
Larry Ray Friedt
Louisiana State University and Agricultural & Mechanical College

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The relation between depression scores and social skills scores in children: A cross-sectional study of self-report and parent-report measures

Friedt, Larry Ray, Ph.D.

The Louisiana State University and Agricultural and Mechanical Col., 1990
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THE RELATION BETWEEN DEPRESSION SCORES AND SOCIAL SKILLS SCORES IN CHILDREN: A CROSS-SECTIONAL STUDY OF SELF-REPORT AND PARENT-REPORT MEASURES

A Dissertation
Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy
in
The Department of Psychology

by
Larry R. Friedt
B.A., University of Akron, 1984
M.A., Louisiana State University, 1986
December 1990
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ABSTRACT

The relationship between depressive symptoms and social skills in children was examined. Three depression measures (Children's Depression Inventory, Reynolds' Child/Adolescent Depression Scale, Depression Self-Rating Scale) and two social skills measures (Matson Evaluation of Social Skills with Youngsters, Social Skills Rating System) were used to obtain parent-report and self-report data. One hundred fifty-eight children in six different grades (3rd, 4th, 6th, 7th, 9th, 10th) were the subjects of the study.

Reliability of each measure was examined using internal consistency reliability coefficients (Cronbach's alpha) which indicated all the measures except the Depression Self-Rating Scale parent-report yielded coefficients of .80 or greater. The validity of depression and social skills as separate constructs was examined using a multitrait-multimethod matrix (Campbell & Fiske, 1959) and an extension of the model. The results indicated the constructs are separate and valid, although a significant effect for informant was found. The significance of this finding is discussed.

Further analyses were conducted using canonical correlation which yielded a significant correlation between an overall depression and social skills scores. Additionally, analyses from examining each of three grade-groups
separately indicated a significant relationship between depression and social skills regardless of the group studied. This result was also found when examining separate groups based on gender. Although the significant relationship between social skills and depression were found, further examination yielded specific measure effects for the various grade-groups and gender-groups. Several future studies are suggested and the strengths and weaknesses of the study are presented.
Many different disorders and deficits have been hypothesized as contributing to depression. This notion of multiple factors has led to many approaches for alleviating depressive symptoms. For example, activity increasing programs are used to enhance reinforcement, cognitive behavioral programs are designed to change dysfunctional thinking, and social skills training focuses on improving the quality of social interactions to obtain reinforcement from the environment. Within the latter of these three approaches, the lack of socially skillful behavior for obtaining reinforcement is thought to contribute to the occurrence of depression (Lewinsohn, 1974). For this reason, social behavior, the focus of this study, is receiving attention by researchers as a possible avenue for alleviating depressive symptoms. Specifically, this study is one of the first designed to clarify the relation between social skills deficits and depressive symptoms in children and youth.

A review of childhood depression is presented here, followed by a review of the social skill area. Finally, a review of the relevant literature associating social skills deficits and depression is made. Because the focus is primarily assessment, most of the following review covers assessment issues, although a review of the treatment liter-
ature briefly examines social skills remediation to demonstrate the efficacy of social skills interventions with problem behaviors. A more extensive review of treatment studies examining the association of social skills and depressive symptoms is presented to identify the practical use of social skills treatment for remediating depression. The content of this paper is generally concerned with childhood and adolescent depression. However, the adult literature is presented when limited information is available on younger individuals, and when the research is pertinent to the research questions proposed here. First, childhood depression is discussed.

DEPRESSION IN CHILDHOOD

Several areas affected by childhood depression are academic performance and social interactions at school, sleeping and eating, and relationship problems with parents. While this list is not exhaustive, it is clear that major aspects of a child's life can be affected. Furthermore, the symptoms manifested can be severe and have significant implications; such as, suicide and suicidal ideation (Bettes & Walker, 1986; Brent, Kalas, Edelbrock, Costello, Dulcan, & Conover, 1986; Sokoloff & Lubin, 1983). Additionally, the large number of individuals affected demonstrates the importance of studying the disorder.
Prevalence

Depression is thought to affect many people. High prevalence rates have been demonstrated in numerous studies. For example, in a comprehensive National Institute of Mental Health report, estimates of children who were moderately to severely depressed ranged up to 33% of the total population (Teuting, Koslow, & Hirschfeld, 1982). Rutter, Graham, Chadwick, and Yule (1976) also reported a high rate of depressive symptoms, as over 20% of their sample of 2,303 subjects (14-15 year old adolescents) reported depressive symptoms. Even though these prevalence rates vary across studies, they do remain consistently high, which is further demonstrated by Reynolds (1984) who examines several clinical sample prevalence rates ranging from 19 to 59%.

Studies that have specifically examined the presenting complaints of patients in clinical settings indicate high rates. For example, Carlson and Cantwell (1980) discovered that depression was the presenting complaint in 60 percent of 210 children placed in a psychiatric hospital. A high percentage rate was further substantiated in a study by Achenbach and Edelbrock (1981) who found parents of 86 percent of referred children endorsed items suggesting depression. In several studies similar results have been
obtained (Lobovits & Handal, 1985; Mezzich & Mezzich, 1979). In contrast to the clinical samples described above, some studies were conducted within "normal" populations. Lefkowitz and Tesiny (1985), for example, report a prevalence rate of 5.2% in a sample of 3020 third, fourth, and fifth-grade children using peer nominations. A similar rate was found in a study of 150 adolescents in a public school system by Kashani, Carlson, Beck, Hoeper, Corcoran, McAllister, Fallahi, Rosenberg, and Reid (1987) (4.7%). From these studies, childhood depression appears to be a frequent disorder within the "normal" population as well as in clinical populations. In fact, rough estimates indicate that approximately 1 in 14 children and 1 in 7 adolescents is clinically depressed (Reynolds, 1985). Although the studies presented are difficult to compare due to differences in definition, depression and depressive symptoms appear common and deserve attention from researchers and clinicians. In addition to prevalence rates, it is important to examine the distinguishing symptoms within each age and gender group. The available information in this area is presented next.

Gender and Age Differences

In the adult literature, depression is more common in women than men (Radloff & Rae, 1979; Weissman & Klerman, 1977). However, in the childhood literature the results are
more inconsistent. Generally, research has yielded a variety of results when examining sex differences of depressive symptoms and disorders in children. For example, in children from 6 to 12 years of age both boys and girls have been reported as having the same or more symptoms than the other (Kashani, McGee, Clarkson, Anderson, Walton, Williams, Silva, Robins, Cytryn, & McKnew, 1983; Lefkowitz & Tesiny, 1985; Lobovitz & Handal, 1985; Seligman & Peterson, 1986; Rutter, 1986). However, as children become adolescents they tend to show gender differences similar to adults with girls exhibiting more depressive symptoms than boys (Weissman & Klerman, 1978; Mezzich & Mezzich, 1979; Reynolds, 1985) although this has not always been found (Kaplan, Hong, & Weingold, 1984). These inconsistent findings may be due to definitional differences as to what symptoms make up depression or some other factor not yet identified. Whatever the reason, children tend to change rapidly, whereas adults remain relatively stable in comparison. For this reason, it might be expected that depressive symptoms would vary with the child's age. Following are some of the age differences suggested in the theoretical and/or empirically based literature.

The literature suggests age differences in depression and depressive symptoms do exist (Rehm, Gordon-Leventon, & Ivens, 1987; Geller & Carr, 1988; Digdon & Gotlib, 1985)
with many differences among depressed children across ages (i.e., infants excessively cry, preschool children exhibit inhibited play and enuresis, school-age children report low self-esteem and concentration difficulties, and adolescents report more loneliness and a loss of pleasure from activities). Geller and Carr (1988) report several differences between adult and child depression; 1) weight loss or not making expected weight gains are less common in children than adults, 2) less terminal insomnia in children, and 3) children do not spontaneously report their depressive symptoms to others (i.e., sadness, tiredness, insomnia, memory impairments). Unfortunately, much of this literature is suspect. However, several empirical studies have examined differences, which are discussed in the following pages and Table 1 contains a summary of the available information.

In one empirically based study, Achenbach and Edelbrock (1983) reported differences between age groups based on parent checklist ratings. They studied boys and girls from three age groups (4-5, 6-11, 12-16) which yielded differences between both age and gender groups. For example, depression was not identified in the oldest group of boys, although the oldest girls were withdrawn, secretive, and shy suggesting depressive symptoms. For boys ages 6-11, suicidal talk was associated with other depressive symptoms, in
contrast to the girls who were anxious and reported feeling persecuted. None of the above symptoms were characteristic of the youngest children.

In a second empirical study, which examined the depressive symptoms of 1,252 subjects (8-16 years) using the CDI, Smucker, Craighead, Craighead, and Green (1986) found depression scores to be more stable across time for females than males. Acting out behavior was more highly correlated with overall depression scores for adolescent males than for females. This difference was not observed in the preadolescent subjects (Grades 3-6). For all the females in the study, a general dysphoric mood (sadness, crying, somatic complaints) and a negative self-view (self-hate, negative body-image) was correlated more highly with overall depression scores than for same-aged males. The authors suggested that possibly females tend to internalize depression earlier than males, which could account for the differences found in the study and suggests the importance of taking into account developmental and gender differences.

McConville, Boag, and Purohit (1973) reportedly found that depressive symptoms were expressed in three different forms (affectual, negative self-esteem, guilt) in 6 through 13 year old children. "Affectual" depression was most common in the 6 to 8 year old children and was characterized by sadness, helplessness, and occasional hopelessness.
Children with the "negative self-esteem" form of depression reported thoughts and feelings of being unloved, worthless, and used by other people, which was common in the 8 to 11 year old children. "Guilt" depression, although relatively rare compared to the other forms, was most common in the 12 and 13 year old subjects and was characterized by feelings of being inherently no good and the need to be punished.

