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COGNITIVE ASPECTS OF MILD DEPRESSION IN CHILDREN

The Ohio State University

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COGNITIVE ASPECTS OF MILD DEPRESSION
IN CHILDREN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Jayne Ellen Schachter, B.S., M.A.

*****

The Ohio State University

1984

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Approved by
Adviser
Department of Psychology
Copyright by
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1984
Dedicated to the memory of my grandfather, Philip Feinberg.
ACKNOWLEDGEMENTS

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CHAPTER 1
INTRODUCTION

Childhood depression has been a topic of much theoretical controversy but limited rigorous investigation until recently. A review of the literature reveals three major competing viewpoints. The first is that childhood depression does not exist, as in the classical psychoanalytic view which holds that the necessary psychic structures, i.e., the superego, are not yet sufficiently formulated to allow for the turning of aggression inward toward the ego (Rochlin, 1959). The initial challenge to this view came from those positing that depression in children is masked or expressed in depressive equivalents such as hyperactivity, temper tantrums, aggressive behavior, or phobias (e.g. Cytryn & McKnew, 1974; Glaser, 1968; Renshaw, 1974; Toolan, 1962), a view that has not survived the passage of time (Gitte1man-Klein, 1977; Kovacs and Beck, 1977). The third, and most widely accepted position at present is that childhood depression is actually quite similar to adult depression with some of its own unique characteristics (e.g. Carlson & Cantwell, 1980b; Ling, Oftedal, & Weinberg, 1970; Poznanski, 1982; Puig-Antich & Weston, 1983; Weinberg, Rutman, Sullivan, Penick, & Dietz, 1973).

The recency of the recognition of childhood depression is exemplified by the observation that in Kanner's 1957 encyclopedic
text, *Child Psychiatry*, the term was not even listed in the index. In 1966, Rie viewed this as a natural omission in light of the "remarkable consensus" regarding "the fact" that "familiar manifestations of adult, nonpsychotic depression are virtually nonexistent in childhood" (p. 654). The 1979's saw an upsurge in recognition and research of childhood depression but this early work was plagued by conceptual and diagnostic difficulties, including a lack of specific diagnostic criteria and assessment techniques.

In contrast, the study of affective disorders in adults has produced major advances in our knowledge, facilitated by the delineation of specific diagnostic criteria, the Research Diagnostic Criteria (RDC; Feighner, Robins, Guze, Woodruff, Winokur, & Munoz, 1972; Spitzer, Endicott, & Robins, 1978). In adults, the clinical syndrome of depression involves changes in affect, motivation, cognition, and motor function. More specifically, as outlined in the current Diagnostic and Statistical Manual (DSM-III: American Psychiatric Association, 1980), it is characterized by dysphoric mood or loss of interest or pleasure in usual activities, poor appetite, sleep disturbance, psychomotor agitation or retardation, loss of energy, feelings of worthlessness, self-reproach or excessive guilt, concentration difficulties, and/or recurrent thoughts of death or suicide. Research in the area is extensive with studies of subtypes, natural course, family patterns, biochemical correlates, and cognitive factors.
Because of its relative infancy, most of the research with children to date has focused on defining the clinical picture, establishing diagnostic criteria, and developing valid assessment tools to allow for such investigation. These efforts have been fruitful and as summarized by Cantwell (1983b),

There does seem to be a converging body of evidence from a variety of investigators in different centers suggesting that there is indeed a clinical syndrome of depression in childhood that manifests itself in its essential features similar to the way the depressive syndromes are manifested in adult life (p. 16).

Nevertheless, those who support this view have identified additional characteristics which appear to be associated with the DSM-III diagnosis of major depression in children (e.g. Carlson & Cantwell, 1980a; Puig-Antich, 1980; Weinberg, et al., 1973) and with depressed mood in normal children (Jacobsen, Lahey, & Strauss, 1983; Leon, Kendall, & Garber, 1980). This suggests there may be age-specific features which are mediated by developmental level. In order to gain a true understanding of childhood depression, it will thus be essential to consider how affective and cognitive development may modify the experience.

Various models of depression have been employed in both descriptive and explanatory fashions, including psychoanalytic, biological, behavioral, life stress, and cognitive theories. One particularly prominent view in the literature was put forth by Beck (1967, 1974), who theorized that depression is the result of pervasive negative constructions about the self, the environment and the future, which he termed the "cognitive triad." However,
the empirical research has focused almost exclusively on adult populations and little is known of the applicability to children. Insight into depressed children's self-concepts, perceptions of the environment, and future expectations would enhance our understanding of childhood depression and is thus the purpose of the current study.
CHAPTER II
LITERATURE REVIEW

Historical Perspective: Definition, Diagnosis, and Assessment

Research on childhood depression has focused primarily on defining the syndrome by delineating its particular symptoms and correlates. Some investigators have begun with the premise that developmental factors dramatically alter the clinical picture and thus depression must be inferred from behaviors and symptoms which "mask" the underlying depressive feelings. One of the strongest advocates of this position was Glaser (1968) who believed that depression in children may be "masked" by other symptoms such as temper tantrums, delinquent behavior, disobedience, truancy, running away, school phobia, poor school performance, and psychophysiological reactions. Toolan (1962) expressed a similar concept in his "depressive equivalents," claiming the adult clinical symptoms are substituted by problems such as temper tantrums, disobedience, truancy, running away, accident proneness, masochism, self-destructive behavior, boredom, restlessness, and sexual acting-out. Hyperactivity and aggressiveness were added by Cytryn and McKnew (1974), irritability by Bakwin (1972), fire-setting and whining by Renshaw (1974), and enuresis and encopresis by Frommer (1968).

While the notion that depression manifests itself differently in children than in adults in not an unreasonable one, the masked
depression view has not proved to be useful or valid. First, the exhaustive nature of the list of equivalents renders it questionable in value. Secondly, the reliance on inference is problematic. As pointed out by Puig-Antich (1980), a distinction could not be made between, for example, a child in whom hyperactivity was primary and one in whom it was masking depression. In an effort to elucidate the issue, Pearce (in Hersov, 1977) analyzed the clinical records of 547 child and adolescent patients and failed to find an association between depressed mood and the supposed depressive equivalents.

Actually, most investigators of the masked depression view searched for evidence of depressive elements as well. For example, Cytryn and McKnew (1974) also looked for feelings of hopelessness, helplessness, guilt, worthlessness, expressions of being unloved, motor retardation, sad faces and posture, appetite and sleep disturbances, and negative fantasy and dream content in order to diagnose depression. If depression is inferred from the presence of behaviors such as hyperactivity, aggression, and enuresis without these overt depressive symptoms, this would appear unwarranted (Gittelman-Klein, 1977). If on the other hand, the depressive elements must be present in addition to the masked symptoms, then the concept of masked depression appears superfluous. As suggested by Kovacs and Beck (1977), many of these behaviors may instead just reflect presenting complaints. In fact, Cytryn and his associates have revised their thinking
and no longer view masked depression as a helpful concept, advocating the use of the DSM-III classification system for affective disorders (Cytryn, McKnew, & Bunney, 1980).

Other investigators have begun with the assumption that childhood depression is similar to adult depression and have thus used unmodified and modified versions of well-established adult criteria to study it. Ling, et al. (1980) used criteria loosely derived from adult work and found that in a clinic sample of 25 children, ages 4 to 14 years, who presented with severe headache, 10 fit their criteria for a depressive disorder. Mood change, social withdrawal, and self-deprecation were the most frequent symptoms, and somatic complaints and decreased school performance were also common.

Using criteria more closely derived form Feighner's group (Feighner, et al., 1972), Weinberg, et al. (1973) found that 42 of 72 children referred for poor school performance and/or behavior problems met their criteria, which included both dysphoria and self-deprecation, and two or more of their additional 8 symptoms. They found crying, moodiness, agitated behavior, and sleep disturbance or somatic complaints to be the most common symptoms. Fifty-seven per cent of the depressed children had 7 or more of the 10 symptoms, while nobody in the nondepressed group had more than 4. The apparently high rate of depression in their sample, 62.5 percent, may be due to insufficient specificity of criteria. However, there was evidence supporting the diagnoses
such as a significantly higher rate of positive family history for affective disorder in the depressed group as compared to the nondepressed group. Weinberg, et al. also found hyperactivity, school phobia, enuresis, temper tantrums, and destructive behavior to be more frequent in depressed than in nondepressed children. In addition, there appeared to be a temporal relationship between these symptoms and episodes of depression, suggesting they may be associated symptoms in this age group. Methodological flaws of this study, as delineated by Puig-Antich (1980), were lack of a stipulated minimal level of severity for each criteria or a structured method of assessment.

In a somewhat less systematic fashion, Poznanski and Zrull (1970) examined the hospital charts of 1788 children for descriptions of the child as sad, unhappy, self-critical, feeling inadequate, experiencing sleep disturbances, and preoccupied with death, and then rated them for severity. Though 66 children were rated as "severe", only 10 fit the clinical criteria for depression. The investigators pointed to negative self-image as the most common symptom.

Kupferman and Stewart (1979), using diagnostic criteria similar to Weinberg, et al. (1973), conducted structured interviews with parents of children ages 8 to 16 years referred to either inpatient or outpatient psychiatric services. They found 13 percent of the girls and 5 percent of the boys met their criteria for major depression, with no significant difference in symptom
pattern for children and adolescents. Methodologically, the study suffered from lack of reliability checks and failure to interview the child directly.

Puig-Antich, Blau, Mark, Greenhill, and Chambers (1978) were apparently the first to attempt to apply to children the unmodified Research Diagnostic Criteria (RDC) for major depressive disorder in adults. They screened all consecutive referrals to child psychiatry inpatient and outpatient services and identified a group of 13 children who met RDC for major depression both on admission and after one month of psychosocial intervention alone. This appeared to be a group with severe depression as 3 had depressive hallucinations, 3 met severity criteria for endogenous subtype of the RDC, 11 had suicidal thoughts, and 9 reported loss of interest or pleasure in activities. All 13 subjects described depressed mood. Of the 8 children who were treated with imipramine, 6 were considered to have a good response at 6 to 8 weeks. Given that imipramine is commonly used to treat depression in adults, its effectiveness here was seen as evidence for the propriety of the diagnosis. However, improvement cannot be definitively attributed to the drug as there were no controls employed; the other 5 subjects did not receive imipramine and were not formally assessed at 6 weeks.

Of additional interest, in regard to associated features, Puig-Antich, et al. found that all of their subjects demonstrated developmentally excessive separation anxiety. Also, all 5 of the boys over the age of 10 had concurrent conduct disorders.
Carlson and Cantwell (1980a) randomly selected 210 children, ages 7 to 17 years, from the total screenings at both an inpatient and outpatient psychiatric service and administered the Short Children's Depression Inventory (SCDI), a self-report measure (Kovacs & Beck, 1977). On the basis of screening information, 60 percent of the subjects were found to have depressive symptoms. Using cut-off scores on the SCDI, 49 percent of the sample exhibited a depressive syndrome. Semistructured interviews were then conducted with 102 of the children and their parents and 27 percent actually met criteria for the presence of a depressive disorder. Of the 28 children in the latter group, 16 were judged to have a secondary depressive disorder, with 8 receiving an additional diagnosis of hyperactivity or conduct disorder and 8 receiving other diagnoses, most often anorexia nervosa.

Others have challenged the notion that an actual syndrome of childhood depression exists. Lefkowitz and Burton (1978) argued that depressive features in children reflect a developmental phenomenon rather than a clear clinical syndrome, and these symptoms dissipate with time. Their position was that if a syndrome exists it must be objectively measurable, and at the time of their writing, such data were not available. Pointing to the extremely high incidence rates reported by some researchers, Lefkowitz and Burton claimed that if depressive symptoms in children are to be considered psychopathogenic, they must be statistically deviant from a norm, and even then interpreted
in the context of age and situational variables. Although no epidemiological studies specifically addressing the incidence of depressive symptoms in normal populations existed, they presented data from more general epidemiological studies (Lapouse, 1966; Werry & Quay, 1971) which showed high rates of these behaviors among the general population. These authors therefore concluded, "diagnosis of this presumed condition in children would appear to be premature and treatment unwarranted" (p. 462).

In a rebuttal, Costello (1980) pointed out the need to obtain data on the prevalence of the constellation of behaviors thought to constitute depression, not on individual behaviors. And as argued by Carlson and Cantwell (1980a), differentiation must be made between depression as a "symptom", dysphoric mood, depression as a "syndrome," encompassing a group of signs or symptoms that fairly regularly occur together, and depression as a "disorder," with a fairly predictable course, family patterns, biological correlates, and responses to treatment. They would agree with Lefkowitz and Burton that depressive symptoms, while found more often in depressive disorders, are reported much too frequently to be discriminative in diagnosis. Costello went on to argue that "it is the degree of transitoriness of constellations of behaviors that is important" (p. 181), and that even if the behaviors dissipate with time, this does not mean they are not pathological.
Stimulated by the debate, Lefkowitz and Tesiny (1982) engaged in a large epidemiological study to assess the prevalence of depressive symptoms in a normal population. Subjects were 3020 children, from predominantly middle socioeconomic status families, who were in grades three through five in public schools in New York City. Employing recently developed objective measures of childhood depression, they found 5.2 percent prevalence with the Peer Nomination Inventory for Depression (Lefkowitz & Tesiny, 1980) and 6.3 percent prevalence with a self-rating scale, a modified form of the Children's Depression Inventory (Kovacs & Beck, 1977). Females manifested a somewhat higher rate on both measures, though only the self-rating yielded a statistically significant difference. Forty-one hypothesized correlates of depressive symptoms were also examined and 25 and 17 of these were statistically significant for females and males, respectively. For example, strong correlations with peer-rated depression were obtained for peer-rated happiness and popularity, teacher-rated social behavior and work-study habits, locus of control, and parental rejection. A stepwise multiple regression analysis for females found the best predictors of depressive symptomatology to be low popularity, poor classroom social behavior and intellectual functioning, and maternal rejection. For boys, results were similar except for the substitution of later development of walking for maternal rejection as the third predictor. The best predictor, peer rated popularity, should be interpreted
with caution, given peer ratings of depression were the criteria to which predictions were being made.

Jacobsen, et al. (1983) also examined correlates of depressed mood in 109 normal children in grades two through seven. Data were obtained from the PNID, CDI, Conners Teacher Rating Scale (TRS), teacher ratings of somatic complaints, absenteeism, peer popularity and global depression, and peer ratings of popularity. The three depression measures were significantly correlated and all were significantly correlated with somatic complaints, peer rating of popularity, and many of the TRS factors. These findings suggest that the correlates of depressed mood are similar for clinical and general populations.

Differences in diagnostic criteria, assessment instruments, and samples have resulted in widely discrepant estimates of the prevalence of childhood depression. These have ranged from 0.14 percent (Rutter, Tizard, & Whitmore, 1970) to 33 percent (Albert & Beck, 1975) for the general population, and 1.8 percent (Nissen, 1971) to 59 percent (Petti, 1978) for clinical populations. Recognizing the need for future epidemiological studies employing the recently developed measures and RDC or DSM-III criteria, Puig-Antich (1980) estimated that using interview methods, between 10 percent and 20 percent of child and adolescent psychiatric patients will be found to suffer from an affective disorder. As mentioned previously, in their study of a general elementary school population, Lefkowitz and Tesiny (1982) found 5.2-6.3
percent prevalence but it should be noted these rates were statistically determined from responses to the measures rather than through the use of DSM-III criteria.

Overall, there appears to be sufficient, consistent evidence to support the use of the adult criteria, as reflected in DSM-III, for diagnosing depression in children. However, as pointed out by Kovacs (reported in Puig-Antich & Weston, 1983), although these criteria fit the most severe group, they do not necessarily define the limits in children. Kovacs' recent follow-up data suggest that children with depressed mood but only two or three other symptoms may be identical to children with major depressive disorder as their rates of recurrent major depressive episodes were found to be quite similar.

In addition to the recent movement toward consistency in diagnostic criteria across studies, the emergence of assessment instruments has facilitated the study of childhood depression. These include self-report scales, parent, teacher, and clinician rating scales, peer nominations, and interviews (for detailed reviews see Kazdin, 1981, 1982; Kovacs, 1981). There has been an increasing recognition of the ability of children to provide information regarding subjective phenomena (e.g. Herjanic, Herjanic, Brown, & Wheatt, 1975; Rutter & Graham, 1968), and in an area such as depression, where many of the symptoms are manifested intrapsychically, it would appear essential (Puig-Antich, Chambers, & Tabrizi, 1983). Thus, self-rating scales such as the CDI (Kovacs, 1978) and semi-structured interviews such as the Kiddie-
SADS (Puig-Antich & Chambers, 1978) or the Child Depression Rating Scale (Poznanski, Cook, & Carroll, 1979) have been the most widely used research instruments in the area. However, as Kazdin expressed in his 1982 review article, though currently in progress in many cases, at present there are limited rigorous validation data because of the relatively recent development of these instruments. For the future, he recommended examination of the interrelatedness among existing measures, studies of discriminant validity, and exploration of how developmental variables may influence both the reporting and manifestations of depression.

