed aggressive behavior. These findings suggest that metapsychological factors such as defense mechanisms may play a role in the learning of affective responses and cognitive schemas, as well as in the translation of affect into behavior. Future investigative efforts are indicated in order to clarify how individuals learn to recognize their affective states, and what variables intervene between affect and behavior.

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APPENDIX

SUBJECT CONSENT FORM--Paper-and-Pencil Tests

I, (Name), have agreed to participate in a series of paper-and-pencil tests. I understand that scores on certain of the tests will be used to solicit subjects for future psychological experiments. The results of these tests will be helpful in understanding the effects of certain belief systems and expectancies on behavior. I understand that my responses on these tests are confidential, and that they will not be known to anyone except to the principal investigator, who is primarily interested in group data, and not in my particular scores. I am free to discontinue my participation in these tests at any time if I choose to do so.

I have read the above and it is true and correct to my knowledge.

Signature _____

IDENTIFICATION SHEET

NAME _____ TELEPHONE NUMBER _____
STUDENT ID _____ ADDRESS _____
G.P.A. _____ MAJOR _____
NUMBER OF PSYCHOLOGY CREDITS _____ YEAR IN SCHOOL _____
PSYCHOLOGY G.P.A. _____
CLASS _____ SEX _____

PERSONAL REACTION INVENTORY

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

Do not make any marks on the test booklet. Record your answers in the true or false columns of the separate answer sheet that has been given to you. Fill in your name and sex on the answer sheet.

Remember: Answer each item as it pertains to you personally.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
2. I never hesitate to go out of my way to help someone in trouble.
3. It is sometimes hard for me to go on with my work if I am not encouraged.
4. I have never intensely disliked anyone.
5. On occasion I have had doubts about my ability to succeed in life.
6. I sometimes feel resentful when I don't get my way.
7. I am always careful about my manner of dress.
8. My table manners at home are as good as when I eat out in a restaurant.
9. If I could get into a movie without paying and be sure I was not seen I would probably do it.
10. On a few occasions, I have given up doing something because I thought too little of my ability.
11. I like to gossip at times.
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
13. No matter whom I'm talking to, I'm always a good listener.

14. I can remember "playing sick" to get out of something.
15. There have been occasions when I took advantage of someone.
16. I'm always willing to admit it when I make a mistake.
17. I always try to practice what I preach.
18. I don't find it particularly difficult to get along with loud-mouthed obnoxious people.
19. I sometimes try to get even rather than forgive and forget.
20. When I don't know something I don't at all mind admitting it.
21. I am always courteous, even to people who are disagreeable.
22. At times I have really insisted on having things my own way.
23. There have been occasions when I felt like smashing things.
24. I would never think of letting someone else be punished for my wrongdoing.
25. I never resent being asked to return a favor.
26. I have never been irked when people expressed ideas very different from my own.
27. I never make a long trip without checking the safety of my car.
28. There have been times when I was quite jealous of the good fortune of others.
29. I have almost never felt the urge to tell someone off.
30. I am sometimes irritated by people who ask favors of me.
31. I have never felt that I was punished without cause.
32. I sometimes think when people have a misfortune they only got what they deserved.

33. I have never deliberately said something that hurt someone's feelings.

QUESTIONNAIRE

Sex: ___ Male ___ Female Social Sec. No. _____

Debatable Issues

Listed below are a series of statements with which some people agree and others disagree. Evidence can be advanced in favor of each statement, and against each statement.

Please indicate the extent to which you agree or disagree with a statement by placing a checkmark or X in one of the spaces on the line below the statement. Please don't skip any statements even if you don't have much feeling one way or the other.