In addition to the differences reported within various age groups of children, researchers have found a variety of differences between symptoms of depression in adulthood and/or childhood. For example, in a study of children, nonverbal behavior, unpopularity, and somatic complaints were more frequently associated with depression in girls than in boys (Jacobsen, Lahey, & Strauss, 1983) although these sex differences are reportedly not evident in adults (Kazdin, 1987). In an additional study, Helsel and Matson (1984) found guilt and psychosomatic complaints were not as common in a group of 4-10 year old children as for adults. Blumberg and Izard (1985) found the major difference between depressed adults and children (10-11 years old) was that anger was the emotion reported most frequent for children instead of sadness. The co-existence of anger and depression has also been reported by Shoemaker, Erickson, and Finch (1986) in a study of third and fourth grade boys.
In addition to differences in affective, cognitive, and vegetative symptoms, the examination of biological correlates of depression have indicated some differences between adults and children, as well as some similarities. Many depressed adults manifest sleep abnormalities; such as decreased interval between sleep onset and REM sleep, decreased delta sleep, and an increase in eye movement frequency during REM sleep, although these are not common in children (Puig-Antich, Goetz, Hanlon, Davies, Thompson, Chambers, Tabrizi, & Weitzman, 1982; Young, Knowles, MacLean, Boag, & McConville, 1982). Similar results for children and adults have been found in neuroendocrine studies using the dexamethasone suppression test (DST) and in studies of urinary metabolites (depressed excrete lower levels of metabolites - specifically MHPG) (Digdon & Gotlib, 1985).

In summary, there appears to be a number of differences between individuals on depressive symptoms and correlated features as a function of age and gender. These differences should be accounted for during research and when treating children in the clinic. However, there are disagreements about how to conceptualize childhood depression which has lead to several different views discussed in the following section.
Conceptual Views

In formulating a definition of childhood depression several conceptual views have emerged. Some major views are presented in the following section; including, (1) the controversy over the very existence of depression in childhood, (2) the disorder as part of normal childhood development, (3) as parallel to adult depression, and (4) as overlapping with many other disorders.

One of the earliest views suggested that depression did not exist in children. This view originated in psychoanalytic thought noting that depression is a superego phenomenon. The view suggests children do not have a developed superego and therefore, the disorder cannot exist. However, this view has not gone unchallenged. Birleson (1981) attempted to clarify why researchers have not agreed on its existence. He reported that previous studies suffered from poor definitions leaving the reader questioning the validity of the depression diagnosis, particularly when depressive features in children can be classified in at least 14 different ways (Birleson, 1981). Generally, the view that childhood depression does not exist is no longer valued, and researchers agree childhood depression deserves further study (Kashani, Husain, Shekim, Hodges, Cytryn, & McKnew,
A second view suggests that depression exists but is a phenomena of normal development. This view was held by Lefkowitz and Burton (1978) who greatly minimized the importance of the condition. They report that studies of normal children indicate the symptoms of depression prevail at rates too high to be considered statistically significant. However, this perspective has met with opposition by many professionals. Costello (1980) has presented specific criticisms of this view. Two of his criticisms are, (1) depression is not transitory and was empirically verified by researchers (Kovacs et al., 1984; Seligman & Peterson, 1986), and (2) depressive symptoms are aversive to the sufferer which implies a need for treatment.

A third conceptual view suggests childhood depression is similar to adult depression. In a review of relevant literature, Kovacs and Beck (1977) found several authors had listed symptoms manifested in children which were similar to the major adult depression symptoms (e.g. dysphoric mood, lack of energy, sleep disturbances, low self-esteem). They suggested similar symptoms occur in both children and adults, with the possibility of distinguishing characteristics. This view was further stated by Kaslow and Rehm (1983) who reported an emerging consensus that childhood
depression parallels adulthood depression, with some developmentally appropriate symptoms (e.g. enuresis, school phobia, decreased school performance), the approach adopted by the authors of DSM-III-R (APA, 1987). The proponents of this view have described several symptoms that characterize adult and child depression (i.e., sadness, anhedonia, low self-esteem, various vegetative symptoms) and others that may be more unique to childhood depression (i.e., somatic complaints, social withdrawal, aggression, negativism, conduct problems, school refusal).

The final view presents childhood depression as existing concurrently with other disorders. For example, several researchers have observed a relationship between depression and conduct disorder. Puig-Antich (1982) found one-third of 43 prepubertal boys met the criteria for major depression and conduct disorder. He reported successful depression treatment abated the conduct disorder symptoms. This relationship was further observed by Marriage, Fine, Moretti, and Haley (1986), who reported 11 of 60 children and adolescents referred for assessment of depression met the criteria for conduct disorder. Furthermore, they noted that depressive symptoms within this dual diagnosis group were severe and not merely "secondary". However, behavior problems do not always exist when depression is reportedly
present. For example, severe behavior problems were not associated with depressive symptoms in a study of 10,412 hospitalized children and adolescents (Christ, Adler, Isacoff, & Gershansky, 1981). In this study, the behavior problems examined were serious aggression, uncontrollable behavior in the community, and misbehavior at school or home. A major problem with the study was less severe behavior problems were not examined and may be more relevant to depression.

In addition to conduct disorder, other studies have shown that anxiety and a host of psychological and medical disorders are associated with depression (Matson & Nieminen, 1986; Kashani et al., 1987; Cameron, 1987). Therefore, it appears depression complicates the psychological status of individuals with a variety of other problems. When multiple disorders are present and depression is suspected, it is important to identify the specific symptoms present in the individual during the assessment for treatment planning (although this is also important when other disorders are not present). Several diagnostic systems with varying criteria for depression are presented in the literature. The next section examines the specific symptoms and diagnostic criteria associated with the disorder.
Diagnostic Criteria

Several different criteria exist for diagnosing depression. The various criteria originated in attempts to diagnose adult disorders. In the 1970s, a group of researchers from Washington University published diagnostic criteria for adult research (Feighner, Robins, Guze, Woodruff, Winokur, & Munoz, 1972), which later became known as the Feighner Criteria. These criteria were expanded into the Research Diagnostic Criteria (RDC); (Spitzer, Endicott, & Robins, 1978) and the Weinberg Criteria (Ling, Oftedol, & Weinberg, 1970; Weinberg, Rutman, Sullivan, Pencik, & Dietz, 1973) which encompassed a range of disorders.

Attempts were made to provide criteria exclusively for children by Weinberg and associates due to problems associated with using adult diagnostic criteria with children (Ling, et al., 1970; Weinberg et al., 1973). This system, which became known as the Weinberg Criteria, was a modification of the Feighner Criteria but included several symptoms more likely to be associated with children than adults (e.g. school performance, diminished socialization). However, the system has not been readily adopted and was replaced by more recent classification systems, generally leaving the difference between adult and child depression unresolved, and causing inherent problems for diagnosing childhood depression (For a comparison of the above mentioned criteria, see
Cantwell, 1983 and/or Matson, 1989). One frequently used system, the DSM-III-R, does not have different criteria for children and adults, although some possible differences are mentioned (e.g., irritable mood in children but not in adults).

Since the DSM-III-R is used often, the criteria for major depression are presented here. Within this system several criteria must be met. First, five of the following nine symptoms are necessary: depressed mood, diminished pleasure or interest in activities, weight change without dieting, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or excessive guilt, diminished ability to think, and recurrent thoughts of death (one of the symptoms must be dysphoric mood or a loss of interest or pleasure in almost all activities). Second, organic factors must be absent and the condition must be more than a normal reaction to a loved one's death. Third, there cannot be delusions or hallucinations present for as long as two weeks in the absence of prominent mood symptoms. Fourth, the disorder is not superimposed on any psychotic disturbances. Many of these symptoms are not exclusive to major depression as some can occur in other disorders, including less severe variations of depression (e.g. dysthymic disorder, adjustment disorder,
uncomplicated bereavement). Many of the symptoms presented in the DSM-III-R are common to other diagnostic systems, although there are some specific differences between them.

The various systems used for diagnosing depression have varied from one another in several ways. First, they differ on the number of symptoms required for a diagnosis, some of which require many more symptoms than others. Second, the pattern of symptoms needed for a diagnosis varies across systems. Third, some classification schemes have only inclusion criteria, while others have factors which must be excluded (e.g. organic causes). Finally, they vary on the period symptoms must be present before a diagnosis can be made (anywhere from one to four weeks). These variations in criteria are important because they can lead to different conclusions about any given individual's diagnosis, and may partially explain the considerable differences obtained in the prevalence rates mentioned earlier. Furthermore, the criteria chosen influences the assessment process, which is reviewed next.

Assessment Methods

The assessment of childhood depression is accomplished through many different methods and informants. Information can be gathered through 1) interviews, 2) rating scales by self-report, or from parents, teachers, or peers, and 3)
direct observations. In this section, a brief review of several interviews and checklists is presented along with psychometric properties of several instruments.

Interviews

Several interview schedules are available for assessing childhood depression. One of the most commonly used interviews is the Kiddie-SADS (Puig-Antich & Chambers, 1978), which is a modification of the Schedule for Affective Disorders and Schizophrenia for adults (SADS; Endicott & Spitzer, 1978). This interview schedule is for use with children 6-16 years of age for diagnosing major depression and other childhood disorders. It consists of an unstructured and a structured section in which the respondent is asked about the presence, severity, and duration of the symptoms. The interview is administered to a parent and/or a child requiring about 90 minutes to complete. The extensive time needed for completion limits the clinical utility of the instrument. Other interviews are available which require less administration time.

The Interview Schedule for Children (ISC-Form C; Kovacs, 1978) is a structured interview for use with children. It requires less administration time than the Kiddie SADS, and is for children ages 8-13. A diagnosis of depression and other disorders (e.g. conduct disorder, attention
deficit disorder) can be obtained when using the interview. Both the parent and child are administered the scale which requires about 40 to 60 minutes.

In contrast to the structured interviews, the Bellevue Index of Depression (BID; Petti, 1978), is semistructured and applied to children ages 6-12. This interview is based on the Weinberg criteria discussed in the previous section and contains 40 items which are scored for severity and duration. Administration involves interviewing the child and/or parent for approximately 40 minutes. A shorter version is available requiring less administration time.

The major disadvantage of interviews is the amount of time required to gather information. In a therapist-patient relationship this time factor does not usually present a problem. However, as a screening procedure for identifying possible depressed individuals, the format is prohibitive. If screening of many individuals is the goal, rating scales are much more time and cost effective than interviews.