While supporting the use of depression in adults as a working model for understanding childhood depression, some authors have acknowledged the dangers of "adultomorphism," the tendency to see disorders in children as the replicas of conditions of the same name in adults (Phillips, Draguns, & Bartlett, 1975). Similarities can get exaggerated and differences obscured if children are viewed only as miniature adults. Though it is reasonable in studying depression in children to begin with what is known about depression in adults, it is essential to consider how development contributes to differences. Thus, while DSM-III may be adequate for providing homogeneous criteria by which to study the phenomenon of childhood depression, it does not address two issues critical in the classification of childhood psychopathology from a developmental perspective,
"(a) the continuity between childhood and adult psychopathology, 
and (b) definitions of normality and deviance, particularly 
with respect to age, context, developmental tasks, and the progression 
of development over time" (Garber, 1984, p. 31).

Several recent studies have provided support for at least 
short-term stability of depressive symptoms in children. Tesiny 
and Lefkowitz (1982), using peer nominations, self-rating, and 
teacher ratings, and Seligman and Peterson (in press), using 
self-ratings, found relatively high stability in depressive 
symptomatology over a 6 month period. Poznanski, Krahenbuhl, 
and Zrull (1976) reevaluated 10 children who had been diagnosed 
as depressed an average of 6 1/2 years earlier and they found 
50 percent to be clinically depressed. Unfortunately, the study 
lacked methodological rigor, making conclusions extremely tentative, 
at best. Besides their small sample size, there was a wide 
age range of subjects (12 to 23 years of age at follow-up), 
large variance in time lapse since initial evaluation (4 to 
11 years), and data from only one clinical interview conducted 
by one of the researchers, who was obviously not blind to the 
hypotheses.

Regarding the continuity between depression in childhood 
and adulthood, however, knowledge is more limited. Orvaschel, 
Weissman, and Kidd (1980) reviewed four retrospective studies 
and concluded that while adult depressive patients were likely 
to have suffered from family discord and parental abuse, rejection,
and inattention, there was no unique clinical picture in childhood. In Chess and Thomas' New York Longitudinal Study, a prospective study of a large group of normal children, 6 were reported to have developed a clinical depression by ages 18 to 22, the time of follow-up (reported in Cantwell, 1983a). Of these, 2 were said to have a primary depression and the other 4 a secondary depression. These two groups were described as different in several ways. Those with a primary depression developed symptomatology at a younger age, had a strong family history for major affective disorder, and did not have episodes which appeared to be precipitated by stress whereas those with a secondary depression showed the opposite pattern. Chess's conclusion was that the depressive syndrome of childhood seemed to be continuous in its quality with the depressive syndrome of early adulthood.

Robins (1979) reviewed follow-up and follow-back studies of childhood psychopathology but these rarely had depression as their focus and preceded the development of consistent diagnostic criteria. Generalizing from the available follow-up data, Robins concluded that neurotic symptoms in childhood, as opposed to psychosis and conduct disorders, were associated with good outcome. Summarizing follow-back studies, he reported that adults with depressive disorders were rarely known to clinics as children. However, among those depressed and anxious adults who were known to clinics as children, symptoms of depression, anxiety and somatic complaints were common in their earlier records.
Most recently, Zeitlin (cited in Rutter and Garmezy, 1983) also found adult depression was usually not preceded by any kind of psychological disorder in childhood. Yet of those depressed children who later had psychological disorders as adults, most showed depression as part of their adult disorder. In addition, Zeitlin found this continuity to be stronger for depression than for any other syndromes, with the exception of obsessive-compulsive phenomena.

In addressing developmental issues, others have focused on changes in the nature and expression of depression over time. Spitz (1946) and Bowlby (1960, 1980) described infant reactions to maternal deprivation or separation in terms similar to the adult symptomatology of depression. Spitz's term, anaclitic depression, referred to the weepiness, withdrawal, apathy, weight loss, sleep disturbance, and developmental decrements observed in 6 to 12 month old institutionalized children. However, it has been questioned whether this should be regarded as a true form of depression. First, it is an understandable response to an actual loss of a loved caretaker and in most cases the infants rapidly recovered following return to the family. In addition, as pointed out by Bemporad and Wilson (1978), similar conditions in infancy can be produced by lack of cognitive stimulation, malnutrition, or organic deficiency diseases. Bowlby wrote of the observed sequence of protest-despair-detachment in toddlers, ages 6 months to 4 years, separated from their maternal caretakers.
However, it can again be questioned whether this represents a true depressive condition since it lacks the other components such as blame, guilt, and decreased self-esteem and the children to begin to interact with strangers following a detachment phase. Thus, it can be concluded that while infants appear to be capable of experiencing depressive affect, these reactions probably should not be conceived of as depressive syndromes in the usual sense (e.g. Arieti & Bemporad, 1978; Rutter & Garmezy, 1983).

There is a conspicuous lack of clinical reports of depressive symptoms in early childhood (Arieti & Bemporad, 1978), and while this may reflect the same kind of omission as noted for depression in children in general, it is more likely due to their actual limited capacities. However, as suggested by Bemporad and Wilson (1978), although the toddler may appear immune to depressive affect, the foundations may be laid for later psychopathology. The typical exuberance of the toddler may be counteracted by parents, contributing to the development of a sense of self associated with fears of retaliation, loss of love, and humiliation, and loss of initiative. Bemporad and Wilson theorized that such children,

do not yet generalize these patterns of inhibition, and have not yet fully internalized parental control. Their behavior is flexible, responsive to environmental changes, rather than crystallized as self-perpetuating psychic processes. Their mood changes are extremely malleable, and can change tenor almost momentarily (p. 338).
Thus, while they do not yet appear depressed, they may be at risk for later depression.

By middle childhood, longer periods of genuine sadness have been observed. However, because of the relatively unstable self-concept at this stage, the child may not yet have the capacity to sustain a consistent low self-evaluation. Arieti and Bemporad (1978) pointed out, however, that depreciation from others could have an adverse effect on mood at this stage and the tendency to give up when disappointed may be the basis for the later hopelessness and helplessness following insults to the self. These authors also questioned whether guilt accompanied these apparent states of sadness.

It is in late childhood that depression as found in adults may be expected to occur. Arieti and Bemporad (1978) discussed the growing sense of self and internalization of values which would allow for a view of the self as unworthy and as should be obvious from the foregoing discussion, dysphoric mood as well as the other symptoms of depression such as guilt and lowered self-esteem have been documented at this stage.

Conceptual Views of Childhood Depression

Depression has been conceptualized and studied in various, non-mutually exclusive ways as described below.

Psychoanalytic theory. Psychoanalytic views of depression are varied and complex. The classic psychoanalytic view of depression arises from the work of Abraham (1911/1968) and Freud
Abraham distinguished between grief, the normal reaction to the loss of a love object, and melancholia, in which the individual harbors hostility toward that lost love object. Agreeing with this position, Freud presented the preconditions of depression as (1) the loss of a love object (either real or imagined), (2) ambivalence toward the lost object, and (3) regression of libido into the ego. Thus, for Freud, "the key to the clinical picture" was that the "self-reproaches are reproaches against a loved object which have been shifted onto the patient's own ego," describing the melancholic as one who has "essentially lost his self-respect." Rado (1928) expounded upon the superego's involvement and the inherence of rage and guilt to depression, writing of the strong craving for narcissistic gratification coupled with strong narcissistic intolerance.

In contrast, other psychoanalysts disagreed with the primary role attributed to self-directed aggression. For Bibring (1961), depression was an ego state, an effect independent of the aggressive drive. Rather he viewed the fall in self-esteem as primary, resulting from a discrepancy between the ego ideal and the self. For Jacobson, as well, "the central psychological problem in depression appears to be the narcissistic breakdown of the depressed person; his loss of self-esteem, or, to put it more broadly his feelings of impoverishment, helplessness, weakness, and inferiority". In either case, the possibility of depression occurring in childhood has been called into question because the necessary well-internalized superego and stable self-representa-
tions are not believed to be well developed until adolescence (Rie, 1966).

**Biological models.** Until recently, the biological model of depression had not been extended to childhood. Extensive research with adults has been conducted, identifying neurochemical, neuroendocrine, and polysomnographic correlates of major depressive disorder. In particular, it has been found that during illness, about 50 percent of endogenous depressive adults hypersecrete cortisol (c.f. Sachar, 1975) and 40-50 percent hyposecrete growth hormone (GH) in response to insulin-induced hypoglycemia, a standard test of GH secretion (c.f. Gruen, Sachar, Altman, & Sassin, 1975). Preliminary data are available from Puig-Antich (1983) and his group who are studying prepubertal children with depressive disorder. Thus far, it appears that 20 percent of an endogenous subgroup does hypersecrete cortisol. Also, possibly 90 percent of the endogenous group has been found to hypersecrete GH.

In addition, abnormalities in catecholamine (norepinephrine) and indoleamine (serotonin) metabolism have been identified in depressed adults, as reflected by increased or decreased (representing two subgroups) levels of urinary MHPG, the major metabolite of central norepinephrine (c.f. Schildkraut, 1973), and reduced levels of 5-HIAA, the metabolite of serotonin (c.f. Coppen, Prange, & Whybraw, 1972). Inconsistent findings of MHPG excretion have been obtained with depressed children (McKnew & Cytryn, 1979) and indoleamines have yet to be studied.
Much has been learned about adult major depression from sleep studies in which electrophysiological recordings are made of brain, eye, and muscle activity. As reviewed by Kupfer and Foster (1979), the following polysomnographic characteristics have consistently been found to be associated with depression: decreased total sleep time, decreased sleep efficiency, increased sleep latency, decreased delta sleep, shortened REM latency, intermittent awakenings, and early morning awakenings. Available preliminary results from Puig-Antich's group have failed to find significant polysomnographic differences between depressed children and control groups, contrary to self and parental complaints of their sleep difficulties. Given that age differences have been found within adult samples, with older subjects demonstrating more of the above characteristics, Puig-Antich interprets his findings as reflecting maturational differences rather than evidence for a different disorder (Puig-Antich, 1983). Thus, his work provides an example of how development may mediate the expression of depression.

There is strong evidence for a genetic factor in depression in adults as demonstrated by family, twin, adoption, high-risk, and linkage studies (Cantwell, 1983c). For example, in a review of seven twin studies of depression, Tsuang (1975) found a 76 percent concordance rate for monozygotic twins, a 19 percent concordance rate for dizygotic twins, and a 67 percent concordance rate for monozygotic twins who were reared apart. Adoption
studies have demonstrated a higher incidence of depression among adopted children whose biological parents had an affective disorder than those whose biological parents had no such history (Cadoret, 1978). As yet, studies of genetic factors operating in childhood depression are limited, but family data appear to be following the same pattern as with adults, with similar morbidity risks for major depressive disorder in first degree biological relatives of prepubertal probands (Puig-Antich & Weston, 1983).

Behavioral theories. From a behavioral perspective, depression has been viewed as a function of inadequate or insufficient positive reinforcers. This may be caused by the loss of a significant other who had previously been providing reinforcement, inadequate social skills, or a change in role status leading to a reduction in positive reinforcement. Ferster (1973) connected depression with a decrease in frequency of behavior previously associated with positive reinforcement and an increase in frequency of "aversively motivated behavior" such as complaints. Lewinsohn, Biglan, and Zeiss (1976) viewed depressive behavior and feelings as resulting from a low rate of response-contingent positive reinforcement which comes about because depressed individuals, as compared to nondepressed, elicit fewer behaviors from others, demonstrate poorer social skills, and thus receive less positive reinforcement. The depressed person does elicit sympathy and interest from others which serves to reinforce and therefore to maintain the behavior.
Although this model has not been directly explored with children, indirect support is obtained from studies which have found correlations between depression in children and a variety of behaviors which may be inferred to be related to a reduction in positive reinforcement. Children's depression scores have been found to correlate negatively with peer and teacher ratings of popularity, reading and mathematics scores, and teacher ratings of social behavior and study habits, as well as to correlate positively with conduct problems and parental rejection (Jacobsen, et al., 1983; Lefkowitz & Tesiny, 1982; Leon, et al., 1980). However, causation cannot be inferred from these data. While such behaviors might contribute to the development of depression, through the suggested mechanisms, they may instead be the result of depression, and possibly serve to maintain it.

Life stress model. The life stress model posits that depression may result from proximal life events or environmental changes which necessitate readjustment. Inconsistent findings have been obtained in studies of the causal association between life-event stress and illness, though it appears strongest for affective disorders (Tennant, Bebbington, & Hurry, 1981). For example, in a study of depressed women, Brown, Sklair, Harris and Birley (1973) found that subjects, as compared to controls, were much more likely to have experienced markedly threatening events in the 9 months prior to the onset of depression, as well as a concentration of both markedly and moderately threatening
events in the 3 weeks prior to onset. Paykel (1974) derived a 60 item checklist of life-stress events to which subjects responded for the preceding 6 month period and responses were then analyzed by area of activity, positive or negative value, and entrance to or exit from the social field (a class of events in which a significant person enters or leaves the social sphere of the subject as in death, separation, marriage, or child leaving home). It was found that depressed subjects were significantly more likely to have experienced recent exits, though Paykel noted these were usually in the range of everyday experience rather than catastrophic and thus not expected to result in clinical depression in the average person. Hence, other factors would appear to be operating.

However, other researchers have not found support for the model (e.g. Gersten, Langner, Eisenberg, & Simcha-Fagan, 1977; Horstra & Klassen, 1971). Tennant, et al., questioned the causal relationship in their enlightening discussion of the methodological flaws in this area, casting doubt on the reliability, validity, and appropriate use of life-event stress measures, the employed definitions of depression, and the derived judgments of causality. To this author's knowledge, nobody has studied the relationship between life-stress events and childhood depression and little, if any indirect information could be culled from the available literature.
A related area of research is that associating parental death during childhood to adult depression, as theorized by Abraham (1911/1968) and Freud (1917/1968), and more recently by Bowlby (1973). In addition to a variety of methodological flaws in many of the studies, those familiar with the work of Rutter (1979) on the effects of maternal separation will recognize the simplistic nature of the question. The relationship between parental death and later depression cannot be understood without considering such things as the nature of the relationship with the surviving parent and the cumulative effects of stress.

In a critical review of the literature, Crook and Eliot (1980) concluded there are insufficient empirical data to support the theory that early parental death predisposes an individual to depression in adulthood. Again, there are no empirical data regarding its relationship to childhood depression.

Cognitive theories. The original learned helplessness model proposed by Seligman (1975) posited that depressed persons perceive their own behavior as independent of reinforcements which then leads to hopelessness and giving up. Because of inadequacies of this hypothesis, Abramson, Seligman, and Teasdale (1978) proposed a reformulation which hypothesized that it is not the uncontrollable outcomes themselves but rather the person's causal explanations, or attributions, that determine the nature and magnitude of the depression. This reformulation posits that depressed individuals, as compared to nondepressed, are
more likely to attribute bad outcomes to internal, stable, and
global causes and good outcomes to external, unstable, and specific
causes. These attributions would logically lead to lowered
self-esteem and expectancy of persistence of deficits over time
and across situations.

also emphasizes the role of cognitive factors which are viewed
as primary to the affective component. He hypothesized a "cognitive
triad," pervasive negative constructions about the self, the
environment, and the future which are distorted, illogical ways
of thinking. According to Beck, depressed people see themselves
as inadequate, unworthy, and defective in mental, moral, or
physical character. Secondly, they perceive their environment
as excessively demanding and interpret interactions negatively,
minimizing success experiences and emphasizing failures. As
a result, they feel rejected and deprived. The third part of
the triad refers to the pessimism and hopelessness characteristic
of the depressed person. The inevitable results of such negative
cognitions are dysphoria, lack of interest in one's own welfare
or pleasure, and finally giving up.

The specific cognitive distortions depressed individuals
are likely to engage in, according to Beck, are overgeneralization,
arbitrary inference, selective abstraction, catastrophizing,
and dichotomous thinking. He proposed that these are supported
by schemas, which he defined as enduring organizing principles
for screening and encoding information that have developed during childhood through interactions with the environment. When a person is faced with a particular situation, it is assumed that a schema is activated that is relevant to that stimulus configuration (Kovacs & Beck, 1978). Kovacs and Beck proceed to postulate that certain schemata predispose the individual to depression and that it is a reactivation of these previously latent cognitive structures that leads to a depressive episode. While each person has unique schemata, common themes emerge across individuals. Though schemata concerning self-evaluation and relationships are common to many individuals, the inflexibility and absolute rules of conduct and evaluation are the distinguishing features of depressogenic schemata. According to Kovacs and Beck, these rigid premises are reflected in depressed persons' language which makes excessive use of rigid quantifiers (e.g. "always", "never", "all"), categorical imperatives (e.g. "must", "have to", "should"), and preemptive class assignments (e.g. "nothing but"). Some examples they provide are, "I must study every day," "I should be able to endure any hardship with grace," and "either I am one hundred percent successful in everything or I am a failure".