1. Children get into trouble because their parents punish them too much.

Agree : ___:___:___:___:___:___:___: Disagree

2. The trouble with most children nowadays is that their parents are too easy with them.

Agree : ___:___:___:___:___:___:___: Disagree

3. Many of the unhappy things in people's lives are partly due to bad luck.

Agree : ___:___:___:___:___:___:___: Disagree

4. People's misfortunes result from the mistakes they make.

Agree : ___:___:___:___:___:___:___: Disagree

5. One of the major reasons why we have wars is because people don't take enough interest in politics.

Agree : ___:___:___:___:___:___:___: Disagree

6. There will always be wars, no matter how hard people try to prevent them.

Agree : ___:___:___:___:___:___:___: Disagree

7. In the long run people get the respect they deserve in this world.

Agree :__:__:__:__:__:__:__: Disagree

8. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

Agree :__:__:__:__:__:__:__: Disagree

9. The idea that teachers are unfair to students is nonsense.

Agree :__:__:__:__:__:__:__: Disagree

10. Most students don't realize the extent to which their grades are influenced by accidental happenings.

Agree :__:__:__:__:__:__:__: Disagree

11. Without the right breaks, one cannot be an effective leader.

Agree :__:__:__:__:__:__:__: Disagree

12. Capable people who fail to become leaders have not taken advantage of their opportunities.

Agree :__:__:__:__:__:__:__: Disagree

13. No matter how hard you try some people just don't like you.

Agree :__:__:__:__:__:__:__: Disagree

14. People who can't get others to like them don't understand how to get along with others.

Agree :__:__:__:__:__:__:__: Disagree

15. I have found that what is going to happen will happen.

Agree :__:__:__:__:__:__:__: Disagree

16. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

Agree :__:__:__:__:__:__:__: Disagree

17. In the case of the well-prepared student there is rarely, if ever, such a thing as an unfair test.

Agree :__:__:__:__:__:__:__:__: Disagree

18. Many times exam questions tend to be so unrelated to course work that studying is really useless.

Agree :__:__:__:__:__:__:__:__: Disagree

19. Becoming a success is a matter of hard work; luck has little or nothing to do with it.

Agree :__:__:__:__:__:__:__:__: Disagree

20. Getting a good job depends mainly on being in the right place at the right time.

Agree :__:__:__:__:__:__:__:__: Disagree

21. The average citizen can have an influence in government decisions.

Agree :__:__:__:__:__:__:__:__: Disagree

22. This world is run by the few people in power, and there is not much the little guy can do about it.

Agree :__:__:__:__:__:__:__:__: Disagree

23. When I make plans, I am almost certain that I can make them work.

Agree :__:__:__:__:__:__:__:__: Disagree

24. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

Agree :__:__:__:__:__:__:__:__: Disagree

25. In my case getting what I want has little or nothing to do with luck.

Agree :__:__:__:__:__:__:__:__: Disagree

26. Many times we might just as well decide what to do by flipping a coin.

Agree :__:__:__:__:__:__:__:__: Disagree

27. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

Agree :__:__:__:__:__:__:__:__: Disagree

28. Getting people to do the right thing depends upon ability: luck has little or nothing to do with it.

Agree :__:__:__:__:__:__:__:__: Disagree

29. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

Agree :__:__:__:__:__:__:__:__: Disagree

30. By taking an active part in political and social affairs the people can control world events.

Agree :__:__:__:__:__:__:__:__: Disagree

31. Most people don't realize the extent to which their lives are controlled by accidental happenings.

Agree :__:__:__:__:__:__:__:__: Disagree

32. There really is no such thing as "luck."

Agree :__:__:__:__:__:__:__:__: Disagree

33. It is hard to know whether or not a person really likes you.

Agree :__:__:__:__:__:__:__:__: Disagree

34. How many friends you have depends upon how nice a person you are.

Agree :__:__:__:__:__:__:__:__: Disagree

35. In the long run the bad things that happen to us are balanced by the good ones.

Agree :__:__:__:__:__:__:__:__: Disagree

36. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

Agree :__:__:__:__:__:__:__:__: Disagree

37. With enough effort we can wipe out political corruption.

Agree :__:__:__:__:__:__:__: Disagree

38. It is difficult for people to have much control over the things politicians do in office.

Agree :__:__:__:__:__:__:__: Disagree

39. Sometimes I can't understand how teachers arrive at the grades they give.

Agree :__:__:__:__:__:__:__: Disagree

40. There is a direct connection between how hard I study and the grades I get.

Agree :__:__:__:__:__:__:__: Disagree

41. Many times I feel that I have little influence over the things that happen to me.

Agree :__:__:__:__:__:__:__: Disagree

42. It is impossible for me to believe that chance or luck plays an important role in my life.