Rating Scales

A second assessment method is obtaining information from questionnaire type checklists administered to the child or various informants. This method is extensively studied and is often used for diagnosing depression in children. The popularity of rating scales is likely due to the ease of
administration, the availability of normative data, and the possible comparisons across informants. A review of some of the more frequently used questionnaires follows.

The Children's Depression Inventory (CDI; Kovacs & Beck, 1977) which is a modified version of the Beck Depression Inventory used with adults (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) represents an extensively used checklist for assessing childhood depression. It is appropriate for use with children 7-17 years of age. The current version contains 27 items which assess affective, cognitive, and behavioral symptoms. The responses are presented in a forced choice format which contains three possible alternatives scored 0, 1, or 2. The scale appears reliable and valid and has been extensively researched (Carey, Faulstich, Gresham, Ruggiero, & Enyart, 1987; Helsel & Matson, 1984).

In contrast to the multiple response format of the CDI, the Depression Self-Rating Scale (DSRS) utilizes a simpler format. This measure contains 18 items intended for use with children 7-13 years of age (Birleson, 1981). Items for the scale were chosen based on their ability to discriminate between depressed and non-depressed children. The item content reflects affective, cognitive, and behavioral symptoms. Individuals respond to a single statement by endorsing each item on a three-point scale from "most" to "never".
High internal consistency reliability and test-retest reliability coefficients are reported. Furthermore, correlations with the CDI have been high (Asarnow & Carlson, 1985), thus suggesting the two scales are measuring the same construct.

Reynolds has developed two instruments used to identify depressed individuals; the Reynolds Children's Depression Scale (RCDS; Reynolds, 1989), and the Reynolds Adolescent Depression Scale (RADS; Reynolds, 1987). These scales are currently receiving attention from clinicians and researchers. They each contain 30 items which assess a wide range of depressive symptoms. The RCDS is used with children ages 8-12 (Grades 2-7) and the RADS for adolescents ages 13-18 (Grades 8-12). The item content for each scale was specifically selected for use with nonclinic populations (Reynolds, Anderson, & Bartell, 1985). The items are presented in a similar format to the DSRS except a four-point forced choice is used instead of a three-point. The measures were normed on large samples of children and adolescents. High internal consistency and test-retest reliability estimates have been obtained.

In contrast to the forced choice statements of the previous measures, the Children's Depression Adjective Checklist (C-DACL; Sokoloff & Lubin, 1983) is a list of
adjectives endorsed by the rater. The scale was adapted from the adult Depression Adjective Checklist (Lubin, 1967). Two forms are available with each containing 34 items (22 of the items reflecting depressive mood). The normative sample consisted of 50 emotionally disturbed females 13-19 years of age, with split-half reliability reported as high. However, further data is needed to determine the scale's usefulness due to the limited size of the sample.

The Children's Depression Scale (CDS; Lang & Tisher, 1978) is the last of the checklists to be reviewed. This scale is used with children ages 9-16 and incorporates a different format from the other scales. The instrument contains 66 items (48 depressive and 18 positive) each printed on a separate card. The cards are sorted into boxes representing a 5-point scale from "very wrong" to "very right". Six subscales are available, five of which are depressive (affective symptoms, social problems, self-esteem, preoccupation with sickness and death, and guilt) and one which is positive. Internal consistency reliability is reported as high, although the normative data available on the instrument is from a small sample. Additional research is needed to determine the usefulness of the measure.

Many checklists presented in this review are administered to persons well acquainted with the target child (e.g.
parents, teachers). Studies have examined the agreement between informant sources with the results being inconsistent. In several studies, children tended to report more depressive symptoms than their parents reported about them (Angold, Weissman, John, Merikangas, Prusoff, Wickramaratne, Gammon, & Warner, 1987; Kashani, Orvaschel, Burk, & Reid, 1985; Moretti, Fine, Haley, & Marriage, 1985) although the opposite has also been demonstrated (Kazdin, French, Unis, Esveldt-Dawson, 1983; Ivens & Rehm, 1988; Kazdin, Colbus, & Rodgers, 1986; Treiber & Mabe, 1987). In spite of reported inconsistencies between informants, the importance of multiple informants is evident as different perspectives are provided. Each informant aids in providing an understanding of the target individual across multiple settings (Matson & Carey, 1988). Generally, researchers and clinicians agree that multiple informants provide a better understanding of the individual being assessed.

In addition to the measures administered to the child, parent, and/or teacher, one measure has been uniquely designed for use with peers. The Peer Nomination Inventory of Depression (PNID; Lefkowitz & Tesiny, 1980) is administered to classmates. Each classmate nominates a peer as being the best representation of a given item. A child's score on the instrument is the total nominations received
from his/her classmates from a total of 20 items. Internal consistency and test-retest reliabilities are reportedly high and the inventory was significantly correlated to a modified version of the CDI.

The checklists above were designed for specifically examining depression, and in particular, depressive symptoms. However, several measures which include depression subscales are available. The Child Behavior Checklist (Achenbach & Edelbrock, 1978, 1979) and the Personality Inventory for Children (Wirt, Lachar, Kline-dinst, & Seat, 1977) are two such measures which are used frequently. These measures are useful for identifying general psychopathology and as a preliminary assessment to determine what specific areas (e.g. depression) need further examination. Depression may be viewed as a subset of psychopathology requiring more specific types of interventions than treating psychopathology in general. The possibility of specific subsets of depression needs examination for determining if certain interventions may be more effective for specific types of depression than others. In order to determine specific subsets of depression, the relationship of depression to other possible constructs needs examination. One such construct that has been shown to have a relation to depression is social skills. The following section examines assessment and training for specific defi-
cits in social skills, which has been receiving considerable attention in recent years.

SOCIAL SKILLS ASSESSMENT AND TRAINING

Social behavior is an important aspect of people's lives. General adjustment and happiness can be determined by interactions with other persons. This situation is particularly true for children when they are in school, due to the intensive interactions they have with their classmates. Recently, a considerable amount of research has been devoted to the topic due to the significance of social behaviors. In this section, several definitions of social skills terms are provided, followed by a review of assessment techniques and treatments strategies used for increasing appropriate social behaviors.

Definitions of Social Skills

Many definitions of social skills have been offered by numerous researchers. For example, Kelly (1982) states that social skills are identifiable learned behaviors that individuals use in interpersonal situations to obtain or maintain a reinforcing environment. Hersen and Bellack (1977) take this one step further by emphasizing an individual's ability to express both negative and positive feelings in the interpersonal environment without the loss of reinforce-
A similar definition by Matson (1988) states that a socially skilled person is one who can adapt well and avoid conflict both verbally and physically through communications with others. All the definitions seem to indicate that individuals who emit socially skillful behaviors are more likely to gain reinforcers from the environment than if they fail to display these behaviors. However, the stability of these behaviors across time and situation has been a source of controversy.

In the past, a conceptualization of social skills often encompassed one of two views; (1) as a response disposition dependent on the situation and circumstances in which an individual finds him/herself and (2) as a stable trait that remained consistent across time and situations. Therefore, the definition could encompass a wide variety of specific behaviors (e.g. giving proper eye contact, making requests of others, apologizing for incorrect behavior) or be defined in more global terms. However, McFall (1982) reports both of these models are inadequate and offers an alternative conceptualization which views social behavior as more complex than either of these approaches. His "two-tiered" approach consists of (1) examining an organism's information processing (based on prior history, decoding skills, decision skills, encoding skills) which influences his/her behavior and (2) the evaluation by other persons who deter-
mine the competence of the emitted behaviors. His model appears to better account for complexities involved in social interactions than previous models.

Another conceptualization of social skills has been offered by Gresham (1981). He presents a system that identifies four classifications for social skill difficulties. His distinctions for classification are based on whether or not the child possesses the skill and merely fails to perform the behavior adequately or if emotional arousal interferes with the acquisition and/or performance of the skill (e.g. impulsivity, anger, etc.). Therefore, the lack of emitting socially skillful behavior can be due to several factors.

Currently, researchers recognize the study of social skill behaviors is complex and requires examining many factors. The examination of socially skillful behavior needs to begin with evaluation, which is done through assessment procedures. A discussion of these procedures follows.

Assessment of Social Skills

The assessment of social skills has largely been neglected in the literature. Investigators have generally been concerned with developing treatments rather than reliable and valid assessment instruments (Gresham, 1986; Hops &
Greenwood, 1981). Following is a review of the methods developed for assessing social skills behaviors; including 1) checklists, 2) rankings, 3) sociometric instruments, and 4) direct observations.

Checklists

Checklists are a common form of assessment for many childhood problems. They are particularly useful for screening purposes to aid professionals in identifying children in need of services. Evaluating social skills behaviors are no exception and many checklist type measures have been developed to meet this need.

The Social Behavior Assessment (SBA) is among the first instruments developed for use with children (Stephens, 1978). The SBA is a teacher rating scale for evaluating children in kindergarten through eighth grade. Each of the 136 social skills items are rated on a 0 to 3 point scale. The items are grouped into four categories; (1) environmental behaviors, (2) interpersonal behaviors, (3) self-related behaviors, and (4) task-related behaviors. The test developers maintained items that were rated by teachers as important for classroom success. Adequate interrater reliability and content validity have been reported (Stephens, 1980). The instrument has successfully discriminated emotionally disabled children from non-emotionally disabled
children (Strumme, Gresham, & Scott, 1982). However, the SBA is limited by the exclusion of many behaviors that occur in environments other than the classroom.

The Matson Evaluation of Social Skills with Youngsters (MESSY) extends the social behavior beyond those needed for classroom success. The scale items were selected from several general psychopathology instruments, behaviors targeted in social skills studies, observations of children, and discussions with other professionals. The instrument is particularly useful because the behaviors identified in the items can serve as targets for intervention (Matson, 1988). This scale was originally normed on a sample of 744 children and youths between the ages of 4 and 18 years of age (Matson, Rotatori, & Helsel, 1983). A 62 item self-report and a 64 item teacher/parent-report form are available to obtain information from more than one source. The scale has been used successfully with special population groups [e.g. psychiatric inpatients (Kazdin, et al., 1986), hearing impaired (Matson, Macklin, & Helsel, 1985) and visually impaired (Matson, Heinze, Helsel, Kapperman, & Rotatori, 1986)].