Both the reformulated learned helplessness, or attributional model, and Beck's model of depression have met with popularity, for in addition to their intuitive appeal, they readily lend themselves to empirical validation. At first, they appear to
present a major contradiction. While the original learned helplessness model proposed that the depressed individual suffers from a perceived lack of control over negative outcomes, Beck's model posited that the depressed person engages in excessive or inappropriate self-blame for such events. However, the reformulation, by the addition of the attributional component, blurred this distinction. As suggested by Coyne and Gotlib (1983), rather than presenting radically different conceptions, they may be viewed as differing in their emphasis.

Thus, it becomes difficult to discuss individual studies as supporting or refuting one or the other theory. Instead, a study may be viewed as offering more direct examination of one, while often shedding light on the other, as well. In general, those investigations focusing on learned helplessness examine attributional processes and judgments of contingency, while those focusing on Beck's theory most often examine self-concept, expectations and evaluations of performance, and recall of positive and negative experiences.

**Empirical Evaluation of Cognitive Theories of Depression**

Beck's theory evolved from his early attempts to empirically test psychoanalytic theory by studying the dreams of depressed patients. He found that depressed patients had a higher proportion of masochistic dreams than did nondepressed patients, including themes of deprivation, rejection, loss of self-esteem, frustration, and defectiveness (Beck & Hurvich, 1959; Beck & Ward, 1961).
Since then studies have examined the various aspects of the cognitive triad as well as the specific nature of the cognitive distortions which are hypothesized to characterize depressed individuals.

**Self-concept.** Early support for Beck's evolving theory included a study in which depressed patients were given a self-concept scale tapping self-ratings of traits and characteristics such as personal appearance, intelligence, sex appeal, cruelty, and selfishness. Beck (1967) found significant correlations between severity of symptomatology on the Beck Depression Inventory and self-concept scores, with subjects rating themselves high on socially undesirable traits and low on socially desirable traits. Apparently, a control group was not employed.

Laxer (1964) compared depressed, paranoid, and other psychiatric inpatients in terms of "real self" and "ideal self" using semantic differential scales. He found that depressives gave relatively low real self ratings and moved towards higher ratings and greater congruence with ideal self from admission to discharge. While the depressed patients' initial ratings reflected poorer self-concept than those of the others, data comparing ideal self ratings of the different groups were not provided.

Loeb, Feshbach, Beck, and Wolf (1964) looked at the effects of feedback on self-concept of depressed patients and found those given failure feedback expressed an increase in depressed mood while those given success feedback rated themselves as
more confident and viewed themselves and others as happier.
The results indicated they were more positively influenced by
superior performance than were nondepressed patients.

Further investigating the effects of failure on depressed
and nondepressed subjects' self-esteem, Flippo and Lewinsohn
(1971) gave a self-esteem measure before and after subjects
did a puzzle-solving task with predetermined failure rates.
Although depressed subjects' self-esteem ratings were generally
more negative than those of the nondepressed, the magnitude
of change was similar. In other words, failure resulted in
decreases in self-esteem for all groups and was not unique to
depression.

Expectations and evaluations of task performance. Another
frequently employed methodology has been to compare depressed
and nondepressed subjects' expectations and evaluations of their
performance in an experimental situation. In an early study
of this type, Loeb, Beck, and Diggory (1971) examined the differential
effects of success and failure on depressed and nondepressed
outpatients. They measured probability of success estimates,
level of aspiration, evaluation of performance, and actual performance
on a card-sorting task in which subjects received either success
or failure feedback. At the completion of the first task, the
high depression subjects rated their performances as poorer
than did the low depression subjects, although no actual differences
existed. On the second task, while all subjects in the previous
success condition gave higher estimates than those in the previous failure condition, the low depression group gave higher estimates than the high depression group. This suggests that the latter became more pessimistic as a result of failure. In addition, success led only depressed subjects to have higher aspirations and to perform better on the second task, implying they were more susceptible to the effects of success. Thus, this study provided support for the negative view of the self and the negative view of the future following a failure experience.

Using a social interaction task, presumed by subjects to be a therapeutic talent test, Hamm and Krantz (1976) examined the effects of performance feedback on depressive cognitions among a college sample, selected by self-report measures of depression. It was found that although there was no difference between the depressed and nondepressed women's initial predictions of success, there was a differential effect of feedback on future predictions of success. The depressed subjects' expectancies about their future performance became more negative following failure feedback. In addition, depressed subjects, particularly those in the failure condition, had lower self-ratings than nondepressed subjects.

Several theorists have argued that low self-esteem may reflect deficits in the self-reinforcement system. Rozensky, Rehm, Pry, and Roth (1977) thus sought to examine whether depressed subjects would self-reinforce less frequently and self-punish
more frequently than nondepressed subjects when given the opportunity on an experimental task. While both predictions were supported in a sample of patients in a Veterans Administration hospital, only differences in the frequency of self-punishment were found in a sample of college students. In contrast, Nelson and Craighead (1977) found that while depressed college students self-reinforced less often than controls, there were no differences in rates of self-punishment. However, results of a study by Lobitz and Post (1979) support the contention that self-reward is dependent upon self-expectations and self-evaluations. Using a psychiatric population and multiple measures of depression, Lobitz and Post compared self-expectations, self-evaluations, and self-rewards, as well as expectations, evaluations and rewards of others. While there were no obtained differences in actual performance, the depressed group was lower on all three self measures. In a more direct test of their hypothesis, no significant differences were obtained between groups in levels of self-reward beyond those predictable from level of self-expectation and self-evaluation. In fact, self-expectation alone was found to predict the other two. In addition, unlike the control group, depressed subjects were more generous in their responses regarding others than themselves. This is interpreted by the authors as meaning depressed persons are not globally negative but rather more pessimistic and critical of themselves than are nondepressed persons.
These findings have not, however, been universal. Some studies have found actual performance differences (e.g. Klein & Seligman, 1976; Wollert & Buchwald, 1979) making interpretation of differences in evaluation more difficult. Others have failed to find differences in expectations or self-evaluations. Ciminero and Steingarten (1978) found no differences between depressed and nondepressed subjects' self-evaluations or self-reinforcements on their experimental task. However, when cues were available regarding performance standards (information as to how others had performed), the two groups responded quite differently. After receiving high standards, depressed subjects were likely to become more critical in their self-evaluations, and after low standards, were more likely to reinforce themselves less. The authors also warned against overinterpreting the negative findings regarding lack of differences in initial self-evaluations because of the nature of their sample, with group assignment determined by a median split on a depression checklist. Yet Abramson, Garber, Edwards, and Seligman (1978), incidental to their main focus, also failed to find differences in initial expectancy of performance. Thus, the data are inconclusive.

Perceptions of environmental feedback in the laboratory.
As described earlier, Beck's model depicts depressed persons as construing their environments in a negative fashion, perceiving "defeat, deprivation, and disparagement" (Beck, 1967, p. 255). This led to the prediction that in an experimental task situation,
depressed subjects would distort environmental feedback in a negative fashion, filtering out the positive and overemphasizing the negative, congruent with their cognitive structures.

Though designed as a test of Lewinsohn's model of depression, a study by Wener and Rehm (1975) examined the above hypothesis as well. They found that relative to nondepressed subjects, depressed subjects underestimated the number of correct responses they made on a word-association task. Since a light flashed to indicate a correct response, the researchers interpreted the results as selected recall of positive feedback. It is interesting to note, however, that both groups were relatively inaccurate in their estimates, often underestimating in the high level of success condition and overestimating in the low level of success condition. Kuiper (1978) also found that depressed subjects gave lower estimates in recalling their performance on this task than did nondepressed subjects, but in only the condition in which moderate success feedback (55% success) was provided.

Nelson and Craighead (1977) set out to replicate Wener and Rehm's (1975) findings of selective recall of positive reinforcement and to expand it to include recall of negative feedback on an ambiguous task. They predicted that differences between mildly to moderately depressed and nondepressed groups of college students would be most pronounced at a relatively high rate of reinforcement (70%) and low rate of punishment (30%) because these should be least consistent with depressed subjects' expectations.
As predicted, the depressed subjects recalled less positive and more negative feedback than the nondepressed subjects, but only at the high rate of reinforcement and low rate of punishment. In addition, unlike the other two studies just described, this study provided a more direct test of Beck's theory by comparing subjects' estimates of feedback with the actual amount of feedback given. Only in the 70% reward condition did the depressed subjects' recall depart significantly from the actual amount of feedback provided, recalling a lower rate. The difference between the two groups in the 30% punishment condition was instead due to the tendency for nondepressed subjects to underestimate the actual negative feedback, while depressed subjects were relatively accurate.

DeMonbreun and Craighead (1977) extended the above study to a clinically depressed sample, comparing them to nondepressed clinical and normal control groups. They further refined the problem by distinguishing between cognitive distortion at the point of stimulus perception and at a subsequent point of cognitive processing. Results indicated the depressed group did recall less positive feedback at the completion of the task than did the other two groups, although no group differences existed at immediate perception of each trial. In contrast, Alloy and Abramson (1979) rarely found differences between depressed and nondepressed subjects recall of positive reinforcement.
Some of these inconsistencies in results may be a product of the nature of the samples studied, or as suggested by Gotlib (1983), the nature of the tasks. Rather than studying typical college students engaging in an impersonal laboratory task, Gotlib looked at perceptions and recall of evaluative feedback in depressed and nondepressed psychiatric inpatients and non-psychiatric control subjects in an interpersonal situation. He had subjects interact with a stranger and then gave each one bogus ratings on a list of 13 adjectives. Subjects reactions to the ratings and ability to reproduce them from memory were the dependent variables. He found that although there were no group differences in perceived accuracy of the evaluation, depressed subjects perceived it to be less favorable, felt worse about being evaluated in that way, and were less willing to interact with the evaluator in the future than did the other two groups. The depressed subjects also recalled the evaluation to be more negative than did the nondepressed subjects and more negative than was actually the case, and these findings could not be attributed to less accurate memory for the evaluation in general. Thus, given a more personally meaningful task, clinically depressed persons did appear to distort feedback in a negative fashion.

Memory for positive and negative experiences. Following from Beck's theoretical model and early dream studies (Beck & Hurvich, 1959; Beck & Ward, 1961), it would be expected that depressed persons would remember more negative experiences and
less positive experiences than would nondepressed individuals. Lishman (1972) and Lloyd and Lishman (1975) explored recall of positive versus negative material among depressed patients, noting prior evidence that material with pleasurable connotations was better recalled among normal subjects. Consistent with expectations, Lishman found this tendency to a lesser degree among his sample. However, the study suffered from methodological weaknesses including a small, heterogeneous sample. Lloyd and Lishman (1975) found a negative correlation between level of depression and ratio of pleasant to unpleasant memories.

In studies of self-schema in depression, Davis (1979) had subjects engage in a task focusing on the structural, semantic, phonemic, or self-referent aspects of a list of adjectives and then tested for words recalled. While depressed and nondepressed subjects did not differ in recall of words in the first three categories, they did differ for self-referents, with depressed recalling fewer of these. Derry and Kuiper (1981) criticized the study for failure to differentiate between positive and negative adjectives, predicting that depressed persons should excel at recall for negative, or depressive, adjectives, and this was in fact supported by their subsequent results. Again, the findings do not go unchallenged. In a similar study, Roth and Rehm (1980) failed to find depressed-nondepressed group differences for recall or recognition of positive or negative self-referent adjectives. Kuiper and MacDonald (1982) provided
partial support for Beck's model in a study in which depressed and nondepressed college student rated positive and negative adjectives regarding themselves or others. While nondepressed subjects tended to recall more positive than negative self-referents, depressed subjects recalled an equal number of both. Further examination of only the negative adjectives revealed that while nondepressed subjects recalled more other-referent than self-referent words, as expected the depressed subjects were more likely to recall the self-referents. Unexpectedly, in regard to positive adjectives, depressed as well as nondepressed students recalled more self- than other-referents. Therefore, while depressed versus nondepressed differences in memory for positive and negative experiences are supported, the exact nature of these differences remains in question.

Assessment of cognitive distortion. According to the cognitive view, distorted thinking is at the core of depression and thus researchers have attempted to design measures to assess these maladaptive cognitive schemas (e.g. Hollon & Kendall, 1980; Krantz & Hammen, 1980, Lefebvre, 1981). For example, the Cognitive Bias Questionnaire (Hammen & Krantz, 1976; Krantz & Hammen, 1979) consists of a series of problem situations common to college life, followed by questions with four response options designed to reflect combinations of depressed versus nondepressed (in terms of tone) and distorted versus nondistorted (in terms of logical inference) responses. The distortion items were written
to contain examples of arbitrary inference, overgeneralization, and the other logical errors proposed by Beck. In their early validation study, Hammen and Krantz found that as predicted, depressed college students chose more depressed-distorted responses, and fewer nondepressed-nondistorted responses than did nondepressed students. Since there were no differences in the other two categories, it was concluded that the performance of the depressed group was not merely reflecting a tendency toward depressive tone or distortion in general, but rather that particular combination. Other studies also suggest that examination of depressed-distorted responses on the Cognitive Bias Questionnaire discriminates between groups, but in any case, this response is relatively uncommon and the differences, though statistically significant, are relatively small (Coyne & Gotlib, 1983).

Studies of attributional processes. Although the design of the current study focused most directly on predictions from Beck's model, investigations of the learned helplessness model contribute to its understanding because of overlap between the two. Recall that the reformulation (Abramson, et al., 1978) predicted that attributions of depressed persons reflect a tendency toward internal, stable, and global causes for bad outcomes and external, unstable, and specific causes for good outcomes. Researchers have approached this by examining attributions for success and failure on laboratory tasks, attributions for hypothetical events, and attributions for stressful real-life events. A
summary of the findings will be presented here (see Coyne & Gotlib, 1983 for a thorough review and critique of studies of attributions in depression).

In an early study, Seligman, Abramson, Semmel, and von Baeyer (1979) found that depressed college students, as compared to nondepressed, were more likely to attribute bad outcomes to internal, stable and global causes and good outcomes to external, unstable causes. However, as pointed out by Coyne and Gotlib (1983) in their extensive review, the only relatively consistent finding has been that depressed individuals, as compared to nondepressed, make more internal attributions for failure (e.g. Golin, Sweeney, & Schaeffer, 1981; Kuiper, 1978; Raps, Peterson, Reinhard, Abramson, & Seligman, 1982; Rizley, 1978; Zuroff, 1981). While some studies have found support for the stability-instability and global-specific dimensions (e.g. Blaney, Behar, & Head, 1980; Golin, et al., 1981; Raps, et al., 1982; Seligman, et al., 1979), many have not (e.g. Lewinsohn, Steinmetz, Larsen, & Franklin, 1981; Manly, McMahon, Bradley, & Davidson, 1982; Rizley, 1978; Zuroff, 1981).

In regard to positive outcomes, the expected tendency for depressives to make more external attributions has not been supported, with most studies finding no differences (e.g. Kuiper, 1978; Rizley, 1978) and one finding the opposite (Zuroff, 1981). However, it should be noted that the most consistent finding, depressives' internal attributions for failure, is quite in
line with expectations of self-blame as derived from Beck's model.

Another group of studies has evolved from the learned helplessness model's hypothesis that depressed individuals underestimate the degree of control they exert over outcomes. In these judgment of contingency studies (Abramson & Alloy, 1981; Abramson, Alloy, & Rosoff, 1981, Alloy & Abramson, 1979, 1982), subjects engaged in tasks in which the experimenter manipulated the amount of control they could exert over outcomes and then had them estimate perceived degree of contingency between their responses (pressing or not pressing a button) and environmental outcome (onset of a green light). Contrary to the model's predictions, depressed students were surprisingly accurate in judging contingency across experiments varying in degree of actual contingency and outcome frequency, and desirability. On the other hand, they found that when subjects had no actual control over outcomes, nondepressed individuals demonstrated an "illusion of control" if they experienced success. When subjects actually could control outcomes to some degree, nondepressed individuals underestimated their control if they experienced failure. Thus, rather than offering support for depressive distortion, Alloy and Abramson put forth the notion of nondepressive distortion and depressive realism.