Agree :__:__:__:__:__:__:__: Disagree

43. People are lonely because they don't try to be friendly.

Agree :__:__:__:__:__:__:__: Disagree

44. There's not much use in trying too hard to please people; if they like you, they like you.

Agree :__:__:__:__:__:__:__: Disagree

45. What happens to me is my own doing.

Agree :__:__:__:__:__:__:__: Disagree

46. Sometimes I feel that I don't have enough control over the direction my life is taking.

Agree :__:__:__:__:__:__:__: Disagree

47. Most of the time I can't understand why politicians behave the way they do.

Agree : __:__:__:__:__:__:__: Disagree

48. In the long run people are responsible for bad government on a national as well as on a local level.

Agree : __:__:__:__:__:__:__: Disagree

Self-Rating Depression Scale

Please mark the following terms as they pertain to you. Mark every item that is appropriate for you by checking the correct box.

None of the time	A little of the time	Some of the time	A good part of the time	Most of the time
---------------------------	-------------------------------	---------------------------	----------------------------------	---------------------------

1. I feel down-hearted and blue.

2. Morning is when I feel the best.

3. I have crying spells or feel like it.

4. I have trouble sleeping at night.

5. I eat as much as I used to.

6. I still enjoy sex.

7. I notice that I am losing weight.

8. I have trouble with constipation.

9. My heart beats faster than usual.

10. I get tired for no reason.

11. My mind is as clear as it used to be.

12. I find it easy to do the things I used to.

13. I am restless and can't keep still.

None of the time	A little of the time	Some of the time	A good part of the time	Most of the time
---------------------------	-------------------------------	---------------------------	----------------------------------	---------------------------

14. I feel hopeful about the future.

15. I am more irritable than usual.

16. I find it easy to make decisions.

17. I feel that I am useful and needed.

18. My life is pretty full.

19. I feel that others would be better off if I were dead.

20. I still enjoy the things I used to.

This is a questionnaire to find out how people believe they will do in certain situations. Each item consists of a five-point scale and a brief statement regarding one's expectations about events. Please indicate the degree to which you believe the statement would apply to you personally by circling the appropriate number. Give the answer that you truly believe best applies to you and not what you would like to be true or think others would want to hear. Answer the items carefully, but do not spend too much time on any one item. Be sure to find an answer for every item, even if the statement describes a situation you presently do not expect to encounter. Answer as if you were going to be in each situation. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

In the future I expect that I will. . .

1. . . .find that people don't seem to understand what I am trying to say.

highly							highly
improbable	1	2	3	4	5		probable

2. . . .be discouraged about my ability to gain the respect of others.

highly							highly
improbable	1	2	3	4	5		probable

3. . . .be a good parent.

highly							highly
improbable	1	2	3	4	5		probable

4. . . .be unable to accomplish my goals.

highly							highly
improbable	1	2	3	4	5		probable

5. . . .have a successful marital relationship.

highly							highly
improbable	1	2	3	4	5		probable

6. . . .deal poorly with emergency situations.

highly							highly
improbable	1	2	3	4	5		probable

7. . . .find my efforts to change situations I don't like are ineffective.

highly						highly
improbable	1	2	3	4	5	probable

8. . . .not be very good at learning new skills.

highly						highly
improbable	1	2	3	4	5	probable

9. . . .carry through my responsibilities successfully.

highly						highly
improbable	1	2	3	4	5	probable

10. . . .discover that the good in life outweighs the bad.

highly						highly
improbable	1	2	3	4	5	probable

11. . . .handle unexpected problems successfully.

highly						highly
improbable	1	2	3	4	5	probable

12. . . .get the promotions I deserve.

highly						highly
improbable	1	2	3	4	5	probable

13. . . .succeed in the projects I undertake.

highly						highly
improbable	1	2	3	4	5	probable

14. . . .not make any significant contributions to society.

highly						highly
improbable	1	2	3	4	5	probable

15. . . .discover that my life is not getting much better.

highly						highly
improbable	1	2	3	4	5	probable

16. . . .be listened to when I speak.

highly						highly
improbable	1	2	3	4	5	probable

17. . . .discover that my plans don't work out too well.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

18. . . .find that no matter how hard I try, things just don't turn out the way I would like.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

19. . . .handle myself well in whatever situation I'm in.