A second group of social skills measures (Social Skills Rating System) has recently been developed by Gresham and Elliott (1990), which examine a wide range of social behav-
iors. The SSRS are nationally standardized scales that utilize teacher, parent, and student informants. The teacher and parent versions are appropriate for children and youth from three to 16 years of age (preschool-10th grade), and the student versions are used with students in the third grade and above. The authors report the SSRS serves four purposes: (1) screening for social skills deficits, (2) treatment planning, (3) evaluation of treatment outcomes, and (4) classification. Three domains of behavior are assessed: (1) social skills, (2) problem behaviors, and (3) academic competence. Informants rate each behavior on a three-point scale which reflects a frequency report (Often, Sometimes, Never). A unique feature is the inclusion of a dimension which allows informants to rate the importance of the behaviors on a three-point scale (Critical, Important, Unimportant). This dimension was included to ensure the social validity of the assessed behaviors and provide a starting point for intervention planning. Normative data are available to determine a student's level of social competence. All the forms have excellent reliability and validity and each scale has been subjected to factor analysis, used in test development for eliminating poor items.

The MESSY and the SSRS represent two heavily researched rating scales for social skills assessment. They are both particularly useful because they assess a wide variety of
social behaviors and have good psychometric properties. Other scales are available for the individual who wants to assess specific social skill behaviors, including the Walker Social Skills Curriculum scale (Walker, McConnell, Holmes, Todis, Walker, & Golden, 1983), and the Kohn Social Competence Scale (Kohn, Parnes, & Rosman, 1979).

Rankings

A second method used in social skills assessment is ranking individuals. This method involves having teachers rank order students from high to low on a given skill or trait. Hops and Greenwood (1981) report the procedure involves three steps and should take no more than 15 minutes. In the first step, the teacher lists all of the children in the class. Second, the class is divided into two groups (most or least) based on the skill or trait being rated. Third, the teacher rank orders the students within the two groups. Results have indicated teacher rankings correspond fairly well to behaviors observed in the naturalistic environment (Bolstad & Johnson, 1977; Greenwood, Walker, Todd, & Hops, 1979). These rankings are cost effective and time efficient in selecting children for social skills training; however, they may fail to identify withdrawn children as behavioral deficits (e.g. few interaction, lack of eye contact) as these behaviors are often not per-
ceived by teachers as problematic (Evans & Nelson, 1977). Furthermore, the rankings do not provide enough information for intervention planning.

**Sociometric Instruments**

Evaluations by peers is a third method of assessment often referred to as sociometrics. Several procedures are available within this method; including peer nomination, peer ratings, and a paired comparison technique.

The first sociometric procedure is the peer nomination method, originally developed by Moreno (1953). This procedure involves asking students/patients/residents to name their best friends and/or the peers with whom they prefer to work or play. A given person's score is the number of nominations received and reportedly indicates the level of the child's peer group acceptance or rejection (Andrasik & Matson, 1985; Hops & Greenwood, 1981). Negative evaluations have been added to the positive nominations described above (Moore & Updegraff, 1984), thus, identifying either highly favored or disfavored individuals.

A second sociometric procedure involves having each child rate all their classmates on several behaviors using a three- to seven-point Likert type scale. The procedure provides a distribution of scores across the peer group and ensures each individual is given equal consideration (Green-
wood, Walker, & Hops, 1977). However, the method is time consuming and requires discriminations which may prove difficult for some children (Matson, 1988).

Cohen and Van Tassel (1978) describe the final sociometric procedure called the paired comparison technique, which may be effective with preschool children. In this procedure, a child is presented with picture pairs of all possible combinations of his or her classmates. The child is asked to choose which person is preferred depending on a presented situation. The major drawback of the procedure is the lengthy administration time (Andrasik & Matson, 1985; Hops & Greenwood, 1981).

**Direct Observations**

A fourth method of assessment is direct observations, which provide a dual purpose, because the data is useful for assessment purposes and treatment evaluation. The observation systems used in social skills research vary based on recording technique (e.g. stopwatch, checklist), sampling strategy (e.g. time sampling, continuous time), and the behavior content (e.g. eye contact, peer interactions). Methods chosen for assessment may depend on staff availability, and frequency or intensity of the targeted behaviors.

Direct observations are carried out by identifying
discrete behaviors which are operationally defined. Some behaviors identified for assessment and treatment have included smiling, content of speech, number of words spoken, speech latency, and voice volume (Gresham & Nagle, 1980; Matson & Andrasik, 1982; Gresham, 1981; Gresham, 1982; Matson, 1982; Altmann & Gotlib, 1988). Frequency counts in the natural environment are suggested as one of the most effective methods of assessment (Matson, 1988). Counting specific responses, such as the number of times conversations were initiated, are typical when using this procedure. Despite the advantages of direct observations, they are often not used, due to the expense of time and energy.

As an alternative to direct observations, ratings can be made in an analog situation using behavioral role play tests. This method involves evaluating a child on several behaviors which are emitted through a role play scene. The role plays often consist of a setting narration, and a description of the person interacting with the target child. Standardized role-play scenes, such as the Behavioral Assertiveness Test for Children (BAT-C) (Bornstein, Bellack, & Hersen, 1977) have been developed. The BAT-C consists of nine interpersonal situations in which children with social skills problems are likely to exhibit deficits. The Social Skills Test for Children is a similar measure available for
use with children in the second through sixth grades (Williamson, Moody, Granberry, Lethermon, & Blouin, 1983). With this measure a broad number of social skills scenes, including giving and accepting praise, assertiveness, and giving and accepting help are presented.

These role play measures are particularly useful because (1) low frequency social behavior in the natural environment can't be readily elicited and observed, (2) actual behavior is observed and not someone's perception of behaviors, and (3) they are less expensive than collecting data in the natural environment (Gresham, 1986). However, there are problems with the procedure, as role play performances have not correlated with behavior in the natural environment (Bellack, Hersen, Turner, 1978; Bellack, Hersen, Lamparski, 1979).

In summary, a variety of methods are available for assessing social behaviors. It appears that using several methods and informants provides the most thorough evaluation of an individual. Therefore, sound assessment devices, in terms of reliability and validity, are needed within each method area, and their value needs assessing across informants. Hopefully, identifying individuals who will benefit from given treatments will be enhanced by establishing excellent assessment methods. A brief discussion of treatments and their effectiveness is provided in the
Remediation of Social Skills Deficits

Three theoretical approaches to the remediation of social skills deficits are presented in this review. These approaches do not represent an exhaustive list, but are among the most common. The theoretical treatment approaches for social skills reviewed are operant techniques, social learning approaches, and cognitive behavioral techniques.

The basic principles of operant conditioning involve identifying antecedent and consequent events of target behaviors, and contingently applying reinforcement and punishments based on the behavior emitted. Studies using this treatment approach have targeted a wide variety of social behaviors; including increasing cooperative play (Bryant & Budd, 1984; Hart, Reynolds, Baer, Brawley, & Harris, 1968), increasing verbalizations (Reynolds & Risley, 1968), decreasing aggressive behavior (Pinkston, Reise, LeBlanc, & Baer, 1972), and increasing positive interactions (Strain & Timm, 1974; Strain, Shores, & Timm, 1977).

The usefulness of the operant techniques was demonstrated in one extensive program. Filipczak, Archer, Neale, and Winett (1979) describe a nine year program designed to target academic and social behaviors. The subjects included over 650 junior high school students who exhibited deficits
in social and academic behaviors. The students were taught skills for dealing with school, home, and the community through a curriculum which promoted appropriate interactions with school staff, parents, peers, and persons of authority. Contingency management procedures varied in complexity and provided social and tangible reinforcement for obtaining academic and behavioral objectives. The results indicated significant gains were obtained in academic performance (e.g. grades) and in standardized testing scores. Additionally, the number of disciplinary referrals made to school officials decreased and overall appropriate social behavior increased. This extensive study suggests the operant approach is a valid method for increasing appropriate social behaviors.

A second approach for treating social skills problems is based on social learning theory. This theory states improvements can be made by observing others and practicing social interpersonal behaviors. Considerable emphasis is placed on modeling and role playing within this method, although operant techniques are often used additionally.

Matson, Esveldt-Dawson, Andrasik, Ollendick, Petti, and Hersen (1980) treated four emotionally disturbed hospitalized children between the ages of 9 and 11 using a social learning approach. Their social skills training included
instructions, performance feedback, modeling, role playing, and social reinforcement which were conducted in a group format and utilized natural role-play situations. The authors used a multiple baseline design to aid in evaluating the differential effectiveness of observational learning as compared to direct treatment. They concluded that the observational training was of minimal benefit, while the effects of direct treatment were immediate and generalized to the hospital ward. Some of the improved behaviors included giving compliments, giving help, and making appropriate requests. The results were maintained at a 15 week follow-up.

In a control group study, Gresham and Nagle (1980) evaluated the effectiveness of coaching, modeling, and an abbreviated combination of modeling and coaching with 40 isolated third and fourth grade children. The modeling condition consisted of viewing video tapes of children engaging in the desired behaviors for six (20 minute) sessions. Coaching was limited to teaching rules of social behavior, providing rehearsal with a coach and a peer, and performance feedback. The combination condition utilized abbreviated procedures provided in the two treatment conditions, thus controlling for treatment time. The control condition was having children view video tapes of Wild Kingdom. All treatment conditions were effective and
significantly different from the control group in enhancing social skills. One significant finding was the abbreviated combination condition did not add to the effects of coaching or modeling alone.

Similar results have been obtained using variations of modeling and coaching with learning disabled children (Berler, Gross, & Drabman, 1982; Cooke & Apolloni, 1976), aggressive adolescents (Elder, Edelstein, & Narick, 1979), a deaf adolescent (Lemanek & Gresham, 1984), and delinquent adolescents (Ollendick & Hersen, 1979). While the results have been promising, some limitations have been noted. For example, limited generalization (Berler et al., 1982; Matson, 1988) has been observed as skills learned in treatment sessions have not always occurred in the natural environment. Therefore, it is important to program generalization into the treatment process.