Depressive distortion or depressive realism? Since the judgment of contingency experiments by Alloy and Abramson, researchers have been seriously questioning the idea that depressive cognitions
are actually distortions. As pointed out by Layne (1983), the distinction must be drawn between pessimism and distortion. Relative to nondepressives' cognitions, depressives' cognitions may be less optimistic, and as such, more pessimistic. However, when such a difference is empirically supported, the inference is of depressive distortion, with the possibly false assumption that normal people are rational and realistic at all times. Alloy presents some convincing evidence for the position of depressive realism, anchoring her discussion to the work of social psychologists on the self-serving attributional bias, the tendency for individuals to make internal attributions for negative outcomes (e.g. Bradley, 1978; Miller & Ross 1975). Both Beck's model and the reformulated learned helplessness model would predict that depressed persons would present an exception to the self-serving attributional bias, making external attributions for their success and blaming themselves for their failures. However, Alloy (1982) conducted a meta-analysis of nine of the attributional studies of depression and demonstrated that while nondepressed subjects exhibited a significantly greater self-serving bias on each of the internality, stability, and globality dimensions than did the depressed subjects, the latter were evenhanded in their attributions, exhibiting no attributional bias. In other words, the positive or negative nature of the outcomes did not appear to affect their attributions.
Both the lack of an illusion of control and of a self-serving attributional bias in depressed individuals are complemented by findings from some other studies of self-perceptions, expectancies, perception of feedback, and self-rewards. As found by Nelson and Craighead (1977), nondepressed subjects underestimated the amount of negative feedback they had actually received whereas depressed subjects were rather accurate. Rozensky, Rehm, Pry, and Roth (1977) examined self-reward and also found that depressed patients were accurate while nondepressed patients rewarded themselves more than their actual performances warranted. Examining performance expectancies of self and others on a task, Lobitz and Post (1979) found that nondepressed subjects' expectations that they would do better than the others was unfounded. While depressed subjects did not expect to do worse than the others, but rather the same, they were in fact realistic. In a study of social competence as perceived by self and others, Lewinsohn, Mischel, Chaplin, and Barton (1980) found that while depressed subjects were rated as less competent than psychiatric nondepressed and normal subjects, they were actually more realistic in their self-perceptions than were the control groups. In contrast, the control subjects perceived themselves more positively than they were perceived by objective observers. Tabachnik, Crocker, and Alloy, (1983) examined ratings of self and others on personal traits and behaviors and found nondepressed college students were evenhanded in their ratings. Taken together, these studies strongly suggest that depressed individuals are actually more
realistic than nondepressed individuals, and it is the latter who are engaging in cognitive distortions, in a self-enhancing fashion.

Summary of cognitive studies. The preceding discussion should have made it apparent that conclusions are difficult to draw from the available literature. Studies have been inconsistent in finding differences in cognitions between depressed and nondepressed groups, and where differences are evident, the issue of who is distorting remains in question. In their critique of the literature in this area, Coyne and Gotlib (1983) raise some important issues which may help to explain the lack of clarity across studies. The first involves the nature of the populations studied, and related to this, the method of subject selection. Many of the studies have used college students and on the basis of a self-report measure such as the Beck Depression Inventory, they have divided subjects into depressed and nondepressed groups. While the study of mild depression is in itself a worthwhile area of investigation, its relation to major depressive disorder is unclear in regard to cognitive, as well as other components. In addition, in those studies in which group assignment is determined by a median split on the chosen depression measure, it would appear questionable whether or not the resulting sample should even be considered to be mildly depressed. While studies of college samples are a reasonable starting point, examination of clinically depressed groups, as well as nondepressed clinical
control groups is essential, and the research in the area has been moving in that direction.

Coyne and Gotlib (1983) also give consideration to how the laboratory settings and nature of the tasks employed may be influencing results. For example, in tests of recall of performance, subjects probably do not keep a running tally of feedback and thus when asked to make estimates, may draw upon past experiences rather than, or in addition to, the immediate situation. They also question the generalizability of, for example, the judgment of contingency studies since people probably do not attend to such things as contingency unless specifically instructed to do so. Thus, as in many other areas of research, the difficulty of obtaining a balance between experimental control and ecological validity is apparent.

These difficulties notwithstanding, there is evidence to support poorer self-concept among depressed individuals and a relationship between task performance and mood, though the evidence for group differences in expectations, evaluations, or self-reinforcement and self-punishment are less clear. Depressed persons do appear to differ from nondepressed in their recall of environmental feedback but not at the immediate point of perception and only at certain levels of punishment and reinforcement. Results from the attributional studies are also inconsistent, with the most consistent finding that depressed subjects are more likely to make internal attributions for failure, quite
consistent with Beck's model, as well as the reformulated learned helplessness model. Contrary to both of these models is the notion of depressive realism, rather than depressive distortion, as suggested by the results of the judgment of contingency studies. While this intriguing idea is supported by other findings as well, it is contradicted by still others and remains open to question.

Before reviewing the few studies which have examined childhood depression from a cognitive perspective, it is worthwhile to consider normal developmental issues which may be related to the syndrome.

Developmental Issues

Self-concept. One of the major elements of depression explicit in Beck's model and implicit in the learned helplessness model is a negative view of the self. In order for this to be experienced, it would appear necessary for an individual to have developed a stable sense of self and to be able to focus simultaneously on the real and ideal self to perceive a discrepancy between the two. As viewed by Damon and Hart (1982),

the concept of self provides one with an understanding of one's differentiation from others in society. In this way, it establishes the cognitive basis for one's identify as a unique individual and for one's special position, status, and role within the social network (p. 843).

Both Damon and Hart (1982) and Harter (1983) provide indepth integrative reviews and conceptual models of the development of self from which some of the major points will be summarized here.
The infancy research has utilized one major paradigm, testing for self-recognition, thus limiting our knowledge of self-understanding to this one aspect of it. It has been found through these studies that during infancy, there is first the development of awareness of the self as active agent (Kagan, 1981) and then recognition of the self with invariant features and name that distinguish the self from others (e.g., Broughton, 1978; Lewis & Brooks-Gunn, 1979).

With the opportunity to use verbal procedures, the study of children's self-concept has been expanded to include a variety of psychological issues such as the nature of the self's basic components, awareness of self, definition of self, self in comparison to others, and pride and shame in self (Damon & Hart, 1982).

In a study of self-identity, Guardo and Boham (1971) presented children in kindergarten through third grade with the possibility of their own transformation (1) to an animal, (2) to another person of the same sex, (3) to another person of the opposite sex, and (4) across time, with questions designed to assess the child's belief that he or she had a stable and unique personality and sex identify, termed "personality." They found that while most of the subjects demonstrated personality, the reasons given in their responses changed with age from externally observable characteristics to the addition of psychologic ones as well.

Expanding this further, Rotenberg (1982) looked at the development of character constancy of self, using "constancy" in the Piagetian
sense. He found it was acquired in a stagelike pattern in identity, stability, and consistency in his sample of 5 to 9 year olds.

In summarizing the few developmental studies of self-description (e.g. Montemayor & Eisen, 1977; Rosenberg, 1979), Harter (1983) noted the evidence for a gradual shift from self-descriptions based on concrete characteristics such as possessions, physical appearance, and behaviors to trait-like constructs, and finally to more abstract characteristics involving psychological processes such as emotions, inner thoughts, and motives. In addition, there is a shift toward a more differentiated view of the self and recognition that bipolar attributes can occur together.

Thus, by middle to late childhood, the focus of the current study, children do appear to have attained a fairly well-differentiated self-concept based on psychological as well as physical aspects, with continuity and distinctness.

Some researchers have focused on the role of others in forming one's sense of self, and as pointed out by Harter, this internalization of the evaluations of others is dependent upon the development of perspective taking. While studies of how our perceptions of what others think of us affects our self-attitudes have not directly addressed the developmental process, Harter suggests that the capacity for self-awareness and self-evaluation comes about during the concrete operational period and into the formal operational period. Examining possible
stages in the emergence of self-awareness, Harter focused on the work of Gesell and Ilg (1946) and Selman (1980). Gesell and Ilg provided descriptions of the self in the normal developmental sequence from ages 6 to 9. According to them, at age 6, children are preoccupied with the correctness of their friends' behavior but by age 7, they worry about what others think of them. Eight year olds are described as evaluating their performances against perceived standards of others and are increasingly aware of themselves as persons and how they differ from others. Nine year olds first demonstrate the capacity for self-criticism and are sensitive to criticism and easily embarrassed. This is consistent with Harter's finding that it was not until the age of 8 that children were able to describe how they could be ashamed or proud of themselves, though these emotions can apparently be experienced at an earlier age. In Selman's stage-theory of interpersonal understanding there is a shift from no differentiation between the perspective of self and other to an understanding that others feel differently but not yet realizing that others know how the self feels, to making this realization at Level 2 (ages 7-12). At Level 3 (ages 10-15), children can simultaneously observe the self as both actor and object, and evaluations of others as observers of the self become incorporated into one's self-definition.

Thus far, discussion of the self has omitted the issue of self-esteem, a popular but often poorly defined concept in
the literature. One way it has been conceptualized is through examining discrepancies between real and ideal self, an idea important to our understanding of children's capacity to experience depression from the cognitive perspective. It has been found that with increasing age, children differentiate more between real and ideal selves (Katz & Zigler, 1967) and see themselves as more negative and their ideal selves as more positive (Achenbach & Zigler, 1963). From a developmental perspective, these findings have been interpreted in terms of an increasing ability to experience guilt and increasing cognitive differentiation (Zigler, Balla, & Watson, 1972). In addition, Coopersmith (1967) found that self-esteem, defined as personal judgments of worthiness the individual makes regarding the self, does gain stability by 10 or 11 years of age.

Rather than conceiving of only global self-esteem, recent theorists have emphasized the hierarchical organizations of its components, competence, moral worth, control, and acceptance (e.g. Epstein, 1973; Harter, 1983). Harter raised important, but as yet unanswered developmental questions as to how these should be defined, weighed, organized, and so on, at different developmental levels. Thus far, Mullener and Laird (1971) did find a greater differentiation of self-evaluations with age. Also, subjects with more global views, regardless of age, tended to have higher mean evaluations of themselves than those with more differentiated views. In addition, in designing her Perceived
Competence Scale for Children, Harter (1982b) broke competence down into cognitive, social, and physical competence as well as general self-worth, and found that children in grades three through ten make clear distinctions between the four domains. In contrast, she found that younger children do not have a concept of general self-worth and do not distinguish between cognitive and physical skills.

Attempts to identify correlates and predictors of self-esteem have met with minimal success (Wylie, 1979). Of particular interest here might be work on the relationship between self-esteem and locus of control in children. However, as discussed by Harter (1983), although relationships between these two constructs have been demonstrated, inconsistencies, measurement problems, and lack of a developmental perspective make conclusions difficult.

The affect of sadness. The affective state of sadness has received little attention in the developmental literature and the relationship between normal and pathological sadness, as found in depressive states, has not been delineated. One study has shown that children's understanding of sadness undergoes developmental changes as it was found that children up to the age of 8 had difficulty matching sadness and anger to the appropriate stimulus situations (Borke, 1973).

Theorists have pointed out that children's reactions to painful situations can be very different from that of adults because of cognitive and social immaturity. For example, a
A 4 year old would likely react to failure or disappointment with a tantrum or aggressive outburst as opposed to prolonged sadness or self-deprecation. By the age of 8 or 9, sadness, passivity, and self-deprecation may appear (Glasberg & Aboud, 1982). In a simulation study, Glasberg and Aboud (1981) explored the hypothesis that young children do not experience the self-denigrating component of depression because they are unlikely to evaluate themselves negatively following a painful life event. They had 5 and 7 year old children give liking ratings to hypothetical children who had experienced a painful life event and give evaluative ratings of themselves in the same situation. While the 7 year olds judged themselves as severely as they judged the hypothetical children, the 5 year olds did not extend the unlikeability of the other to themselves. In other words, it appeared that the younger children were not able to connect sadness with feeling badly about themselves. The authors argued that this was the children's way of distancing themselves from sadness and proceeded to explore this notion of age-related differences in children's admission to sad experiences and their ability to incorporate this emotion as an enduring part of their self-identity.

In one experiment (Glasberg & Aboud, 1982), kindergarteners and second graders were shown six stimulus pictures of a young boy in varying stages of emotional expression along a sadness continuum and were asked what the boy was feeling, what made him feel that way, whether they themselves had ever felt that
way, and what had made them feel that way. They found that the younger children denied having experienced sadness significantly more than did the older children. Also, while both groups tended to give more physical reasons than psychological ones as the intensity of sadness increased, there were age differences at the lower intensity levels, with kindergarteners perceiving these in more physical terms as compared to the second graders. This is consistent with the self-concept literature demonstrating the shift from self-descriptions based on concrete characteristics to more abstract, psychological ones.

In the second experiment, Glasberg and Aboud (1982) had children in the kindergarten and second grade choose stimulus pictures of various characteristics and emotional states (happy, sad, angry) which they though belonged to them "lots of different times." Besides choosing significantly more pictures overall and more sad pictures than the kindergartners, the second graders chose a relatively equal number of happy and sad pictures. In contrast, the kindergarteners chose more happy pictures than sad pictures. These findings were interpreted as evidence of the younger children distancing themselves from sadness by denying experience of it and depicting their emotional make-ups as almost all happy. If this is explained in terms of their inability to see negative qualities in themselves, it is quite consistent with the findings of Katz and Zigler (1967) and Mullener and Laird (1971) discussed earlier of more global, positive self-evaluations at younger ages.
Helplessness and hopelessness. Some writers have questioned children's ability to experience the helplessness and hopelessness which characterize depression in adults (Rie, 1966). In terms of cognitive development, it is not until adolescence that children are believed to be able to make the kind of generalizations and future projections which would allow for these feelings of overall worthlessness, futility, and despair regarding the future (Wenar, 1982). Rie's position receives some support from such findings as that with age, there is an increasing discrepancy between real and ideal self (Katz & Zigler, 1967), increasingly negative self-evaluations (Achenbach & Zigler, 1963), greater stability of self-esteem (Coopersmith, 1967), development of character constancy (Rotenberg, 1982), and the other self concepts presented earlier. However, it should not be viewed as an all-or-none phenomenon such that children are seen as incapable and adults capable of these feelings, but rather as a gradual process by which these evolve. Thus, while the 10 year old may not experience the helplessness and hopelessness in the identical quantitative and qualitative fashion as the adult, the evidence suggests that by middle to late childhood, the foundations have been laid for these to be experienced in some manner. There are some empirical data to support this view (Kazdin, French, Unis, Esveldt-Dawson, & Sherick, 1983), as will later be discussed.
While the learned helplessness model is not a developmental one, several studies have attempted to look at it from this perspective. Citing various studies of age differences in the effects of success and failure experiences on expectations for future success and failure and on perceptions of abilities, Rholes, Blackwell, Jordan, and Walters (1980) surmised that younger children are less susceptible to helplessness because they do not see failure as implying stable limitations on their performance. To test this hypothesis, they gave children in kindergarten through fifth grade tasks on which success and failure were manipulated by the experimenter. The dependent variables were task persistence, mood ratings, and attributions for success and failure in terms of ability, effort, task difficulty and luck. They found the younger children did not demonstrate helplessness on task persistence or performance in either condition. As predicted, the older children were susceptible to helplessness in that the fifth graders who had failed appeared to be more helpless than those who had succeeded. However, regardless of age, helplessness did not generalize to another task. In addition, younger subjects reported more positive mood than older children irrespective of success or failure, and only among the oldest subjects was mood significantly more positive if they had succeeded rather than failed.

Goetz and Dweck (1980) also examined learned helplessness in children, though not in a developmental paradigm. Noting
earlier findings that helpless children, those who viewed their failures as controllable, used less effective problem-solving strategies following a failure experience, while mastery-oriented children increased their efforts (e.g. Diener & Dweck, 1978), they expected the same pattern could be found in response to a social situation. More specifically, they hypothesized that social rejection attributions would be related to subsequent strategies to elicit acceptance, regardless of popularity level, and this was indeed supported by their data. Furthermore, those children who tended to attribute rejection to personal incompetence the most, demonstrated the greatest disruption following rejection, with perseveration on the previously successful strategy and withdrawal. While not a direct study of learned helplessness in depression, this study has implications within the cognitive framework.

Level of aspiration. Because many of the cognitive studies of depression rely upon subjects' predictions and evaluations of performance, it is worthwhile to examine Lewin's early work on level of aspiration, particularly as it was explored in children (Lewin, Dembo, Festinger, & Sears, 1944). According to Lewin's model, previous performance influences an individual's setting of a level of aspiration, and the difference between the two was referred to as the goal discrepancy. The difference between the established level of aspiration and the actual subsequent performance was called the attainment discrepancy, which leads
to feelings of either success or failure. He proposed that level of aspiration was a function of temporary situational factors such as current successes and failures on the particular task and the tendency to avoid levels that were too easy or difficult, and general cultural factors such as various group standards. While these factors operated across subjects, the effects of personality characteristics as modifiers of their influence were also studied. For example, Frank (1938) found positive correlations between the size of the goal discrepancy and personality variables involving the wish to do well, subjective attitude, and the ability to dismiss failures.

Although not focusing directly on the development of levels of aspiration, a study by Sears (1941) examined correlates of discrepancy scores in children. Those with a high discrepancy pattern were less successful academically and were rated as exhibiting less self-confidence and admitting to greater incompetence than others. Children with a low positive discrepancy score (viewed as more realistic) were rated as confident, successful, and comfortable in their achievements, and exhibited fewer behavior problems and unfavorable personality traits. Though having moderate levels of self-confidence and academic achievement, children with negative discrepancy scores (low aspirations relative to performance) received high ratings for self-consciousness, defensiveness, socially rather than self-oriented motivation, and self-protective attitudes toward failure. Though not investiga-
tions of depression, these studies support the general hypothesized relationship between traits and expectations and efforts of performance for both adults and children.