highly improbable	1	2	3	4	5	highly probable
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20. . . .be able to solve my own problems.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

21. . . .succeed at most things I try.

highly improbable	1	2	3	4	5	highly probable
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22. . . .be successful in my endeavors in the long run.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

23. . . .be very successful working out my personal life.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

24. . . .experience many failures in my life.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

25. . . .make a good impression on people I meet for the first time.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

26. . . .attain the career goals I have set for myself.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

27. . . .have difficulty dealing with my superiors.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

28. . . .have problems working with others.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

29. . . .be a good judge of what it takes to get ahead.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

30. . . .achieve recognition in my profession.

highly improbable	1	2	3	4	5	highly probable
----------------------	---	---	---	---	---	--------------------

FEEDBACK ON THE PAPER-AND-PENCIL TESTS

Thank you for filling out these questionnaires. The purpose of these instruments is to assess various traits of individuals. In particular, most of the tests measure psychological expectancies and belief systems. The Personal Reaction Inventory is a measure of social desirability, that is, the extent to which individual's responses are influenced by their expectation of what is socially appropriate. The Debatable Issues questionnaire measures locus of control, the individual's expectancy that his/her responses have some bearing on future outcomes. The self-rating depression scale is a measure of an individual's mood. The Generalized Expectancy for Success Scale assesses how likely people feel they are to meet with success in various future situations.

The responses on some of these paper-and-pencil measures will be used to screen subjects for participation in an experiment which is being run currently. Many of you will be contacted soon, and asked to participate in the laboratory experiment.

Your responses on these instruments will remain confidential, that is, they will be known only to the principal investigator, who is primarily interested in group data, rather than in your particular scores.

Thank you again for filling out these questionnaires. If you have any questions regarding them or the laboratory experiment, please feel free to contact either Sue Ellen Kadlewicz at 549-1398, or Paul Narkus at 584-1082.

SUBJECT'S STATEMENT OF PRIOR CONSENT

I _____ have agreed to participate in a psychological experiment which involves filling out an adjective check list, performing block and word puzzles, and completing another questionnaire. I understand that my performance and responses will be helpful for further understanding of the effects of expectancies and belief systems on behavior. I have been informed that no harm will come to me in any form and that I may withdraw from the experiment at any time.

I have read the above and it is true and correct to the best of my knowledge.

SUBJECT'S SIGNATURE _____

DATE _____

ADJECTIVE CHECK LIST

Below you will find words which describe different kinds of moods and feelings. For each word, decide whether or not it describes how you feel now. If it does, make a mark in the first column on the IBM sheet for the number which corresponds to the word. If a word does not describe your present feeling, then do NOT mark that item at all on the IBM sheet. Because you will only place marks on the IBM sheet for those items which describe how you feel, you will be leaving some items blank. Therefore, please check frequently to make sure that you are marking the correctly numbered item. Some of the words may sound alike, but we want you to mark all the words that describe your feelings. Work rapidly.

- | | | |
|-----------------|-----------------|------------------|
| 1. active | 17. blue | 33. destroyed |
| 2. adventurous | 18. bored | 34. devoted |
| 3. affectionate | 19. calm | 35. disagreeable |
| 4. afraid | 20. cautious | 36. discontented |
| 5. agitated | 21. cheerful | 37. discouraged |
| 6. agreeable | 22. clean | 38. disgusted |
| 7. aggressive | 23. complaining | 39. displeased |
| 8. alive | 24. contented | 40. energetic |
| 9. alone | 25. contrary | 41. enraged |
| 10. amiable | 26. cool | 42. enthusiastic |
| 11. amused | 27. cooperative | 43. fearful |
| 12. angry | 28. critical | 44. fine |
| 13. annoyed | 29. cross | 45. fit |
| 14. awful | 30. cruel | 46. forlorn |
| 15. bashful | 31. daring | 47. frank |
| 16. bitter | 32. desperate | 48. free |