Cognitive behavior techniques represent a third approach which target internal events (e.g. cognition) as a means to enhance social skills. Emphasis is placed on the child's active participation by training self-therapy techniques (e.g. self-reinforcement, self-regulation strategies, decision making procedures) using many different procedures.

One cognitive behavioral procedure is to teach social
problem solving skills (Shure, Spivack, & Jaeger, 1971). These skills are hypothesized to lead to improved overall adjustment. This procedure teaches individuals to recognize and define problems and to generate, evaluate, determine, and implement the best solution. It is thought to work best with older children without developmental disabilities (Matson, 1988).

Christoff, Scott, Kelley, Schlundt, Baer, and Kelly (1985) implemented this type of program with several shy adolescents. They found improved effectiveness in solving problems related to peers and improved conversational skills. These results were confirmed by parents and teachers suggesting the intervention was socially valid.

A second cognitive behavioral method is to teach an individual self-control strategies. Children are taught to control their behavior through self-monitoring, self-recording, and/or self-reinforcement. Camp, Blom, Hebert, and Van Doorninck (1977) used modeling and a self-guidance procedure (e.g. covertly asking; What is my problem? What is my plan? Am I using my plan? How did I do?) to train aggressive children. The modeling aspect was gradually faded and the children began using the self-guidance procedure which subsequently improved their social behaviors. Similar results were obtained by Bornstein and Quevillon (1976) using the procedure with three preschool children.
In summary, there are several proven methods for increasing appropriate social skills. This is best exemplified in a quantitative summary of social skills training with children conducted by Schneider and Byrne (1985). They offer several conclusions based on a meta-analysis of 51 empirical studies from an initial pool of approximately 200 studies. First, they suggest that direct reinforcement leads to the largest improvement in social behavior. Modeling, coaching (instruction as major medium), and cognitive techniques also lead to improvement with the most gains obtained in the respective order they are mentioned. Second, social skills training with children 5 to 10 years of age does not appear as effective as with preschool children or adolescents. However, this pattern was most pronounced with the coaching and modeling interventions, and does not apply to the operant procedures. Therefore, the importance of using operant procedures with children in the 5-10 year age range is evident. Third, the effectiveness of social skills training increases as the number of females increases suggesting gender is a significant variable in treatment outcome prediction. Fourth, future research should go beyond the question of whether or not social skills training is effective to considerations of skill selection, subject selection, choice of technique, and cost-
effectiveness, thus reinforcing the importance of reliable and valid assessment methods.

THE COMBINATION OF DEPRESSION SYMPTOMS AND SOCIAL SKILLS DEFICITS

Theoretical hypotheses are presented in this section followed by data on assessment and treatment which cover the research that examined the combination of social skills and depressive symptoms. This particular section contains several studies with adults due to limited research completed with children. First, the theoretical basis for the relationship is presented.

Among the earlier of the researchers, Ferster (1973) stated that depression resulted from a decreased frequency of positively reinforced activity. He thought this low rate of positive activity resulted from a disruption in one's system of positive reinforcement. Lewinsohn (1974) expanded this idea to stress the importance of response-contingent positive reinforcement. His theory was based on the following assumptions: (1) a low rate of response-contingent positive reinforcement acts as an eliciting stimulus for some depressive symptoms, which is a sufficient explanation for other features of the depressive syndrome (e.g. low rate of behavior), and (2) the total amount of response-contingent positive reinforcement is a function of (a) the number
of potentially rewarding activities, (b) the availability of these activities within the immediate environment, and (c) the skillfulness and rate of emission of interpersonal behaviors that elicit maximum positive reinforcement and minimum punishment. Lewinsohn (1975) speculated depressed persons lacked the skillfulness to elicit interpersonal behaviors which lead to desirable consequences.

Coyne (1976) extended the theory by suggesting individuals who become depressed lack the necessary skills to elicit support from others, particularly when life becomes stressful. He stated that stressful events evoke a strong need for social support. When individuals become depressed, they do not have the ability to elicit this support. The evidence suggesting differences between depressed and nondepressed individuals in social behavior is examined in the following section.

Assessment of Depression and Social Behavior

Studies have been designed to examine many different social behaviors of depressed individuals (i.e., content of message, number of interactions, physical gestures, etc.). For example, Blumberg and Hokanson (1983) studied the social behavior variations of depressed individuals based on the characteristics of the individual with whom they were interacting. Out of an initial pool of 600 female under-
graduate psychology students, 30 depressed and 30 nondepressed persons were identified using the BDI and the short form of the MMPI. The mildly depressed individuals emitted fewer neutral verbalizations (lack of conversational maintenance skills), communicated more self-devaluation, sadness, helplessness, and general negative content than the nondepressed individuals. Emitting negative content has been associated with negative evaluations by others, thus compounding the problems associated with depression (Gotlib & Robinson, 1982).

In contrast to negative evaluations by others, evidence of negative self-evaluations was found in a study by Jacobson and Anderson (1982). They identified depressed and nondepressed undergraduates (based on BDI scores administered one month apart). The two groups were similar on verbal behavior when interacting with a stranger, except for the depressed subjects' more frequent negative self-statements. An additional finding was the depressed subjects emitted a higher rate of non-solicited self-disclosures, even though they did not differ on the total number of disclosures.

Differences between depressed and nondepressed individuals have also been demonstrated within psychiatric populations. Libet and Lewinsohn (1973) examined the interactions of depressed and nondepressed (normals and psychiat-
ric controls) within a small group setting. The subjects were selected from the undergraduate population of the University of Oregon. The depressed individuals initiated fewer interactions, exhibited fewer positive reactions, and their response latencies were longer than the nondepressed persons. Additionally, the depressed males tended to focus their interactions toward one person rather than distributing them among the group members.

While differences are evident between depressed and nondepressed individuals, it is also important to examine how these differences affect other persons. Coyne (1976) studied 45 female undergraduate students who interacted with either a depressed patient, nondepressed patient, or a normal control. The subjects who spoke with depressed patients were consequently more depressed, anxious, hostile, and rejecting than those who spoke to a control subject. Furthermore, the depressed patients induced negative affect in others, even though they were not lower in activity level or rate of positive response. The author concluded that the depressed persons lacked the "special" skills necessary to overcome the effects of their mood induction on others. This lack of skills needs examination among other disorder groups to determine whether it is specific to depressed persons or if other disordered groups also lack these
Some studies have not found social behavior deficits specific to depression. For example, in a study of adults, Youngren and Lewinsohn (1980) identified 75 depressed patients, 69 nondepressed "high MMPI" controls, and 80 normal controls. The depressed subjects engaged in less frequent social activities, were less comfortable during those activities, and gave and received fewer positive interpersonal responses. Furthermore, they spoke slower and softer, gave less eye contact, showed less pleasant and aroused facial expression in small groups, rated themselves more negatively, and received more negative ratings from peers. However, these behavior deficits were not uniquely associated with depression, as many deficits were apparent in the "high" MMPI control group.

While the information presented thus far aids in identifying how depressed and nondepressed differ in social behavior, it has provided little evidence of the predictive ability of social skills deficits for later depression. Three studies have attempted to examine this issue.

In the most recent study, Wierzbicki (1984) administered the BDI, College Self-Expression Scale, Means End Problem Solving Test, and the D30 Depression Scale to 65 undergraduates (41 female, 24 male) on two separate occasions. High depression scores were associated with fewer
appropriate social responses and a greater number of inappropriate responses. When comparing the social skills instruments across the two administrations, only the assertiveness measure of the College Self-Expression Scale added significant variance to the predictive power of the model. While this study suggests a role of social behaviors contributing to depression, the results must be viewed cautiously, due to the study's limitations which are; (1) the subjects were college undergraduates with an unknown level of depression, and (2) the outcome measure for depression (D30 Depression Scale - 30 items from the original MMPI-D Scale) has limited social validity due to the instrument's original purpose which was to discriminate between depressed and non-depressed individuals. Therefore, the scale was not intended to monitor changes in depressive behaviors.

In an earlier study, Sanchez and Lewinsohn (1980) identified 12 depressed outpatients from a psychiatric clinic (ages and other characteristics were not reported) who monitored their level of depression and assertiveness daily for five weeks. Cross-lagged correlations demonstrated that assertive behavior predicted depression the next day, although depression did not predict assertive behavior.

Kazdin, Esveldt-Dawson, and Matson (1982) attempted to determine the presence of a causal relation within a sample
of children. They examined how a positive affect induction experience could alter the performance of social skills. The subjects were 32 psychiatric inpatient children, ages 6-12. Social skills were assessed on two separate occasions. Prior to the second assessment, half of the children were provided with a success experience, while the other half were not. The results showed the children who were given the successful experience showed significantly higher performance levels of socially skillful behavior.

The results of these studies suggest deficits in socially skillful behaviors are related to depression and social skills interventions may be useful with some depressed individuals. However, the data are limited in suggesting a causal relationship between social skills deficits and depression. The area needs further study before any conclusions about the role of social skills deficits in causing depression can be determined.

Other studies with depressed children have yielded results which demonstrated social behavior deficits (Strauss, Forehand, Frame, & Smith, 1984; Lefkowitz & Tesiny, 1980). For example, Kazdin, Esveldt-Dawson, Sherick, and Colbus (1985) identified 62 inpatients (ages 8-13) in a psychiatric facility to study the relation between direct observations of social behavior and depression. Several measures were completed by the children and their
mothers. Additionally, observations were completed during a free-time period. When the parent-rated measures determined group placement (depressed-nondepressed), the identified depressed children engaged in less social activity and exhibited less affective expression (e.g. smiling, frowning, arguing, complaining) than nondepressed peers. In contrast, when the child-rated measures determined group placement, no differences emerged between the depressed and non-depressed groups. The parent-ratings yielded results consistent with data obtained from adult samples, in contrast to the results of the child self-report measures. The authors reported that prior research suggested parent ratings tend to discriminate childhood dysfunction better than child ratings, although both child and parent reported information provide valuable information (Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983).