Studies of Childhood Depression from the Cognitive Perspective

As with most aspects of depression in children, to date researchers have barely touched the surface in regard to the cognitive component. In one of the earliest studies of this kind, Moyal (1977) investigated the variables of self-esteem, locus of control, stimulus appraisal, and depressive symptoms in a general elementary school population. In addition to a self-concept scale, expanded to include depressive symptoms, and a locus of control scale, the Moyal-Miezitis Stimulus Appraisal Scale was administered. The latter measure consists of 20 imaginary situations, each with four response options representing an adaptive, helpless, blaming, or self-blaming response. As expected, depression score was found to correlate negatively with self-esteem and positively with external locus of control. Those with higher depression scores were also less likely to choose adaptive responses and more likely to choose helpless, blaming, or self-blaming responses when presented with the hypothetical situations. Though the study offered some initial support for the association of low self-esteem and helplessness with depression, it lacked the necessary refinements later made possible, for example, by the development and validation of childhood depression
measures and by the reformulation of the learned helplessness model.

While investigating behavior problems associated with depression in children, Leon, et al. (1980) also examined the cognitive component. They identified groups of depressed and nondepressed children, in grades three through six, from meaningful cut-offs on the Depression Scale of the Personality Inventory for Children (Wirt, Lachar, Klinedienst, and Seat, 1977) and then administered the CDI and Cognitive Processes Inventory for Children (CPIC), along with various other instruments. The CPIC, developed for their study, consists of descriptions of eight familiar situations, each followed by four questions tapping aspirations, expectations, attributions, and associated affect. These researchers found that depressed subjects attributed positive events to external causes significantly more often than did nondepressed subjects. In addition, children with high CDI scores attributed negative events to internal causes significantly more often than did children with low CDI scores. In an examination of the specificity to depression, attributions were not found to be related to scores on the PIC Hyperactivity Scale. Differences in aspirations and expectations were not significant.

A recent study of Seligman, Peterson, Kaslow, Tanenbaum, Alloy, and Abramson (1984) is the only one, as yet, to directly investigate predictions from the reformulation of the learned helplessness model regarding the relationship between attributional
style and depressive symptoms in children. Subjects were elementary
school children from ages 8 to 13 years who completed the CDI
and the Children's Attributional Style Questionnaire (CASQ)
twice, with a 6 month interval. After the second administration,
parents were asked to complete the BDI and the adult Attributional
Style Questionnaire (Peterson, Semmel, von Baeyer, Abramson,
Metalsky, & Seligman, 1982). The CASQ consists of 48 items,
each with a hypothetical good or bad event and two possible
causes of the event. The possible causes were written to tap
one of the attribution dimensions (e.g. internality-externality)
while varying the other two (e.g. stability-instability, globality-
specificity). It was found that attributional style and depressive
symptoms were significantly correlated with each other. In
other words, children with depressive symptoms were more likely
than were nondepressed to choose internal, stable, and global
explanations for bad events and the opposite pattern for good
events. The latter is in contrast to the only weak relationship
obtained in the adult studies. In addition, this style predicted
depressive symptoms six months later, when holding initial depression
scores constant, suggesting it may be a predisposing factor
in depression. The interesting finding that children's attributional
styles for bad events and their depression scores were positively
correlated with their mothers' attributional styles for bad
events and depression scores, though not with that of their
fathers', offers some tentative suggestions as to the origins
of this style.
In an investigation of whether depressed children actually experience cognitive impairment, as found among depressed adults (e.g. Klein & Seligman, 1976; Rapaport, Gill, & Schafer, 1968), fourth and fifth grade children who completed the CDI were given a series of block-design problems and anagrams to solve (Kaslow, Tanenbaum, Abramson, Peterson, & Seligman, 1983). As predicted from the adult literature, depression scores were found to correlate negatively with performance on the two cognitive tasks, but not with verbal intelligence as measured by the Peabody Picture Vocabulary Test.

Kazdin, et al. (1983) examined the relationship of hopelessness, depression, and suicidal intent in a hospitalized sample of children ages 8 to 13 years. Independent of initial diagnostic procedures, depression was assessed by three measures, the CDI, the Bellevue Index of Depression (Petti, 1978) which is a semi-structured interview, and the Depression Symptom Checklist (Weinberg, et al., 1973). Subjects also completed the Hopelessness Scale and the Self-Esteem Inventory (Coopersmith, 1967). Designed for this study and modeled after the adult measure (Beck, Weissman, Lester, & Trexler, 1974), the Hopelessness Scale consists of 17 true-false items, e.g., "I might as well give up, because I can't make things better for myself." It was found that hopelessness scores were positively correlated with all three depression measures and negatively correlated with self-esteem. In addition, those with suicidal ideation or attempts displayed greater hopeles-
ness than those without it. Interestingly, consistent with adult findings (e.g. Kovacs, Beck, & Weissman, 1975; Wetzel, Margulies, Davis, & Karam, 1980), the relationship between suicidal intent and depression was not significant when hopelessness was controlled for statistically. In other words, it appeared that hopelessness is a better predictor of suicidal intent than is depression. The authors thus concluded that "depressed children are capable of evincing negative expectations toward the future (p. 509)"; a finding consistent with both cognitive theories of depression, and with Beck's model in particular.

Therefore, it appears that the "early returns" support the utility of the cognitive models for understanding depression in children. Thus far, there is evidence for a relationship between depression and low self-esteem, cognitive impairment on timed perceptual tasks, helplessness, depressive attributional style, and hopelessness. Little is yet known about the relationship between depression and children's expectation and evaluations of their performances, as indicators of their views of themselves, the environment, and the future.

Statement of the Problem

As presented in the foregoing review of the literature, the apparent consensus is that a depressive syndrome exists in school-aged children. Rather than viewing this as a clinical observation in contradiction to theory, developmental issues were explored to demonstrate that the necessary cognitive structures
are sufficiently developed to allow for depression in middle to late childhood.

Because of the only recent recognition of childhood depression, most of the work in the area has focused on definition, diagnosis, and assessment. The current investigation sought to expand our knowledge by examining differences in cognitions between children with depressive symptoms and those without such symptoms. As described above, Beck's cognitive model of depression posits that depressed individuals exhibit negatively distorted views of the self, the environment, and the future. There is substantial, though not conclusive support for differences in the cognitions of depressed and nondepressed adults, though the issue of distortion is unresolved.

These questions have barely begun to be explored in children and are thus the focus of the current study. More specifically, given earlier cited findings of poorer self-concept in adult depressives, it was hypothesized that,

1. The subjects in the depressive symptoms groups would view themselves as less competent than those in the control group, as expressed on a self-report measure.

Because such differences may be reflecting real group differences in competence, rather than just subjective ones, teacher ratings of the children's competence were also assessed to evaluate the following hypothesis,

11. Discrepancy patterns between self-ratings and teacher-ratings of competence would differ for the two groups.
Alloy and Abramson's work which suggested depressive realism, rather than depressive distortion precluded the specification of expected discrepancy patterns. Thus if group differences were found, they could be due to either, (a) the tendency for the depressive symptoms group to give self-ratings which were consistent with teacher-ratings of their competence, while the nondepressed group gave self-ratings which were higher than the received teacher-ratings (depressive realism and nondepressive distortion) or, (b) the tendency for the depressive symptoms group to give self-ratings which were lower than received teacher-ratings of competence, while the nondepressed group gave self-ratings which were consistent with teacher-ratings (depressive distortion and nondepressive realism).

Other studies were cited which found depressed-nondepressed group differences in predictions of performance and recall of success and failure feedback on experimental tasks, reflecting depressives tendencies toward more negative views of the environment and the future. Thus, the following hypotheses were generated and tested:

III. The depressive symptoms group would express more pessimism in predicting their performance on the experimental task.

IV. In the positive reinforcement condition, the depressive symptoms group would recall less positive reinforcement than would the control group.

V. In the punishment condition, the depressive symptoms group would recall more punishment than would the control group.
In addition, earlier studies found that depressed subjects were more susceptible to the effects of success and failure. Thus, it was predicted,

VI. After receiving summary feedback of degree of success on the task the depressive symptoms group would show a greater shift in their estimates of future performance than would the control group.

Finally, though no formal hypothesis was put forth, possible group differences in recent life stress were evaluated.
CHAPTER III

METHOD

Subjects

Subjects in this study were recruited from 28 fourth and fifth grade classes from 6 schools within 3 different suburban school districts outside a moderately-sized Midwestern city. Of the 310 participants, 134 were in fourth grade and 176 were in fifth grade. Distribution of sex was fairly equal across grades with a total of 175 females and 135 males. The subjects ranged in age from 9 years 2 months to 12 years 8 months, with a mean age of 10 years 9 months and a standard deviation of 8.1 months. The sample was predominantly white and reflected a range of socioeconomic statutes from lower class to upper-middle class, as surmised from the range of communities from which subjects were drawn, though specific data were unavailable.

To solicit these subjects, the researcher had visited the classrooms and briefly described the study as a project to learn more about how children think and feel, including positive and negative feelings. They were told they would be asked to describe themselves and their classmates, define words, and if selected for the second part of the study, to identify pictures in a gamelike task. The voluntary nature of participation was explained as was confidentiality and the need for signed parental permission.
Approximately 640 letters to parents (see Appendix A) and consent for participation forms (see Appendix B) were distributed to be taken home to their parents. These were then collected by classroom teachers and returned to the researcher. A total of 319 children (50%) brought back positive consent forms. Though it was intended to include all of these children in the final subject selection process, 9 had to be dropped from the study because of absences, leaving a total sample of 310 children.

Two depression measures, the Children's Depression Inventory (CDI) and the Peer Nomination Inventory for Depression (PNID), and the Quick Word Test (QWT) were administered as described below to select subjects for the actual experiment. Those children whose PNID scores and CDI scores were in the highest quartile or those who had one score in the highest 5 percent and the other score above the median of the sample were assigned to the depressive symptoms group. Forty children met these criteria. Therefore, 40 other children were selected whose PNID and CDI scores were both in the lowest quartile, and they were assigned to the nondepressed group, attempting to balance for verbal intelligence, sex, school, and age. For this final group of 80 subjects, the mean age was 10 years 10 months and the breakdown by group, sex, and grade is depicted in Table 1. The slightly higher proportion of girls was reflective of the composition of the sample from which the final subjects were drawn. Within each group, subjects were then randomly assigned to either the
<table>
<thead>
<tr>
<th>Grade</th>
<th>Sex</th>
<th>Depressed</th>
<th>Nondepressed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Boys 9</td>
<td>Boys 8</td>
</tr>
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<td>Girls 11</td>
<td>Girls 11</td>
</tr>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boys 6</td>
<td>Boys 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Girls 14</td>
<td>Girls 13</td>
</tr>
</tbody>
</table>

Table 1

Distribution of Subjects by Mood Group, Age, and Sex
punishment condition or the reinforcement condition for the experimental task. Although it is acknowledged that selection criteria did not allow for an actual clinical diagnosis, for ease of presentation the depressive symptoms group will subsequently be referred to as the depressed group.

Measures and Apparatus

Two depression instruments and a vocabulary test were used in the subject selection process. The remaining measures were employed with the 80 subjects participating in the experimental task.

Children's Depression Inventory. The CDI (Kovacs, 1978) is a self-report measure which evolved from the Beck Depression Inventory (Beck, 1967), for use with children ages 7 to 17 years. It contains 27 items covering an array of symptoms such as sadness, anhedonia, and sleep disturbance, with a three-choice (0-2 points) format reflecting absence, presence and severity of symptoms. An example of an item from the CDI may be found in Figure 1 and a copy of the entire instrument in Appendix C. Points are summed across all items and scores can thus range from 0-54.

The psychometric properties of the CDI have been reported to be reasonably good. Coefficient alpha as an index of internal consistency was found to be .86 and test-retest reliability over a one month period was .72 (Kovacs, 1981). Content validity was achieved on the basis of careful evaluation of the phenomenology of childhood depression and evaluation of the characteristics
I am sad once in awhile.
I am sad many times.
I am sad all the time.

Figure 1. Example of CDI Item (Kovacs, 1978).
associated with it, utilizing direct input from depressed children. In terms of its criterion validity, CDI scores have been found to have a moderate correlation (r=.55) with global depression ratings based on interview (Kovacs & Beck, 1977). Significant correlations with the PNID (r=.44, Jacobsen, et al., 1983) and parent-rated depression (r=.33, Leon, et al., 1980) have also been obtained. In addition, children diagnosed as having an affective disorder scored higher than those diagnosed differently (Carlson & Cantwell, 1980).

**Peer Nomination Inventory for Depression.** The PNID (Lefkowitz & Tesiny, 1980) is a 19 item inventory on which children are asked to nominate peers in response to specific questions. Thirteen of these items measure depression, e.g. "Who often looks sad?", "Who often says they can't do things?", four items reflect happiness, and two assess popularity. The full inventory may be found in Appendix D. Scoring consists of calculating a child's raw score equal to the sum of nominations by all other children in the class for each depression item. Then each child's item raw scores are summed across the 13 depression items and then divided by the number of children present. For convenience, a scoring sheet was devised and may be found in Appendix E.

The psychometric properties of the PNID were examined by Lefkowitz and Tesiny (1980) with a large sample of fourth and fifth grade children. For the 13 depression items, internal consistency was high, with a coefficient alpha of .85. Homogeneity
was assessed through item-total correlations which ranged from .34 to .71. Test-retest reliability over a two month time period was found to be acceptable for the total depression score (r=.79) as well as for the individual items (ranging from r=.39 to r=.76). Also, interrater (nominators) reliability was found to be .75. Factor analysis of the depression and happiness items revealed four factors which accounted for 54% of the variance, loneliness, inadequacy, dejection, and happiness.

Construct and criterion validity of the PNID were also examined by Lefkowitz and Tesiny. Regarding its concurrent validity, positive correlations were obtained with a modified CDI (r=.23), a modified Zung Self-Ratings of Depression (r=.14), and teacher-ratings of depression (r=.41). While these correlations are statistically significant, they are not extremely strong, contributing to the decision in the current study to use a combination of both self-ratings and peer-ratings to select subjects. Only preliminary evidence for discriminant validity exists but they did find that children who were rated as hyperactive by their parents were not nominated as more depressed than the general sample. To study construct validity, Lefkowitz and Tesiny examined the PNID's ability to predict eight other variables thought to be related to depression and six of these were supported. Children with high PNID scores tended to demonstrate depressed intellectual functioning, less social competence, lower self-esteem, an external locus of control, less school attendance,
and lower socioeconomic status than those with low PNID scores. However, they did not engage in more passive activities or have lower body weights. Factor analysis of the measures used in demonstrating the PNID's construct and criterion validity was used to examine whether a depression factor would emerge. Four factors were found, two of which are depression factors, one pertaining to ratings by self, and the other to ratings by others.

**Quick Word Test.** The QWT, Elementary Form A (Borgatta & Corsini, 1967) is a group administered 50 item word knowledge test designed as a screening instrument to estimate verbal intelligence (see Appendix F). Vocabulary words are presented with a four-choice option from which children are asked to select the best synonym. Raw scores (total number correct) are then converted to percentiles based on the normative sample.

While recognizing the limitations of such a measure, it appeared adequate for the purpose of the current study, which was to roughly equate the two groups for mental ability. Reliability of the QWT, as reported in the manual, was good using split-half reliability (r=.84) and alternate form (r=.91) techniques of assessing it. Concurrent validity was evaluated through correlations with various measures of intelligence and ranged from r=.67 to r=.89.

**Perceived Competence Scale for Children.** The PCSC Harter, 1979, 1982b) is a 28 item self-report measure of children's perceptions of their competence, as one aspect of self-evaluation.
Theoretically, Harter (1978) views perceived competence as an important correlate and mediator of the child's intrinsic motivation to be effective. It was included here as a measure of self-concept with the expectation that depressed and nondepressed children would exhibit meaningful differences in their response patterns. The measure is based on the notion that children do not feel equally competent in all domains and therefore it is divided into four subscales. There are seven questions tapping each of these subscales which are cognitive, social, and physical competence, and general self-worth. The latter is not merely a summation of the other three but rather an attempt to assess the child's general feelings of self-esteem, independent of any particular area of skill. As explained by Harter, the PCSC was specifically designed to minimize the effects of social desirability, a problem inherent in other self-esteem scales. Thus, she utilized a structure alternative format as exemplified in Figure 2, taken directly from the scale. Given two opposing descriptions, the child first decides which type of child he or she most resembles and then decides the degree to which this is true. Each item is scored from 1 to 4 with higher scores representing greater perceived competence. Scores are then summed for each subscale. Appendix G contains a copy of the entire PCSC.