49. friendly	75. low	101. secure
50. frightened	76. lucky	102. shaky
51. furious	77. mad	103. shy
52. gay	78. mean	104. soothed
53. gentle	79. meek	105. steady
54. glad	80. merry	106. stubborn
55. gloomy	81. mild	107. stormy
56. good	82. miserable	108. strong
57. good-natured	83. nervous	109. suffering
58. grim	84. obliging	110. sullen
59. happy	85. offended	111. sunk
60. healthy	86. outraged	112. sympathetic
61. hopeless	87. panicky	113. tame
62. hostile	88. patient	114. tender
63. impatient	89. peaceful	115. tense
64. incensed	90. pleased	116. terrible
65. indignant	91. pleasant	117. terrified
66. inspired	92. polite	118. thoughtful
67. interested	93. powerful	119. timid
68. irritated	94. quiet	120. tormented
69. jealous	95. reckless	121. understanding
70. joyful	96. rejected	122. unhappy
71. kindly	97. rough	123. unsociable
72. lonely	98. sad	124. upset
73. lost	99. safe	125. vexed
74. loving	100. satisfied	126. warm

127. whole

129. willful

131. worrying

128. wild

130. wilted

132. young

LISTS OF ANAGRAMS

LIST I

U J E D G (judge)
P R A C M (cramp)
S R L U M (insoluble)
L I F G N (fling)
F R E C H (insoluble)
B R A O L (labor)
M E D L O (model)
P A O M T (insoluble)

LIST II

A W R T E (water)
H O N M T (month)
C E R I U (insoluble)
E A B H C (beach)
S R A C L (insoluble)
I E O C V (voice)
T I A N R (train)
L P N I O (insoluble)

PERSONALITY TRAITS CHECKLIST

I.D. NUMBER _____

____ FRIENDLY

____ SELFISH

____ SMART

____ AWKWARD

____ CLEAN

____ STINGY

____ CHEERFUL

____ SLY

____ HONEST

____ UNFAIR

____ BRAVE

____ CRUEL

____ POLITE

____ STUPID

____ PATIENT

____ DANGEROUS

____ DEPENDABLE

____ DIRTY

____ GOOD-LOOKING

____ STUBBORN

____ PEACEFUL

____ LIAR

3. If I were to tell you that there were things that were not as you were told, what do you think they might be?
4. There were things that were not as you were told. What do you think they were?

4. There were things that were not as you were told. What do you think they were?

FEEDBACK ON THE EXPERIMENT

Thank you for participating in this study. I would now like to explain to you what the experiment was investigating. The purpose of the experiment was to see how people respond when they are insulted by another person. Previous studies have shown that sometimes people get angry at the person who insulted them, while sometimes people tend to keep their feelings to themselves. Actually, both of these responses are quite normal; it was the purpose of the experiment to see how these responses are expressed within the same person. The insult you overheard was staged, that is, it was part of the experiment, and had nothing whatsoever to do with you personally or with your performance on the puzzle. Actually, Betsy/Paul is a confederate in this experiment, that is s/he is working with me. The insult s/he delivered was prearranged and was the same for all subjects. Furthermore, s/he had learned to solve the puzzle in a period of time which is much shorter than most people need for their first try at the puzzle. I could not have informed you of the insult prior to the experiment because, if I had, it would probably not have had any effect, and the experiment would not have been able to answer the questions I am interested in studying. Responses to the insult were measured in terms of the number of chips you took away from the confederate, as opposed to the number of chips you took away from yourself during the anagrams test. In order to ensure that there would be errors on the anagrams, several of the anagrams were insoluble. Half of the subjects in this experiment were in the control group, so for these subjects, the confederate DID NOT insult them. The purpose of the control group is to examine the effectiveness of the experimental manipulation (the insult).

We do not like to use deception, but felt it was necessary to our experiment. Most psychology experiments do not use deception. In fact, there are only a few each year which are allowed by the Human Subjects Committee. The reason I wanted you to think that the chips were worth money was that I felt it might provide an incentive and be more believable. Also, the list of personality traits is used as a measure of how angry you were with the confederate for the insult.

The responses on the paper-and-pencil tests which you filled out a while back will be used in analyzing the data. In particular, we are interested in how individuals' moods and expectancies affect their behavior in this experimental situation.

Finally, I would like to impress upon you that it is very important that you not discuss this experiment with anyone else. It is extremely crucial that people enter the experimental situation as naively as possible, in order to ensure that we get an accurate representation of the information we are trying to gather.

Thank you very much again for your participation!