In a second study, Altmann and Gotlib (1988) obtained different results from the previous study when 20 nondepressed and 20 depressed children were compared on several behavioral observations of social functioning. The two groups were identified from an initial sample of 310 school children based on the Childhood Depression Inventory (CDI) and the Peer Nomination Inventory of Depression (PNID). The depressed children spent more time alone, exhibited more
negative and aggressive behaviors, initiated a greater number of interactions, and were approached by others more frequently. This last finding was particularly significant as the authors concluded that depressed children wanted to interact with the other children, but lacked the necessary skills to maintain an interaction.

In a third study, Wierzbicki and McCabe (1988) administered the CDI and the Matson Evaluation of Social Skills with Youngsters (MESSY) to 46 children (ages 8-14). Their parents completed the MESSY and the Child Behavior Checklist Social Competence scales. The measures were readministered one month later. The first administration of the measures indicated higher levels of social skills were associated with lower levels of depressive symptoms. The CDI scores collected the second time were significantly correlated with all measures of social skills. Activity level, as measured by the CBCL, was not related to subsequent depressed mood. A replication of the results was conducted with an additional 24 children.

Similar results were obtained in an earlier study by Helsel and Matson (1984). In this study, 76 children (ages 4-10) were administered the CDI and the MESSY. The results showed that a higher level of appropriate social skills was related to lower depression scores and high depression scores were related to inappropriate impulsiveness and
assertiveness. Age differences were obtained as the older children tended to endorse more depressive symptoms than the younger children. The authors concluded that there is a strong relation between symptoms of social behavior and depression in children.

In summary, although researchers have concluded that differences between depressed and nondepressed individuals in social skills exist, inconsistencies are evident (e.g. activity level). Furthermore, a similarity between children and adults seems to exist in this area. Additional research needs to identify any differences and clarify the above mentioned inconsistencies.

In spite of our limited knowledge in this area, several studies have been designed to treat depression within a social skills deficit model. In the following section, the treatment studies conducted using social skills training with depressed individuals are reviewed in an attempt to determine the efficacy of following such an approach for treating depression.

Social Skills Training for Depression

In a series of studies, Bellack and colleagues (Wells, Hersen, Bellack, & Himmelhoch, 1979; Hersen, Bellack, & Himmelhoch, 1980; Bellack, Hersen, & Himmelhoch, 1981; Bellack, Hersen, & Himmelhoch, 1983; Hersen, Bellack,
Himmelhoch, & Thase, 1984) have examined treating depression with social skills training. In the first study (Wells et al., 1979), four depressed adult, female patients were administered several self-report instruments (BDI, Lubin's Depression Adjective Checklist, Wolpe-Lazarus Assertiveness Scale) before, during, and after treatment. A psychiatrist rated them on the Hamilton Rating Scale and a behavioral assessment was completed using 17 interpersonal situations from the Behavioral Assertiveness Test-Revised. A hierarchy of anxiety provoking situations was developed for use during treatment. The sessions consisted of role-playing, instructions, modeling, feedback, and social reinforcement. Each patient showed improvement in eye contact, speech duration, response latency, intonation, and assertiveness.

In a second study, Hersen et al. (1980) replicated the results of the first study with five additional female patients. They reported that patients were more effective interpersonally when they received social reinforcement from others, which led to increased self-esteem, diminishing depression, and a reduction of vegetative symptomatology. These two studies were followed by a more extensive treatment comparison study.

In the comparison study, Bellack et al. (1981) contrasted four treatments; drug (amitriptyline), social skills
training plus drug, social skills training plus placebo, and psychotherapy plus placebo with 72 depressed women. Patients were randomly assigned to one treatment group for 12 weekly sessions. Fifty of the 72 subjects completed the treatment and the other 22 subjects dropped out of the study for various reasons. The groups did not differ on treatment effectiveness for those who completed the study. The most significant result was the drop-out rates between the treatment groups. The drug group's drop-out rate was over 25% higher than any other group. The authors speculated that the early drop-out rate was due to a lack of support, encouragement, and warmth gained in other groups. The social skills training with placebo group yielded the lowest drop-out rate.

The behavioral data of 125 depressed women and 25 normal controls is reported in a second paper (Bellack et al., 1983). Several behavioral measures (voice tone, gaze, posture, request compliance) indicated that depressed women did not differ from normal controls. However, the subjects in the drug and psychotherapy groups continued to exhibit deficits on response duration, gaze, overall assertiveness, speech duration in positive situations, and gaze in negative situations. In general, the Social Skills Training groups were significantly better than the drug group on every measure except speech duration and tone for negative situa-
tions. Also, the SST groups were better than the Psychotherapy group (although not statistically significant) on every measure.

In the report of the completed study, Hersen et al. (1984) summarized the results of 125 depressed patients after a total of 9 months of treatment (3 months of weekly sessions and 6 months of maintenance sessions). This report partially confirmed the results from the earlier report (Bellack et al., 1981). No statistical differences between the four treatment groups were obtained, although the social skills training group yielded the highest percentage (49%) of improved individuals as compared to the poorest rate (23%) in the drug group.

This lack of differential treatment effectiveness was also found by Zeiss, Lewinsohn, and Munoz (1979). In this study, 66 depressed patients were treated using three different treatment modalities (interpersonal behavior, pleasanant events, cognitive). The subjects were identified based on MMPI scores and interviews. All the treatments had non-specific effects and each was effective in alleviating depression. The authors attributed the results to providing self-help skills rather than any specifics of a given treatment. Another possible explanation for evaluation pertains to differences that may result if individuals are placed in
treatment groups according to their specific deficits, rather than providing random treatment assignment. However, little data is available on specific assessed deficits with treatment assignments.

One study examined this area using nine depressed women; three with social skills deficits, three with irrational cognitions, and three with both problems (McKnight, Nelson, Hayes, & Jarrett, 1984). All the subjects received four sessions of social skills training and four sessions of cognitive therapy. The subjects improved only in the treatment modality specifically related to their deficits. Subjects with problems in both areas gained equally from both treatments. This study indicates the importance of providing specific treatments based on the assessed deficits of depressed individuals.

The efficacy of treating social behaviors of depressed individuals has been demonstrated in special populations. Matson (1982) targeted several social behaviors for treatment in four depressed mentally retarded adults. All the subjects improved significantly on the target behaviors, and gains were maintained at follow-up. In a second study by Frame, Matson, Sonis, Fialkov, and Kazdin (1982), a ten-year-old depressed boy was treated based on the behaviors which characterized his depression (inappropriate body position, lack of eye contact, poor speech, and bland
affect). The treatment consisted of instructions, modeling, role-playing, and feedback. Treatment was effective and the results were maintained at a 12 week follow-up.

In another study, Petti, Bornstein, Delamater, and Conners (1980) assessed and treated a depressed ten-year-old girl who exhibited severe social behavior problems. Social skills training was begun (which consisted of modeling, instructions, rehearsal, and performance feedback) after other interventions (e.g. milieu, dynamic, antidepressant medication) were ineffective. The specific behaviors targeted for intervention were eye contact, smiles, duration of speech in response to compliments, and inappropriate requests. Treatment consisted of nine 15 minute sessions conducted over a three-week period. All four behaviors improved during the treatment phase, with gains maintained at a six-week follow-up, except for a decrement in the duration of speech.

Based on these findings it would appear that social skills training with depressed individuals deserves further study given its effectiveness. However, further research should be conducted before conclusions can be made about the efficacy of such an approach (Kaslow & Rehm, 1983). The current data have not been sufficient to identify the most beneficial factors in social skills training, although
McKnight et al. (1984) attempted to utilize this method and obtained promising results.

Additionally, many problems are evident in the research (i.e. small sample sizes, inconsistent results, not reporting treatment integrity, limited socially valid measures, lack of examining deficits from a developmental perspective) and longer follow-up data is needed to determine the generalizability of treatments beyond the active treatment phase.

PURPOSE OF THE INVESTIGATION

The purpose of this investigation was to study the relationship between depressive symptoms and social skills in children and youth. Depression is a prevalent disorder in children and determining if social skills deficits are present will enhance our understanding of behavioral correlates of the disorder. Increasing our understanding may aid in determining the usefulness of conceptualizing depression within a social skills deficit framework for possible interventions. In this study, depressive symptoms rather than depression as a disorder are examined due to the nature of the population being studied ("normal" students). Finding behaviors and possible psychological constructs related to depression is particularly important when attempting to develop treatments to remediate the disorder. Furthermore,
childhood depression is not as transient as was previously thought and may prove to be a precursor to adulthood depression, which enhances the importance of remediation in children (Kovacs et al., 1984).

Several studies have examined variations in the manifestation of depressive symptoms as a function of age and gender differences. However, the data are limited and in need of further examination. An example of the limitations of the data is that age specific skills or deficits which may be assessed by one instrument but not another have not been examined. Therefore, it is unknown whether a particular childhood depression measure or social skill measure should be used within a particular age group.

Social skills remediation has proven a viable treatment for many problems in children (Schneider & Byrne, 1985). Because the treatment is useful, it would indicate that the approach may be viable for depression treatment with children, particularly since it is as effective as other treatments with adult populations. However, little research has been designed to identify the depressed individuals who may benefit from this approach. In fact, little research has been conducted to determine if there is an association between depressive symptoms and social skills deficits in children. Furthermore, differences across ages within the children and youth need examination to determine if the
relation is consistent for all these individuals, as differences of depressive symptoms have been suggested in other studies (Achenbach & Edelbrock, 1981). A systematic study using a variety of proven assessment checklists for depression and social skills has not been conducted. Comparing the results across the instruments will aid in determining which instruments, if any, identify a depression and social skills relation. Additionally, there may be differences across ages for which assessment devices are best suited to yield this relationship. Clarifying these issues will aid in leading to better assessment techniques for determining which depressed persons exhibit social skills deficits.

Among adults, identifying specific deficits and basing treatments on those deficits has proven effective (McKnight et al., 1984). Furthermore, identifying whether self-report from children or parent-report provide the stronger relation when examining the association between these constructs will help clarify the information needed in the assessment process.