The PCSC appears to be a psychometrically sound instrument, validated on a large sample of children in grades three through
Some kids often forget what learn **BUT** Other kids can remember things easily

Figure 2. Example Item from the Perceived Competence Scale for Children (Harter, 1982).
nine (Harter, 1982b). Coefficient alpha, as an index of internal consistency, ranged from .73 to .86 for the four subscales. Test-retest reliability over 3 month and 9 month intervals ranged from .69 to .87. Factor analytic studies demonstrated that items had moderate to high loadings on their designated factor. In terms of its construct validity, the hypothesized relationship between perceived competence and intrinsic motivation was supported. For example, a positive correlation was obtained between perceived cognitive competence and preference for challenge ($r=.57$), independent mastery ($r=.54$), and curiosity ($r=.33$). Convergent validity was assessed through teacher and peer-ratings. Scores on the cognitive subscale were significantly correlated with teacher ratings ($r=.28$ to $r=.73$) and were found to increase with grade level, except for a significant drop at seventh grade. These scores were also positively correlated with achievement test scores, following the same grade pattern. Scores on the social subscale were positively correlated with a sociometric index ($r=.59$). Significant positive correlations were also obtained between perceived physical competence and gym teachers' ratings ($r=.62$). However, it should be noted that because the PCSC specifically measures children's perceptions of their competence, very high correlations with objective ratings of their competence are not necessary to prove the scale's validity, and low correlations within particular populations would be an interesting area for exploration. Some discriminant validity has been demonstrated,
as well. In a study of learning disabled children, only scores on the cognitive subscale were significantly lower than those of a general sample. It was also found that children selected for sports teams scored higher on the social and physical subscales than their classmates.

**Teacher's Rating Scale of Child's Actual Competence.** In an effort to assess children's actual competence, thus enabling examination of group differences in relation to perceived competence, the Teacher Rating Scale (TRS) was employed. This scale (Harter, 1979) directly parallels the PCSC, and has teachers rate a child's competence in the same four domains (see Appendix H). In addition to the 28 parallel items, with only slight rewording, the teacher is asked to make a global rating in each of the three skill domains. This scale revealed the same factor pattern as the PCSC and internal consistency was found to be high.

**Recent Life Stress Questionnaire.** An ad hoc parent questionnaire was utilized as a rough estimate of recent life stress, to assess the possibility that the children exhibiting depressive symptoms were those who had experienced a greater amount of stress during the past year. Items and format were drawn from various other stress questionnaires with an attempt to choose items particularly relevant to a child's life. The questionnaire consisted of 18 items on which parents were asked to designate occurrence and valence of events on a five-point scale from very negative to very positive (see Appendix I).
Task appartus. The stimulus pictures designed for this study are set of 35 black and white line drawings on 13.7 cm X 21.0 cm card stock. They were deliberately drawn to be ambiguous but strongly suggestive of various objects, to allow for the experimenter to control the amount of feedback. In this way, possible group differences in abilities were avoided which would have confounded the interpretation of their performance predictions and evaluations. In a pilot study, an original set of 45 designs was presented to approximately 40 fourth and fifth grade children, and from these, 35 designs were selected and refined for use in the actual study. From the pilot data, it was deemed necessary to present subjects with a choice of responses rather than having them self-generate responses, in order to avoid replies of "I don't know." Thus, in the final set of stimulus cards, each contains a picture with four words printed beneath it, representing four possible identities of the picture, with subjects assuming only one is the correct response. These choices were culled from actual responses during piloting with additions made when necessary. For example, Card #13 appears as in Figure 3.

A reinforcement mechanism was also designed for this study. It consisted of a 6.4 cm X 8.9 cm X 3.2 cm mental box with two small lights on top of it, a green one and a red one. This light box was placed on the table directly in front of the subject who was seated across from the experimenter. Another small metal box contained two buttons to manually operate the green
Figure 3. Example of Stimulus Card.
and red lights and it was attached to the light box by a wire and placed on a chair beside the experimenter and out of the subject's sight. The reinforcement schedule (See Appendix J), identical for all subjects, was placed next to the button box on the chair. Finally, a pile of pennies was visible on the table.

Procedure

For selecting subjects from the original sample of 310, children participating in the study were usually grouped by class and seen in a spare classroom or other available space, as prearranged with the principal and teachers. Depending upon room availability, schedules, and group sizes, classes sometimes had to be combined. Once the group was assembled, subjects were reminded of the purpose of the study and confidentiality was again explained and its importance emphasized.

The researcher, who was usually accompanied by one of three undergraduate research assistants, then distributed the CDI and the directions were read aloud as follows:

Here is something which helps us understand the different feelings and thoughts kids sometimes have. Let me show you how this works. I will read aloud and you read along with me.

Kids sometimes have different feelings and ideas. This form lists the feelings and ideas in groups. From each group, pick one sentence that describes you best for the past two weeks. After you pick a sentence from the first group, we will go on to the next group.

There is no right answer or wrong answer. Just pick the sentence that best describes the way you have been recently. Put a mark like this X next to your answer. Put the mark
in the box next to the sentence that you pick.

Here is an example of how this form works. Try it. Put a mark next to the sentence that describes you best. I read books all the time, I read books once a while, I never read books. Are there any questions? (Kovacs, 1978).

Every CDI item was then read aloud, giving the subjects sufficient time to mark their answers. If a child said he or she was unsure of which response to choose or that none were true, encouragement was given to select the best response.

After collecting the CDI forms, the PNID materials were passed out, on which the class roster (containing names of participants only) was repeated 19 times. The subjects were told,

Now we're going to do something in which you describe your classmates. When I read a question, I want you to draw a line through as many names which best fit the question. If nobody fits the question, then don't mark any names. Please do not draw a line through your own name. Let's begin. Who often plays alone? Now look at the list of names next to #1.

The directions were then repeated, questions from subjects answered, and the remaining items administered (Lefkowitz & Tesiny, 1980).

The QWT was the last measure administered during this first session. The forms were distributed face down and directions given for selecting the best synonym as described in the manual (Borgatta & Corsini, 1967).

When all subjects had completed the QWT, they were told that some of them would be asked to return for a second part. Reassurance was given that this was not a reflection of how well they had performed but rather a function of the need to see a variety of children.
Within the next two weeks, the selected subjects were seen individually, by either the primary investigator or a trained assistant, in a spare, quiet room. First the PCSC, which is entitled "What I Am Like" on the children's form, was administered. The subject was told,

We have some sentences here and, as you can see from the top of your sheet where it says, "What I Am Like," we are interested in what each of you is like, what kind of person you are like, and how you think and feel about different things. This is not a test. There are no right or wrong answers. Since kids are very different from one another, each of you will be putting down something different. First let me explain how these questions work. There are two sample questions at the top. I'll read the first one out loud, which is marked (a), and you follow along with me. Some kids would rather play outdoors in their spare time but other kids would rather watch T.V. This question talks about two kinds of kids.

(1) What I want you to decide first is whether you are more like the kids on the left side who would rather play outdoors, or whether you are more like the kids on the right side who would rather watch T.V. Don't mark anything down yet, but first decide which kind of kid is most like you, and go that side.

(2) Now, the second thing I want you to think about, now that you have decided which kind of kid is most like you, is to decide whether that is only sort of true for you, or really true. If it's only sort of true, then put an X in the box under sort of true; if it's really true for you, then put an X in that box, under really true.

(3) For each sentence you only check one box. Sometimes it will be on one side of the page, and other times it will be on the other side of the page, but you can only check one box for each sentence. Do you have any questions?

This procedure was repeated for the second sample item. Then the subject completed the scale.
Next, the experimental task was introduced. The sample stimulus card was held before the subject and the following directions given:

Look at this picture. Below it are four different things this may be. You tell me which one you think this is: a birdbeak, balloons, a knife, or scissors?

Regardless of the response, the subject was told he or she was correct. Subjects in the reinforcement group were then instructed, now we're going to do some more of these but some of them will be more difficult. Each time you give a "good" answer, you'll see a green light like this (green light was illuminated). If you give a "bad" answer, you'll see a red light like this (red light was illuminated). Remember, the green light means good and the red light means bad.

Each time you give me a good answer, you'll be winning a penny. We'll play the game 35 times. How many pennies do you think you will win?

This number was recorded and the subject was told he or she would receive the pennies at the end of the game and could keep them.

Directions to those subjects assigned to the punishment condition were identical until the last paragraph, in which they were instead told,

I'm going to give you 35 pennies to start the game (and the pennies were placed near the subject). Then each time you give me a bad answer, you'll lose a penny. We'll play the game 35 times. How many pennies do you think you will lose?

The response was recorded and subjects in this condition were told that at the end of the game, the pennies they had lost would be taken back and they could keep the remaining ones. After answering any questions, the task proceeded.
Subjects in both conditions were presented with the stimulus cards one at a time, the experimenter read the options aloud, the subject selected a response, and the green or the red light was illuminated. However, unbeknownst to the subjects, their actual responses were irrelevant and instead, reinforcement was under the control of the experimenter. A green light was indicated for 24 (68.6%) of the trials and a red light for 11 (31.4%) of the trials. These levels were chosen because previous research (Nelson & Craighead, 1977) demonstrated that because high rates of reinforcement and low rates of punishment are inconsistent with depressed persons expectations, they are subject to the greatest distortion. The particular trials on which success and failure were indicated had been randomly determined and remained consistent across all subjects.

After completing the task, subjects were reminded they had seen a total of 35 pictures and subjects in the reinforcement group were asked, "How many pennies do you think you won?" This number was recorded, these subjects were told they had actually won 24 pennies and were then asked, "If we played again with 35 new pictures, how many pennies do you think you would win?" Subjects in the punishment group were instead asked, "How many pennies do you think you lost?" They were then told they had actually lost 11 pennies and were asked, "If we played again with 35 new pictures, how many pennies do you think you would lose?"
All subjects were then given the 24 pennies, thanked for their participation and asked not to discuss the session with their classmates until the conclusion of the study. Because all children experienced a relatively high degree of success, won pennies, and did not suspect deception, it was decided that it would not be beneficial to explain the random nature of the reinforcement. They were also given an envelope containing the Recent Life Stress Questionnaire which they were asked to take home to their parents who were to mail it back to the researcher in the stamped, addressed envelope provided.

To recapitulate, the dependent measures for the subject selection process were scores on the CDI, the PNID, and the QWT. For the second stage of the study, the dependent variables were the PCSC, the TRS, the Recent Life Stress Questionnaire, and responses to the task questions. For the reinforcement group, these questions were:

1. How many pennies do you think you will win?
2. How many pennies do you think you won?
3. If we played again with 35 new pictures, how many pennies do you think you would win?

Subjects in the punishments group were asked,

1. How many pennies do you think you will lose?
2. How many pennies do you think you lost?
3. If we played again with 35 new pictures, how many pennies do you think you would lose?
Design

To evaluate self-concept, a one-factor between subjects design was first employed. The independent variable was mood group (depressed, nondepressed) and the dependent variables were PCSC and TRS subscale scores. Then a mixed design was used, with mood group the between-subjects variable and source of rating the within-subjects variable to compare teacher and self ratings by mood group.

For the experimental portion of the study, a 2 X 2 X 3 mixed design was utilized with the last treated as a repeated factor. The between-subjects variables were mood group (depressed, nondepressed) and condition (reinforcement, punishment), and the within-subjects variable time of estimate. The dependent variable was number of pennies estimated and the three times represented initial predictions, evaluations of performance and predictions of future performance.
CHAPTER IV

RESULTS

Before investigating the major hypotheses, preliminary analyses were conducted describing the sample. As group assignment was based on PNID and CDI scores, means, standard deviations, and ranges for the entire sample and the two selected groups are presented in Table 2. Through analyses of variance, it was then established that there were no significant differences in group composition by age or sex. Also, because of possible group differences in general intellectual functioning, a one-way analysis of variance was performed with QWT scores as the dependent variable, and again results were negative.

Self-Concept

To examine the relationship between mood and self-concept, group differences in perceived competence were assessed. The means and standard deviations of group subscale scores on the PCSC are presented in Table 3. As expected, depressed subjects scored consistently lower than nondepressed subjects. More formal analyses, employing t-tests, revealed these were statistically significant differences for all four scales, Cognitive, $t(78) = 22.25, p < .0001$; Social, $t(78) = 50.54, p < .0001$; Physical, $t(78) = 42.70, p < .0001$, and General, $t(78) = 54.61, p < .0001$. 89
Table 2
Depression Scores of Total Sample
and Selected Groups

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Total Sample</th>
<th>Depressed</th>
<th>Nondepressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNID</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>M</td>
<td>2.30</td>
<td>5.15</td>
<td>0.76</td>
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<tr>
<td>SD</td>
<td>1.89</td>
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<td>0-10.00</td>
<td>1.81-10.00</td>
<td>0.18-1.71</td>
</tr>
<tr>
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</tr>
<tr>
<td>M</td>
<td>7.70</td>
<td>17.13</td>
<td>1.90</td>
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<tr>
<td>SD</td>
<td>6.18</td>
<td>5.89</td>
<td>1.24</td>
</tr>
<tr>
<td>Range</td>
<td>0-32</td>
<td>9-32</td>
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Table 3  
Means and Standard Deviations of Perceived Competence Scores by Mood Group

<table>
<thead>
<tr>
<th>PCSC Subscale</th>
<th>Depressed M</th>
<th>Depressed SD</th>
<th>Nondepressed M</th>
<th>Nondepressed SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td>19.85</td>
<td>5.15</td>
<td>24.23</td>
<td>2.81</td>
</tr>
<tr>
<td>Social</td>
<td>18.15</td>
<td>4.73</td>
<td>24.45</td>
<td>3.00</td>
</tr>
<tr>
<td>Physical</td>
<td>16.90</td>
<td>4.68</td>
<td>22.68</td>
<td>3.06</td>
</tr>
<tr>
<td>General</td>
<td>18.83</td>
<td>4.44</td>
<td>24.95</td>
<td>2.78</td>
</tr>
</tbody>
</table>

\(^a\) \(n=40\) for each mood group.
In addition, it was found that within both groups, PCSC subscale scores were highly intercorrelated, as depicted in Table 4. The only exception to this was the lack of a statistically significant correlation between the Social and Cognitive subscales for the depressed group. Thus, the first hypothesis, that depressed children would view themselves as less competent than would the control group was supported by the data.

To evaluate whether differences in perceived competence could be due to actual differences in abilities, teachers' ratings of the children's competence were analyzed and then compared to the children's own ratings. The means and standard deviations of group subscale scores on the TRS are presented in Table 5. Once again, depressed subject scored significantly lower than nondepressed subjects on all four subscales as follows: Cognitive, \( t(76) = 19.64, p < .0001 \); Social, \( t(76) = 64.01, p < .0001 \); Physical, \( t(76) = 39.12, p < .0001 \); General, \( t(76) = 58.01, p < .0001 \).

Subscale intercorrelations within groups were also calculated and as can be seen in Table 6, most were highly significant, with the exception of Cognitive X Social and Physical X General for the depressed group.

Self ratings and teacher ratings were then compared within mood group and these correlations appear in Table 7. The pattern of correlations for both depressed and nondepressed groups was found to be very similar. In both groups, teacher and self ratings were highly correlated for cognitive competence but
### Table 4

Intercorrelations Between PCSC Subscales for Depressed and Nondepressed Subjects

<table>
<thead>
<tr>
<th>Subscale</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Depressed (n=40)</td>
<td></td>
</tr>
<tr>
<td>1. Cognitive</td>
<td>.28</td>
<td>.42*</td>
<td>.57***</td>
</tr>
<tr>
<td>2. Social</td>
<td>-</td>
<td>.62***</td>
<td>.51*</td>
</tr>
<tr>
<td>3. Physical</td>
<td>-</td>
<td>-</td>
<td>.43</td>
</tr>
<tr>
<td>4. General</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* *p < .01.
** p < .001.
*** p < .0001.
Table 5
Means and Standard Deviations of Teacher Ratings by Group

<table>
<thead>
<tr>
<th>TRS Subscale</th>
<th>Depressed&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Nondepressed&lt;sup&gt;b&lt;/sup&gt;</th>
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<tbody>
<tr>
<td>Cognitive</td>
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<td></td>
</tr>
<tr>
<td>M</td>
<td>18.18</td>
<td>23.61</td>
</tr>
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<td>SD</td>
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<td>5.30</td>
</tr>
<tr>
<td>Social</td>
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<td></td>
</tr>
<tr>
<td>M</td>
<td>16.90</td>
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</tr>
<tr>
<td>SD</td>
<td>5.75</td>
<td>3.85</td>
</tr>
<tr>
<td>Physical</td>
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<tr>
<td>M</td>
<td>13.85</td>
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</tr>
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<td>SD</td>
<td>6.18</td>
<td>6.03</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>16.80</td>
<td>25.34</td>
</tr>
<tr>
<td>SD</td>
<td>5.95</td>
<td>3.60</td>
</tr>
</tbody>
</table>

<sup>a</sup><sub>n=40.</sub>

<sup>b</sup><sub>n=38.</sub>
Table 6

Intercorrelations Between TRS Subscales for Depressed and Nondepressed Subjects

<table>
<thead>
<tr>
<th>Subscale</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Depressed (n=40)</td>
<td>Nondepressed (n=40)</td>
</tr>
<tr>
<td>1. Cognitive</td>
<td>.30</td>
<td>.51***</td>
<td>.45****</td>
</tr>
<tr>
<td>2. Social</td>
<td>-</td>
<td>.43**</td>
<td>.59****</td>
</tr>
<tr>
<td>3. Physical</td>
<td>-</td>
<td>-</td>
<td>.26</td>
</tr>
<tr>
<td>4. General</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01. *** p < .0001. **** p < .00001.
Table 7
Correlations of Self and Teacher Ratings of Competence

<table>
<thead>
<tr>
<th>Teacher Ratings</th>
<th>Cognitive</th>
<th>Social</th>
<th>Physical</th>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depressed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Cognitive</td>
<td>.62**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social</td>
<td>.26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Physical</td>
<td></td>
<td>.29</td>
<td></td>
<td>.27</td>
</tr>
<tr>
<td>4. General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Nondepressed** |    |  |    |  |
| 1. Cognitive     | .63** |  | .16 | .38* |
| 2. Social        |       |  |    | .14  |
| 3. Physical      |       |  |    |      |
| 4. General       |       |  |    |      |

*aPCSC Subscales
bTRS Subscales
*p < .05. **p < .0001.
not for social competence or general self-esteem. The only
difference emerged in the area of physical competence, in which
teacher and self ratings were significantly correlated for nonde­
pressed but not depressed subjects.