In summary, little has been done to evaluate the association between social skills and depressive symptoms as a function of developmental level, from childhood through adolescents, as assessed by different informants. This factor was the focus of the study.
The following areas were evaluated: First, the overall relation between depressive symptoms and social skills deficits using three measures of depressive symptoms (CDI, RADS or RCDS, DSRS), two measures of social skills (MESSY and SSRS), and two informants (self and parent). Second, the consistency of the relation was examined across depression measures, thus evaluating how social skills are related to each measure of depression. Third, the consistency of the relationship was examined comparing child (self-report) and parent ratings. Fourth, an examination of the informants and constructs was conducted to determine if more of the variance could be accounted for when using the child self-report of depressive symptoms and the parent-report of social skills (this approach assumes the self-report provides a better representation of internal symptoms, and the parent-report is a better indication of overt behavior). Some research has suggested children are better informants of symptoms related to internal experience and parents (or significant others) are better informants of overt behaviors (Edelbrock, Costello, Dulcan, Conover, & Kalas, 1986). Fifth, the relationship was examined across grade levels to determine if the relationship is significant for all three grade-groups and to determine if the relationship differences are significant between grade groups. Sixth, the relationship was examined across gender to determine the
significance for boys and girls and if a difference between boys and girls exists. Seventh, a determination of whether or not there is an interaction between grade group and gender on the relationship between depressive symptoms and social skills was conducted.

METHOD

Subjects

Subjects were 158 school-age children and adolescents. There were 16 third grade (7 boys, 9 girls), 25 fourth grade (11 boys, 14 girls), 26 sixth grade (14 boys, 12 girls), 40 seventh grade (16 boys, 24 girls), 28 ninth grade (15 boys, 13 girls), and 23 tenth grade (15 boys, 8 girls) subjects. The number of subjects was chosen based on a recommendation of approximately 20 subjects for each variable for accurate interpretation of a canonical correlation (Stevens, 1986). In this study, eight variables are represented in the model suggesting approximately 160 subjects.

Participants were recruited from three public schools in the Baton Rouge and surrounding areas. However, the original high school students identified for the study were withdrawn by the administrators of the school. The students who were withdrawn would likely have had similar demographic characteristics to the younger subjects. Unfortunately a similar population was not available. Therefore, the LSU
Laboratory School was chosen as an alternative population for this grade-group. The adolescents at the Laboratory School who participated in the study were from higher socioeconomic status families and were mostly white subjects (see Table 2 for sample characteristics by group). However, race and socioeconomic status have not led to significantly different scores in most of the available studies with the instruments used in this study (Reynolds, 1987, 1989; Helsel & Matson, 1984; Matson, Rotaton, & Helsel, 1983; Nelson, Politano, Finch, Wendel, & Mayhall, 1987; Fauber, Forehand, Long, Burke, & Faust, 1987; Doerfler, Felner, Rowlison, Raley, & Evans, 1988) suggesting these variables are not likely to influence the results significantly. In this study, the influence of race and socioeconomic status is confounded with grade-group. Differences between the groups based on demographic variables were evaluated statistically and are reported in the result section. Informed consent was required prior to study participation.

Instrumentation

In addition to the consent form and a one page demographic sheet, three measures for assessing depressive symptoms (Children's Depression Inventory, CDI; Reynolds Children's Depression Scale or the Reynolds Adolescent Depression Schedule, RDS; Depression Self-Rating Scale,
DSRS) and two measures for assessing social skills (Matson Evaluation of Social Skills with Youngsters, MESSY; Social Skills Rating Scales, SSRS) were administered to ensure an adequate sample of the behavior domains of each (see appendices for instruments, demographic sheets, and consent forms). These measures were chosen for three reasons. First, the format of the inventories serve the purpose of gaining information from a variety of sources (i.e., self-report, parent-report). Second, the measures are generally considered content valid samples of childhood and adolescent social skills and depression. More specifically, these particular social skills measures sample behaviors across situations (which is needed in this study), whereas many other available instruments are more situation specific (e.g. classroom behaviors only). Finally, the psychometric properties of the inventories (i.e., reliability and validity) have been adequately researched and demonstrated as satisfactory. Following are descriptions and specific psychometric property information of the measures.

**Depression Measures**

*Children's Depression Inventory (CDI).* The CDI is a 27 item self-report scale which utilizes a three-alternative forced-choice response format. It has been used with children ranging in age from 7-17 years. Internal consistency
reliability has been moderately high (alpha = .71 to .90) (Kovacs, 1981; Reynolds et al., 1985) and adequate test-retest reliability has been demonstrated (r = .74 to .83 after three weeks) (Kovacs, 1981; Smucker et al., 1986). Correlations between CDI Scores and clinicians' global ratings of depression were moderate (r = .55), suggesting the validity of using the measure for assessing depression. The measure has been used to obtain information from several informants (Helsel & Matson, 1984; Carey et al., 1987; Moretti, Fine, Haley, & Marriage, 1985) and normative data are available based on 1,463 children in grades 2 through 8 (Finch, Saylor, & Edwards, 1985). Factor analytic studies have been completed using self-report (Carey et al., 1987) and teacher-report data (Helsel & Matson, 1984).

Reynolds' Depression Measures. Reynolds has developed two separate instruments for use with school-age children and adolescents (RCDS for school-age children, RADS for adolescents). The two instruments are very similar with all but two of the items on each scale measuring the same symptomatology (25 items are worded exactly the same). Item selection was based on symptoms for major depression and dysthymia in the DSM III and the RDC. Each scale contains seven items that are inconsistent with depression (e.g. I feel happy) and consequently are reverse scored. These items
were included to provide a check for either positive or negative response sets. Following is a complete description of each scale.

**Reynolds' Child Depression Scale (RCDS).** The RCDS is a 30 item depression scale, 29 of which use a forced choice format (Almost Never, Sometimes, A lot of the time, All the time). The last item uses a response format consisting of five faces depicting emotions ranging from happy to sad based on the facial expression. The scale is designed to assess depressive symptoms in children ages 8-12. For children under 10 years of age, items are administered orally. The standardization sample consisted of 1,620 children in grades 2 through 7 (Reynolds, 1989). Internal consistency reliability estimates using coefficient alpha have been high (alpha = .87-.90). Test-retest reliability results indicated a two week interval coefficient of .82, and four week coefficients from .81-.92. The validity has been demonstrated by correlating the scale with the CDI (r = .68-.79) and with clinical interviews (r = .76). Additionally, the instrument has been shown sensitive to depression treatment outcome (Stark, Reynolds, & Kaslow, 1987).

**Reynolds' Adolescent Depression Scale (RADS).** The RADS is a 30 item depression scale which utilizes a forced
choice four-point format (almost never, hardly ever, sometimes, most of the time). The instrument was specifically designed to assess depression symptoms in adolescents ages 13 through 18 years and not to provide a diagnosis of a depressive disorder (Reynolds, 1987). Over 8,000 adolescents have completed the scale with high reliability and validity coefficients being demonstrated. Internal consistency reliability estimates using coefficient alpha have been high (alpha = .90-.95) with depressed and normal samples. Test-retest reliability coefficients yielded a .80 correlation for a six-week interval, .79 for 12 weeks, and .63 for a one year interval. The validity of the scale measuring depression appears promising as it has been compared with other self-report scales and clinical interviews yielding high correlations (r = .68-.90). Furthermore, the RADS is sensitive to treatment changes in depressive symptomatology (Reynolds & Coats, 1986), thus making the instrument appropriate for assessment purposes and in treatment outcome.

Depression Self-Rating Scale (DSRS). The DSRS is an 18 item measure with a three-point response format (2- most, 1- sometimes, 0-never). The original normative sample consisted of 17 depressed and 17 nondepressed subjects from a clinical population of children ranging in age from 7 to 13 years (Birleson, 1981). Items were chosen from an initial
pool of 37 items with the 18 items of the final scale being chosen based on their ability to discriminate between depressed and nondepressed children (criterion based). The test-retest reliability of the final scale was adequate ($r = .80$) and internal consistency reliability based on split-half was high ($r = .86$). Asarnow and Carlson (1985) report the DSRS may have advantages over the CDI because the scale is shorter and the response format is much simpler for children to comprehend (particularly for children exhibiting psychopathology). They examined the usefulness of the DSRS in a study of 82 children ranging in age from 6-13 years, and found that the DSRS could be used to correctly classify 77% of the children. A more recent study confirmed this classification rate with 155 subjects between the ages of 8 and 14 years (Birleson, Hudson, Buchanan, & Wolff, 1987). Additionally, high correlations between the scale and the CDI ($r = .81$), have been demonstrated, suggesting the validity of using the instrument for measuring childhood depression.

For a comparison of the item content between the depression measures used in the study, the Beck Depression Inventory, and the DSM-III-R criteria, see Table 3.
Social Skills Measures

Matson Evaluation of Social Skills with Youngsters (MESSY). Teacher/Parent and Self-Report. The MESSY is a rating scale intended for assessing the social behavior of children (Matson et al., 1983). The original sample utilized for the development of the scale were 744 children between 4 and 18 years of age. The self-report form was completed by 422 children and 322 children were rated by teachers. The 92 original items were decreased to 62 for the self-report version, and 64 for the teacher/parent-report version after inter-rater reliability was calculated. Two-week test-retest reliability yielded adequate results (self-report $r = .50$; teacher/parent $r = .55$). Both report forms were then subjected to factor analysis. Items were retained on a factor when a 0.30 or greater loading was obtained. The factors contained on the self-report form are appropriate social skill, inappropriate assertiveness, impulsive/recalcitrant, overconfident, and jealousy/withdrawal. In contrast to the self-report forms, the teacher/parent report yielded two factors (inappropriate assertiveness/impulsiveness, appropriate social skills). The MESSY scores used in the study were a composite of the scores from the factors.

Social Skills Rating System (SSRS). The SSRS represents a
group of scales intended to measure social skills, problem behaviors, and academic competence. In this study, only the social skills scales were examined. The original form of these scales was called the Teacher Rating of Social Skills (TROSS) (Clark, Gresham, & Elliott, 1985), which has since been subjected to numerous revisions (Gresham & Elliott, 1990).