Of particular interest here are the reasons for the lack
of correlations between teacher and self ratings, which might
differ depending upon mood group. From the means presented
in Tables 3 and 5, it appeared that teachers tended to give
depressed subjects lower ratings than subjects gave themselves
whereas they tended to give nondepressed subjects higher ratings
than subjects gave themselves. To statistically assess the
significance of these group differences, a series of analyses
of variance were performed treating rater (self or teacher)
as a repeated factor. The summary tables for these analyses
for cognitive competence, social competence, physical competence,
and general self-esteem are presented in Tables 8, 9, 10, and
11, respectively. In fact, an interaction between mood group
and rater was found to be statistically significant for social
competence and physical competence with a trend toward significance
for general self-esteem.

Testing for simple main effects, it was found that in the
area of social competence, the difference between teacher and
self ratings within each mood group was not significant though
trends were observed in the directions noted above. For physical
competence, examination of the simple main effects revealed
Table 8
Summary of ANOVA of Cognitive Competence
Ratings by Mood Group and Rater

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood (M)</td>
<td>914.04</td>
<td>1</td>
<td>914.04</td>
<td>24.73**</td>
</tr>
<tr>
<td>Error</td>
<td>2809.40</td>
<td>76</td>
<td>36.97</td>
<td></td>
</tr>
<tr>
<td>Within Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rater (R)</td>
<td>46.09</td>
<td>1</td>
<td>46.09</td>
<td>4.76*</td>
</tr>
<tr>
<td>R X M</td>
<td>13.45</td>
<td>1</td>
<td>13.45</td>
<td>1.39</td>
</tr>
<tr>
<td>Error</td>
<td>736.14</td>
<td>76</td>
<td>9.69</td>
<td></td>
</tr>
</tbody>
</table>

* p < .05. ** p < .0001.
Table 9
Summary of ANOVA of Social Competence
Ratings by Mood Group and Rater

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood (M)</td>
<td>2216.22</td>
<td>1</td>
<td>2216.22</td>
<td>90.07**</td>
</tr>
<tr>
<td>Error</td>
<td>1870.12</td>
<td>76</td>
<td>24.61</td>
<td></td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rater (R)</td>
<td>0.61</td>
<td>1</td>
<td>0.61</td>
<td>0.04*</td>
</tr>
<tr>
<td>R X M</td>
<td>73.69</td>
<td>1</td>
<td>73.69</td>
<td>4.75</td>
</tr>
<tr>
<td>Error</td>
<td>1178.50</td>
<td>76</td>
<td>15.51</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .0001.
Table 10
Summary of ANOVA of Physical Competence
Ratings by Mood Group and Rater

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood (M)</td>
<td>2030.04</td>
<td>1</td>
<td>2030.04</td>
<td>59.03**</td>
</tr>
<tr>
<td>Error</td>
<td>2613.61</td>
<td>76</td>
<td>34.39</td>
<td></td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rater (R)</td>
<td>101.92</td>
<td>1</td>
<td>101.92</td>
<td>5.39*</td>
</tr>
<tr>
<td>R X M</td>
<td>80.02</td>
<td>1</td>
<td>80.02</td>
<td>4.23*</td>
</tr>
<tr>
<td>Error</td>
<td>1436.81</td>
<td>76</td>
<td>18.91</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$.  ** $p < .0001$. 
Table 11
Summary of ANOVA of General Self-Esteem
Ratings by Mood Group and Rater

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood (M)</td>
<td>2087.81</td>
<td>1</td>
<td>2087.81</td>
<td>87.99*</td>
</tr>
<tr>
<td>Error</td>
<td>1803.37</td>
<td>76</td>
<td>23.73</td>
<td></td>
</tr>
<tr>
<td>Within Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rater (R)</td>
<td>25.07</td>
<td>1</td>
<td>25.07</td>
<td>1.69</td>
</tr>
<tr>
<td>R X M</td>
<td>58.30</td>
<td>1</td>
<td>58.30</td>
<td>3.92</td>
</tr>
<tr>
<td>Error</td>
<td>1130.12</td>
<td>76</td>
<td>14.87</td>
<td></td>
</tr>
</tbody>
</table>

**p < .0001.
that while teacher and self ratings were equivalent for the nondepressed group, teacher ratings were significantly lower than self ratings in the depressed group. Therefore, there was some support for Hypothesis II, which predicted that comparisons of teacher and self ratings would differ as a function of mood group.

**Task Estimates**

In order to evaluate initial predictions, recall of feedback, and future predictions on the experimental task, a Mood Group X Condition X Time analysis of variance was performed with performance estimates as the dependent variable. The means and standard deviations are presented in Table 12.

As revealed by the analysis of variance, Table 13, there was a significant main effect for mood group, with depressed subjects giving lower estimates than nondepressed subjects. In addition, there was significant main effect for time. Post hoc analyses (Neuman-Keuls) revealed a significant difference only between Time 2, feedback estimate, and Time 3, future performance estimate.

More meaningful however, was the second-order interaction obtained between mood group, condition, and time. To assist in the interpretation of this complex interaction, the means are graphed in Figure 4. While the means of all four groups cluster at Time 3, future performance estimate, various patterns appeared. While there were no significant first-order interactions,
Table 12
Mean Performance Estimates as a Function of Mood Group, Condition, and Time

<table>
<thead>
<tr>
<th>Time</th>
<th>Condition</th>
<th>Reinforcement</th>
<th>Punishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Prediction</td>
<td>Depressed (n=40)</td>
<td>23.85</td>
<td>21.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.84</td>
<td>7.06</td>
</tr>
<tr>
<td>Recall of Feedback</td>
<td></td>
<td>20.60</td>
<td>24.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.88</td>
<td>4.23</td>
</tr>
<tr>
<td>Future Prediction</td>
<td></td>
<td>25.05</td>
<td>25.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.99</td>
<td>2.89</td>
</tr>
<tr>
<td></td>
<td>Nondepressed (n=40)</td>
<td>26.35</td>
<td>25.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.80</td>
<td>4.82</td>
</tr>
<tr>
<td>Recall of Feedback</td>
<td></td>
<td>25.95</td>
<td>23.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.00</td>
<td>3.59</td>
</tr>
<tr>
<td>Future Prediction</td>
<td></td>
<td>25.65</td>
<td>25.35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.60</td>
<td>2.81</td>
</tr>
</tbody>
</table>
Table 13
Summary of ANOVA of Performance Estimates by Mood Group, Condition, and Time

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Group (M)</td>
<td>218.50</td>
<td>1</td>
<td>218.50</td>
<td>5.42*</td>
</tr>
<tr>
<td>Condition (C)</td>
<td>9.20</td>
<td>1</td>
<td>9.20</td>
<td>0.23</td>
</tr>
<tr>
<td>M x C</td>
<td>49.50</td>
<td>1</td>
<td>49.50</td>
<td>1.23</td>
</tr>
<tr>
<td>Error</td>
<td>3064.62</td>
<td>76</td>
<td>40.32</td>
<td></td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time (T)</td>
<td>116.61</td>
<td>2</td>
<td>58.30</td>
<td>3.51*</td>
</tr>
<tr>
<td>T X M</td>
<td>66.06</td>
<td>2</td>
<td>33.03</td>
<td>1.99</td>
</tr>
<tr>
<td>T X C</td>
<td>51.26</td>
<td>2</td>
<td>25.63</td>
<td>1.54*</td>
</tr>
<tr>
<td>T X M X C</td>
<td>127.81</td>
<td>2</td>
<td>63.90</td>
<td>3.85</td>
</tr>
<tr>
<td>Error</td>
<td>2524.93</td>
<td>152</td>
<td>16.61</td>
<td></td>
</tr>
</tbody>
</table>

* p < .05.
Figure 4. Mean Number of Pennies Estimated as a Function of Mood Group, Condition, and Time.
post hoc analyses (Neuman-Keuls) revealed several interesting significant differences in paired comparisons. Examining initial estimates (Time 1), the largest difference occurred between depressed subjects in the punishment condition and nondepressed subjects in the reinforcement condition ($p < .05$). Collapsing over condition, though there was a significant trend toward depressed subjects giving lower estimates than nondepressed subjects, this was not statistically significant. Thus, support for Hypothesis III was not obtained.

There was also a significant difference in recall of feedback (Time 2) between depressed and nondepressed subjects who were reinforced ($p < .01$), in support of Hypothesis IV. However, such a difference was not obtained among punishment subjects, refuting Hypothesis V. In addition, depressed, reinforced subjects gave significantly higher recall of feedback estimates than did depressed, punished subjects ($p < .05$).

Hypothesis VI predicted that after receiving a summary evaluation of their performance (informed of number of pennies won or lost), depressed subjects would shift more in their estimates than would nondepressed subjects. Some support for this hypothesis was provided in that depressed subjects who were reinforced showed a significant increase in estimates from recall of feedback to future predictions ($p < .01$), while there were no significant shifts for nondepressed subjects in either condition.
The difference in recall of feedback between the two mood groups in the reinforcement condition lent itself to further statistical analysis. T-tests were performed to determine whether either or both groups significantly departed from the actual amount of reinforcement administered, which was 24 green lights leading to 24 pennies won. The means for the depressed and nondepressed groups were 20.60 and 25.95, respectively. The analyses revealed that the depressed subjects significantly underestimated their success, $t(19) = 2.59$, $p < .01$, and furthermore, the nondepressed subjects significantly overestimated their success, $t(19) = 2.91$, $p < .01$. In contrast, in the punishment condition, the mean recall estimates of the mood groups did not significantly differ from one another or from the actual amount administered, 11 red lights leading to 11 pennies lost.

To evaluate possible sex differences in response to task, an analysis of variance was performed with sex, mood group, and time of estimate as the independent variables. The means and standard deviations are presented in Table 14 and the summary of the analysis of variance in Table 15. As can be seen, while a significant main effect for mood group was again obtained, sex was not a significant factor by itself or in interaction with the other variables.

Recent Life Stress

Finally, to evaluate whether amount of recent life stress varied between the two mood groups, or by sex, a two-way analysis
<table>
<thead>
<tr>
<th>Time</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depressed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Prediction</td>
<td>M 22.60</td>
<td>23.00</td>
</tr>
<tr>
<td></td>
<td>SD 6.00</td>
<td>8.29</td>
</tr>
<tr>
<td>Recall of Feedback</td>
<td>M 22.80</td>
<td>22.12</td>
</tr>
<tr>
<td></td>
<td>SD 5.35</td>
<td>5.47</td>
</tr>
<tr>
<td>Future Prediction</td>
<td>M 25.13</td>
<td>25.00</td>
</tr>
<tr>
<td></td>
<td>SD 3.18</td>
<td>3.65</td>
</tr>
<tr>
<td><strong>Nondepressed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Prediction</td>
<td>M 26.81</td>
<td>25.00</td>
</tr>
<tr>
<td></td>
<td>SD 6.17</td>
<td>5.65</td>
</tr>
<tr>
<td>Recall of Feedback</td>
<td>M 25.56</td>
<td>24.25</td>
</tr>
<tr>
<td></td>
<td>SD 2.42</td>
<td>3.99</td>
</tr>
<tr>
<td>Future Prediction</td>
<td>M 26.19</td>
<td>25.04</td>
</tr>
<tr>
<td></td>
<td>SD 2.29</td>
<td>2.87</td>
</tr>
</tbody>
</table>

*a* = 15 males, 25 females  
*b* = 16 males, 24 females
Table 15
Summary of ANOVA of Performance Estimates
by Sex, Mood Group, and Time

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (S)</td>
<td>34.69</td>
<td>1</td>
<td>34.69</td>
<td>0.86*</td>
</tr>
<tr>
<td>Mood Group (M)</td>
<td>235.35</td>
<td>1</td>
<td>235.35</td>
<td>5.84</td>
</tr>
<tr>
<td>S X M</td>
<td>23.53</td>
<td>1</td>
<td>23.53</td>
<td>0.58</td>
</tr>
<tr>
<td>Error</td>
<td>3064.62</td>
<td>76</td>
<td>40.32</td>
<td></td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time (T)</td>
<td>105.52</td>
<td>2</td>
<td>52.76</td>
<td>2.97</td>
</tr>
<tr>
<td>T X S</td>
<td>1.36</td>
<td>2</td>
<td>0.68</td>
<td>0.04</td>
</tr>
<tr>
<td>T X M</td>
<td>66.94</td>
<td>2</td>
<td>33.47</td>
<td>1.89</td>
</tr>
<tr>
<td>T X S X M</td>
<td>6.45</td>
<td>2</td>
<td>3.23</td>
<td>0.18</td>
</tr>
<tr>
<td>Error</td>
<td>2696.22</td>
<td>152</td>
<td>17.74</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05.$
of variance was performed on total scores (total number of stress items reported to be true) on the Recent Life Stress Questionnaire. There was significant main effect for mood group, $F(1, 63) = 8.25, p < .01$, with the depressed group's mean score (2.82) higher than that of the control group (1.44). While it had originally been intended to score the stress questionnaires by reported nature (positive or negative) and degree of impact as well as number of stressors, an examination of the protocols made it evident that some parents had misinterpreted the directions, apparently using the key incorrectly. Thus, no further analyses were conducted with these data.
CHAPTER V
DISCUSSION

Those who first recognized childhood depression wrote of it as clinical observation in contradiction to existing theoretical views, but it was argued here that such a position is unnecessary. Not only has more recent research established that school-aged children do experience the syndrome of depression, including its affective, cognitive, motivational, and somatic components, but evidence was presented to suggest that from a theoretical viewpoint, by middle childhood the necessary structures are sufficiently developed to allow for it.

Given these assumptions, the purpose of the present study was to examine the role of cognitive factors in childhood depression. As described earlier, cognitive models have been useful though somewhat controversial in understanding depression in adults. To reiterate, Beck (1967, 1974) proposed that depressed individuals have distorted, negative views of the self, the environment, and the future, and considered these cognitive factors primary to the affective component. In support of this model, researchers have found that depressed individuals report poorer self-concepts (Beck, 1967), particularly following a failure experience (Hammen & Krantz, 1976), and a greater discrepancy between real and ideal self (Laxer, 1964) than nondepressed persons. In experimental
task situations, they are more critical of their performance (e.g. Gotlib, 1983; Loeb, et al., 1971), recall more negative feedback (e.g. Nelson & Craighead, 1977; Wener & Rehm, 1975) and are more influenced by the effects of feedback (e.g. Hammen & Krantz, 1976; Loeb, et al., 1964). While these findings have not gone completely unchallenged, there does appear to be sufficient positive evidence for at least a concurrent relationship between depression and particular cognitive patterns.

Results of various studies, however, introduced a notion unpredicted by Beck's model. It apparently was not always the case that nondepressed subjects were consistently accurate in their perceptions while depressed subjects engaged in negative distortions. Instead, some researchers found that it was depressed subjects who were being realistic while nondepressed subjects engaged in positive, self-enhancing distortions (e.g. Alloy, 1982; Lewinsohn, et al., 1980). Thus the present study sought to examine this issue as well.

View of the Self

Results of the present study indicated that as expected, depressed children had more negative self-concepts than nondepressed children, in terms of their perceived competence in cognitive, social and physical domains, and general self-esteem. There are two possible explanations for this finding, either depressed children are more self-critical and thus merely view themselves as less competent, as predicted by Beck, or they are in fact less competent in these areas.
In an attempt to differentiate between these two positions, as they would have very different implications, teachers' ratings of the children's competence were analyzed. It was found that teachers also rated the depressed children as less competent than the nondepressed children in all four areas. While this finding offers support for the latter explanation, actual differences in competence, it should be acknowledged that the assumption is being made that teacher ratings are in fact objective. Alternatively, it is possible that depressed children possess certain qualities that would lead teachers to view them in a more negative light and thereby influence ratings of their students' competence, as in a kind of negative halo effect.

Furthermore, it had been hypothesized that comparisons of self and teacher ratings would differ for depressed and nondepressed children, though the exact nature of the expected discrepancy was deliberately left unspecified. To account for such group differences, studies which supported Beck's model would predict that depressed subjects would be more critical of themselves than would their teachers. In contrast, the work of Alloy and Abramson would predict that nondepressed subjects would be more generous in rating themselves than would their teachers. Obviously, other possibilities exist as well.

In the present study, it was found that in the area of cognitive competence, teacher and self ratings were highly similar within each group, and depressed were rated as less competent
than nondepressed by both. Thus, it appears that depressed children may actually be less competent in this domain. This is consistent with earlier findings of negative correlations between depression and reading and arithmetic scores (Lefkowitz & Burton, 1982), as well as the cognitive impairments discussed earlier (Kaslow, et al., 1983).

The findings regarding physical competence were quite different. It was found that while nondepressed children rated themselves similarly to how their teachers rated them, quite unexpectedly depressed children rated themselves somewhat higher than their teachers rated them. However, it should be noted that Harter (1982b) found that teachers had the least confidence in their ability to rate children in this area, as they had less opportunity to observe these behaviors as compared to the other three domains. This is consistent with this researcher's own impressions from comments made by the teachers during data collection.

Similar trends were noted in the areas of social competence and general self-esteem, though these were not statistically significant. If we consider teacher ratings as the more objective measure of the children's true abilities, it would thus appear that neither Beck nor Alloy and Abramson are correct. Instead of being more self-critical, the depressed children may have been either realistic or even rather easy on themselves, rating themselves as slightly more competent than others viewed them to be. In addition nondepressed children did not overrate themselves.
Overall, these findings would suggest that while depressed children have a more negative self-concept than do their peers, this may be a rather realistic appraisal of their skills.

Such a conclusion would be quite in line with the findings of Lewinsohn, et al. (1980), in a study in which they attempted to disentangle the role in clinical depression of actual social competencies and the self-perception of these competencies. After participating in a discussion group, subjects were asked to rate their own social skills and were simultaneously rated by trained observers. It was found that not only did the depressed group view themselves as less socially adept than either the normal or psychiatric groups viewed themselves, but their low self-ratings corresponded with the low ratings given them by the observers. This suggested that the depressed subjects actually exhibited poorer social skills. However, the depressed subjects were more realistic than the control subjects, as the latter overrated their social skills, an "illusory self-enhancement" not evidenced in the present study.

In a recent study, Sacco and Graves (1984) examined interpersonal problem-solving skills in depressed and nondepressed children from an elementary school sample. Their results suggested that the depressed children did have relative deficiencies in the area of primary means-ends thinking. Furthermore, they rated their performance on the task as poorer than that of their peers and were less satisfied with it, even after actual differences were statistically controlled for.
Partial support was also obtained for the hypothesized negative view of the environment and the future in depressed children. Overall, depressed children expressed more pessimism in estimating winnings. However, this was clearly mediated by the circumstances under which estimates were made. Given instructions for a task, depressed children led to focus on their failures were the most pessimistic while nondepressed children led to attend to their successes were the most optimistic in their predictions of how they would subsequently perform. Once feedback was provided in the form of reporting ongoing successes and failures (green and red lights), there was evidence for a more negative perception, or recall, of the success feedback among the depressed group. In other words, it would suggest that depressed children recall less positive reinforcement than do nondepressed children, even when receiving identical amounts.

Theoretically, this could be due to either the tendency for nondepressed children to overestimate or for depressed children to underestimate reinforcement. Both were in fact found to be true in this experiment. In contrast, when set up as a recall of punishment (loss of pennies resulting from incorrect responses), depressed and nondepressed children did not differ from each other and both were quite accurate. While similar to earlier findings with adults, these are not identical. Nelson and Craighead (1977) also found the tendency for depressed subjects to underestimate
reinforcement received, but in their study, nondepressed subjects were relatively accurate. Also, they found group differences in the punishment condition which was accounted for by underestimates in the control group. In contrast, in the current study, the depressed children were no better or worse than the nondepressed children in filtering out aversive stimuli. At present, it is difficult to explain these punishment and reinforcement differences.

Some might argue that rather than being due to distortions in the immediate situation, the lower estimates of the depressed children reflect their histories of more failure and less positive reinforcement than that of their peers. In other words, they may use observations and recall of their own previous extralaboratory experiences in forming estimates of success in the task situation. If in fact they have had less success experiences in their lives, as suggested by their perceived and observed lower competence, this criticism may be well founded. Whether based upon past experience or current perceptions, however, it would appear that depressed children perceive the environment as less reinforcing.

This study had also predicted that depressed subjects would be more susceptible to the effects of feedback as expressed in their subsequent behavior. As a measure of this tendency, predictions of future task performance following reception of current scores (when told number of pennies won or lost) were analyzed. While all four groups gave highly similar estimates of their expected future performance, a shift from a previous
level was only observed in the case of depressed, reinforced subjects. Looking at their pattern of responses, they initially expected to do reasonably well on the task, then viewed their performances as unsatisfactory, but after being told they had actually done well, they quickly recovered to expect a reasonably good future performance. Neither the depressed punished group nor the nondepressed groups demonstrated such a shift. Thus, once again, the reinforcement condition brought out the mood group differences, and in this condition, it can be said that depressed children were more susceptible to information regarding their performances.

**Life Stress and Depression**

The present study found that the depressed children had experienced a greater number of stressors in the past year than had the nondepressed children, though in both groups these were relatively few in number. While the questionnaire itself had not been validated and did not provide the opportunity for more than a gross score, its results did raise some interesting questions. One possibility is that the depressive symptoms exhibited by the children in that group were transitory phenomena related to a recent increase in life stress, such as a parental separation. On the other hand, few would argue that depression is totally unrelated to stress, and to say that the cluster of symptoms appears at times of stress does not preclude its being considered
a depressive syndrome. Obviously, further investigation would be needed to explore these ideas.

An observation of the responses to this measure suggested a particular area which may be worthy of further study. The item endorsed most frequently and almost twice as often as the next most endorsed item was "Increased tension or problems in the family". It was evident that this was reported to be true for the depressed children considerably more often than for the nondepressed children. While obviously quite preliminary, this is suggestive of a general area in which increased stress may be related to symptomatology in the children.

Theoretical Implications

While the results support several of the hypotheses, they are neither entirely consistent nor overwhelming in magnitude. The strongest finding was that children with depressive symptoms viewed themselves as less competent than did their nondepressed peers across all categories tapped, and these self-evaluations may have reflected actual, relative deficits. Though this negative view of the self is quite in line with Beck's cognitive model of depression, the fact that these were not unrealistically harsh judgments contradicts his notion of negative distortion. On the other hand, the nondepressed children were not found to overrate themselves, thus refuting Alloy's notion of nondepressive, self-enhancing distortion. Instead, both groups were rather realistic in rating their competence, and the depressed children
even rated themselves higher than their teachers did in some instances. However, just because depressed children are not engaging in negative distortion does not mean that perceiving themselves as less competent than their peers, even if accurate, does not have significant effects on their affect and behavior.

The findings regarding expectations and evaluations of performance were less clear. While there was some evidence for a more negative view of the future, in that depressed children predicted a poorer performance, this was only true under certain conditions. This also may have reflected their expectations based on past history of poorer performance in various situations. Again, in terms of perceptions of feedback from the environment, group differences only occurred in the reinforcement condition. The results here supported both depressive and nondepressive distortion, in the expected directions.

Clinical Implications

While findings were statistically significant, their clinical significance may be questioned. It is possible that the task lacked ecological validity, as it required children to make judgments which are not a part of their usual behavioral repertoire. On the other hand, if group differences exist on a rather neutral task, we might expect even greater differences in a more social or affect-laden situation.

The implications for clinical intervention are not clear. If instead, it had been consistently found that depressed children
were overly critical of themselves, engaging in the various negative distortions, then Beck's (1976) model for therapy would be the likely treatment of choice. Some might suggest that the panacea exists in cognitive and social skills training, since these children apparently lag behind their peers. However, this would be making as yet unfounded causal assumptions. Until more is learned about childhood depression, and various treatments evaluated, the question of preferred mode of intervention cannot be answered.

Problems and Prospects for Future Research

Like all studies, the current one had its limitations. One possible problem was the overlap between the various measures employed. It could be argued that given the similarities between some of the items on the two self-report measures, the CDI and the PCSC, the obtained correlations between mood groups and competence scores are of questionable meaning. Acknowledging this as an inherent problem, it can also be counterattacked to some extent. The CDI and the PCSC are two independently developed and validated measures of two different constructs, depression and perceived competence. If a relationship is obtained between scores on these, does it not mean that depression and perceived competence must therefore be related? Furthermore, the CDI was only one of the two measures used to select subjects. Finally, the highly significant correlations between teacher ratings of competence and mood group add further external validation.
While recognizing the value of studying normal children exhibiting depressive symptoms, as an analogue of depression, it would be worthwhile in a future study to employ a similar methodology with clinically depressed children. In order to select the appropriate sample for such a study, the researcher might use the CDI for initial screening purposes and then conduct Kiddie-SADS interviews with those children scoring above a predetermined cut-off on the CDI. The use of this semi-structured interview would thus allow for the identification of children with a major depressive disorder.

The present study suggested other modifications for future studies as well. Rather than asking subjects for only recall of amount of feedback they received or estimates of their success or failure, it might have been useful to ask for subjective appraisals of their performances as well. For example, while a depressed child and a nondepressed child may have both recalled receiving 24 green lights, the former may have interpreted this as a failure while the latter may have interpreted it as an outstanding performance. Thus, in a subsequent study, subjects might be asked for their subjective feelings about their performance on the task.

Also, due to the design of the current study, virtually all children, were led to believe they had achieved a relative degree of success. This was true for those in the punishment condition as well as those in the reinforcement condition which
may help to account for the lack of significant findings in
the former. Therefore, differential responses to true failure
could not be assessed. This idea was not overlooked in designing
this study, but ethical considerations took precedence. If
a creative methodology could be designed which would allow for
assessment of depressed and nondepressed children's cognitive
responses to failure without creating undue stress, it would
be most worthwhile.

Finally, it is important to recognize that although this
study offered support for the concurrent relationship between
particular cognitions and depressive symptoms in children, the
causal direction can only be theoretically inferred at this
point. While Beck's model would suggest such cognitive schemas
predispose the individual to depression, the current methodology
does not permit such a conclusion. First of all, as pointed
out earlier, these findings did not provide strong support for
negatively distorted cognitions as the depressed children appeared
to be realistic in their low evaluations of their competence.
Secondly, even when the findings suggested a negative distortion,
as in the recall of feedback situation, statements about causation
would be premature. In order to accomplish this, future studies
would need to identify those children exhibiting the particular
cognitive schemas and then follow the sample longitudinally
to see if depression occurs.
REFERENCES


Appendix A

Letter to Parents
Dear Parents:

I am a Ph.D. candidate in the Clinical-Child Psychology program at Ohio State University. For my dissertation research, I am examining the relationship between children's moods and how they see themselves and their performances on a task. To accomplish this, I would greatly appreciate the assistance of you and your child.

With your consent, your child will first be asked to complete one questionnaire regarding his or her feelings and ideas and another describing classmates' behaviors. This will take about 45-60 minutes. Since some of the items concern negative feelings such as loneliness, the children will be told they may choose not to answer any questions which bother them. From this information, I will be selecting a small number of the children to participate in the second part of the study.

If chosen for the second part, each child will be asked to identify pictures and answer questions about this task (e.g. "How many pictures do you think you'll be able to identify?"). They will win some pennies for this. They will also complete a questionnaire concerning how they see themselves. This part of the study will take about 30 minutes.

Given my training and experience in clinical child psychology, I am sensitive to the needs of children and will discontinue the session in the unlikely event that a child gets upset. Also, the children will be informed that they may terminate participation at any time without consequences. However, I have found that children usually enjoy such tasks and feel special because of their involvement.

In addition, the teachers will be completing questionnaires regarding the children's abilities in various areas and I will need access to their recent grades and reading achievement scores. I will also send you a short questionnaire to fill out. Of course, all information will be kept strictly confidential.

Through this study, I hope to learn more about the way children see themselves and how this relates to their moods. Hopefully, in the future this will better enable us to help children who are very sad. I hope you choose to help me in this endeavor. If so, please read, complete, and sign the enclosed consent form. I would also like your child to sign the form as I explained to the class. In any case, please return the form.

Thank you for your consideration. If you have any questions, feel free to call Jayne E. Schachter.

Sincerely,

Jayne E. Schachter, M.A.

College of Social and Behavioral Sciences
Appendix B

Parental Consent Form
CONSENT TO SPECIAL TREATMENT OR PROCEDURE

I, __________, hereby authorize or direct Charles Wenar or associates or assistants of his or her choosing, to perform the following treatment or procedure and such additional services as they may deem reasonably necessary in its performance (describe in general terms) Administration of several questionnaires regarding children's feelings and ideas and their descriptions of classmates, upon _________ (myself or name of subject).

The experimental (research) portion of the treatment or procedure is: having the children identify incomplete pictures during which they will receive feedback. They will also be asked questions about this task. This is done as part of an investigation entitled: Cognitive Aspects of Negative Moods in Children.

1. Purpose of the procedure or treatment: To gain an understanding of the relationship between children's moods and how they see themselves and their performances on a task.

2. Possible appropriate alternative methods of treatment: None, as no treatment is given in this study.

3. Discomforts and risks reasonably to be expected: It is possible that some children will be bothered by some of the items on the questionnaires. However, they will be told that they may choose not to answer such questions or can terminate participation without consequences.

4. Possible benefits for subject(society): It is hoped that knowledge gained from this study will enhance our understanding of negative moods in children and suggest directions for appropriate treatment strategies.

5. Anticipated duration of subject's participation: 45-60 minutes for the first part and if selected for the second part, an additional 30 minutes.

I hereby acknowledge that Jayne Schachter has provided information about the procedure described above, about my rights as a subject, and he/she answered all questions to my satisfaction. I understand that I may contact him/her should I have additional questions. He/She has explained the risks described above and I understand them; he/she has also offered to explain all possible risks or complications.

I understand that the information obtained from me, or from the person I am authorized to represent, will remain confidential unless I specifically agree otherwise by placing my initials here ________. I understand that, where appropriate, the U.S. Food and Drug Administration may inspect records of this research project.

I understand that I am free to withdraw my consent and participation in this project at any time after notifying the project director without prejudicing future care. No guarantee has been given to me concerning this treatment or procedure.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: __________ Time: __________ AM/PM Signed: __________ (Subject) (Person Authorized to Consent for Subject - if Required)

I certify that I have personally completed all blanks in this form and explained them to the subject or his/her representative before requesting the subject or his/her representative to sign it.

Signed: __________

(Signature of Project Director or Primary Study Investigator)

Form HS-023B (Rev. 12/5/81)
Appendix C

Children's Depression Inventory
PLEASE NOTE:

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These consist of pages:

- Appendix C, pages 144-148
- Appendix D, page 150
- Appendix E, page 152
- Appendix F, page 154
- Appendix G, pages 156-159
- Appendix H, pages 161-164
- Appendix I, pages 166-167
Appendix D

Peer Nomination Inventory for Depression
Appendix E

Scoring Form for Peer Nomination Inventory for Depression
Appendix G

Perceived Competence Scale for Children
Appendix H

Teacher's Rating Scale of Child's Actual Competence
Appendix I

Recent Life Stress Questionnaire
Appendix J

Reinforcement Schedule
| 2. G  | tape/sled         | 27. R | ice cream/pail |
| 4. R  | head/UFO          | 29. G | cannon/mirror |
| 5. G  | egg carton/wagon  | 30. R | piano/stage   |
| 7. R  | building/chest    | 32. G | hoe/pipe      |
| 8. R  | top/mushroom      | 33. G | vacuum/bird   |
| 9. G  | tank/paints       | 34. R | spaceship/tray |
| 11. R | vent/waffle       |       |               |
| 12. G | meter/jukebox     |       |               |
| 13. G | lamp/table        |       |               |
| 14. R | feather/saw      |       |               |
| 15. G | piano stool/desk  |       |               |
| 16. G | hat/flowerpot     |       |               |
| 17. G | target/lollipop   |       |               |
| 18. G | light/hatrack     |       |               |
| 19. R | lips/football     |       |               |
| 20. G | camera/dollar     |       |               |
| 21. G | flowerpot/cup     |       |               |
| 22. G | bookcase/bricks   |       |               |
| 23. R | balloons/tree     |       |               |
| 24. R | bookshelf/TV      |       |               |
| 25. G | radar/parachute   |       |               |