All the forms of the SSRS were standardized on a national population of over 2000 children and youths. Internal consistency estimates using coefficient alpha ranged from .83 to .94 for the total social skills score across parent, teacher, and student self-report forms. Factor analytic studies of the parent-report forms yielded four factors labeled Cooperation, Assertion, Responsibility, and Self-Control. The self-report forms produced four factors also, Cooperation, Assertion, Empathy, and Self-Control. Internal consistency estimates on the factor scale scores ranged from .51 to .93 with a median internal consistency estimate of .72. In one study, the scales discriminated between mildly handicapped and nonhandicapped groups (Gresham, Elliott, & Black, 1987) on social skills behaviors. In this study, test-retest reliability over a four-week period for the parent-report version was .87 while student self-ratings yielded a reliability coefficient
of .68. Inter-rater reliability coefficients between parent-report and student self-ratings were variable. For secondary school students, the ratings correlated .36, but only .10 for elementary school students. The parent-report and self-report versions, for use with elementary age and secondary school age students, were used in this study (four total forms).

Procedure

In order to obtain the 158 subjects for study, 13 classrooms were sampled. Students were all told the study was about feelings and behavior. After a brief (5 minute) introduction in which they were asked to participate in the study, they were each instructed to take home a packet of materials for his/her mother to complete. The packets were returned to the student's teacher after his/her mother completed the forms. The packets included a consent form demographic sheet, three measures of depression and two measures of social skills behaviors. After the packets were returned, self-ratings were obtained by asking the subjects to rate themselves. All the measures were presented in a random order for both parent and self-ratings. For third and fourth grade students, all items were read by the examiner during class-time to aid in their comprehension of the items. The sixth through tenth grade students completed the
self-report items at their own pace during class-time with the examiner present to answer any questions.

RESULTS

Demographic Characteristics Across Grade and Gender Groups.

A series of one-way analyses of variance (ANOVA) were run. Four separate analyses were conducted examining socio-economic status (SES) and race differences based on gender and agegroups. A significant difference between agegroups was obtained when examining socioeconomic status; F(2,132) = 38.99, p<.001. It was found on the post hoc results that the oldest group (M = 1.58, indicating high SES) was significantly different from both the younger groups (M = 3.30 & 3.00, respectively). A significant difference between groups was obtained when examining race, F(2,155) = 25.46, p<.001, with post hoc analysis indicating all groups were significantly different from each other, with more whites contained in the groups as the age of the subjects increased (M = 1.68, 1.29, 1.06, respectively from oldest to youngest with 2 = black and 1 = white).

The following analyses were completed to determine differences between gender groups. A significant difference between males and females was found when examining socioeconomic status, F(1,133) = 8.21, p<.01, with males (M = 2.27) obtaining scores indicating a higher SES than females (M =
2.87). In contrast, race was not significantly different between the groups, \( F(1,156) = 3.61, \ p > .05 \). Further analyses examining the influence these demographic variables have on the results of the study are reported in the section entitled The Relation Between Each Depression Score and Social Skills Scores, Age, and Gender.

Reliability of Instruments.

For determining the reliability of the instruments used in the study with the current sample, Cronbach's alpha internal consistency reliabilities were calculated on each measure. The results of these calculations are presented in Table 4. All alpha coefficients were equal to or greater than .80 except the parent-report version of the Depression Self Rating Scale (DSRS) \( (\alpha = .71) \). This coefficient was considered inadequate for the study due to the large amount of error variance (50%) in measurement with this sample since other depression measures with lower error variances were available. Therefore, all DSRS scores were eliminated from further analyses.

Validity of the Instruments

To determine the validity of the two constructs (depression and social skills) measured in the study, a multitrait-multimethod matrix paradigm was used according to
the research presented by Campbell and Fiske (1959). Using this paradigm, four correlational matrices were completed and are presented in Table 5. Each matrix represents one of four different combinations between the depression measures and social skills measures used in the study. Four matrices were needed to present the data in a form consistent to the model presented by Campbell and Fiske (1959) (two or more methods for measuring two or more traits). Each matrix contains reliability coefficients and correlation coefficients. In using Campbell and Fiske’s terminology, the reliability coefficients represent examining the same trait using the same method (monotrait-monomethod). The correlation coefficients represent examining three combinations of variables; 1. the same trait using different methods (monotrait-heteromethod) or convergent validity; 2. a different trait using the same method (heterotrait-monomethod) or method variance, and 3. a different trait using different methods (heterotrait-heteromethod) or discriminant validity. Ideally, the highest coefficients are obtained in the monotrait-monomethod diagonal of the matrix and decrease in the above presented order to establish the validity of the traits measured.

An examination of Table 5 and 6 reveals the coefficients of all four matrices are in the same descending order (monotrait-monomethod, heterotrait-monomethod, monotrait-
heteromethod, heterotrait-heteromethod) suggesting method variance accounts for more variation than the traits measured. The one exception is in the matrix that examines the Reynolds Depression Scales and the Social Skills Rating System scores which indicates the method variance and trait variance are very similar.

To more fully examine the data from the study and expand the MTMM model, Table 7 contains all the internal consistency reliabilities and possible correlations of all the instruments used for the analyses. The alpha coefficients are presented in the top diagonal and can be described as monotrait-monomethod-monoinstrument in keeping with the original MTMM terminology and expanding the model (same trait, method, and instrument). The same instrument can be used to derive scores from the parent or self-report version of the instrument; whereas, different instrument refers to measuring the same or other trait with two different instruments (e.g. CDI & RDS).

The internal consistency reliability coefficients were higher than any of the correlations and set the upper limit for possible meaningful correlations. In addition to the internal consistency coefficients, the Pearson correlation coefficients presented in the Table 7 can be divided into five different groups; correlations based on 1. different
instruments, same informant and trait (monotrait-monomethod-heteroinstrument), 2. same instrument and trait, different informant (monotrait-heteromethod-monoinstrument), 3. different instrument and informant, same trait (monotrait-heteromethod-heteroinstrument), 4. same informant, different instrument and trait (heterotrait-monomethod-heteroinstrument), and 5. different instrument, informant, and trait (heterotrait-heteromethod-heteroinstrument).

The monotrait-monomethod-heteroinstrument coefficients were expected to yield the second highest correlations of the six total types of coefficients and the monotrait-heteromethod-heteroinstrument the fourth highest correlations in keeping with the original pattern of coefficients desired by Campbell and Fiske (1959). These are the two types of coefficients added to expand the model.

As suggested, the monotrait-monomethod-heteroinstrument coefficients were the second highest (.61 to .86). The third highest were the heterotrait-monomethod-heteroinstruments coefficients (-.34 to -.54). The negative correlations indicate high scores on one construct suggest low scores on the other as expected. These high correlations indicate the method (source of the information) variance is higher than ideal in the MTMM model. The fourth highest coefficients were the monotrait-heteromethod-monoinstrument (.30 to .48). The fifth highest were the monotrait-
heteromethod-heteroinstrument coefficients (.27 to .33). The lowest were the heterotrait-heteromethod-heteroinstrument coefficients (-.13 to -.30).

The results are consistent with the guidelines for MTMM and the expanded model except for heterotrait-monomethod-heteroinstrument coefficients. In the case of social skills and depression scores, it appears congruent informants (either parent or self) account for more variation in scores than the trait measured (depression or social skills).

Obtained Scores in the Study Versus Normative Data

Means and standard deviations for the depression and social skills measures are presented in Table 8. The data for the depression measures suggest that this sample is generally, although not entirely consistent with other "normal" samples. On the CDI the third and fourth grade subjects generally scored consistent with other normal samples (Smucker et al., 1986; Finch et al., 1985; Kaslow, Rehm, & Siegel, 1984; Doerfler et al., 1988) and lower than clinical samples (Nelson et al., 1987; Kazdin, 1989). The sixth and seventh grade males obtained scores consistent with "normals" (Doerfler et al., 1988) and the females higher than "normals" (Saylor et al., 1985; Smucker et al., 1986), although lower than clinical samples (Nelson et al., 1987; Kazdin, 1989). The ninth and tenth grade subjects
obtained scores lower than normative samples (Doefler et al., 1988; Smucker et al., 1986).

Similar results were obtained on the RDS (Reynolds, 1987, 1989). The youngest group obtained scores consistent with the normative sample as did the females in the sixth-seventh grade group. The males in the sixth-seventh grade group obtained slightly lower scores than the normative sample. The oldest grade group obtained scores approximately 1/2 standard deviation below the normative sample.

Modification of Total Depression and Social Skills Scores for Further Analyses

Several items on the instruments were redundant and included on measures of both constructs (depression and social skills). When this occurred, the redundant item was eliminated from the instrument considered least characteristic of that item. For example, the number of friends and fighting with others are the content of two items from the Children's Depression Inventory. These items were considered social skills items rather than "pure" depression items and were, therefore, eliminated from the CDI in further analyses (see Table 9 for a list of the final item numbers that were used in calculating the composite scores used in the study and the appendices for the actual item content).

Eliminating redundant items across constructs was done
to avoid inflating the relation between social skills and depression. Item overlap has been noted to lead to spuriously high relationships between reported constructs (Reynolds et al., 1985). Table 10 contains the means and standard deviations for the composite scores after eliminating the redundant items.

**Overall Relation Between Reported Depression Scores and Social Skills Scores**

A canonical correlation analysis was performed between the depression variables (parent and self-report scores from the Children's Depression Inventory and Reynolds' Depression Scales; RADS & RCDS) and the social skills variables (parent and self-report scores from the Matson Evaluation of Social Skills with Youngsters and Social Skills Rating System). For the depression variables, high scores reflect higher levels of depression and conversely low scores reflect lower levels of depression. For social skills measures, high scores reflect a high social skill level and low scores reflect a low level of social skill.

The first canonical correlation was .58 (34% of variance) \( p < .001 \); and the second was .49 (24% of variance) \( p < .001 \). The remaining two canonical correlations accounted for less than 8 percent of the variance and were not considered appropriate for interpretation (Tabachnick & Fidell,
Analyses of the two pairs of canonical variates that accompany the two canonical correlations are presented in Table 11. Shown in the table are correlations between the variables and the canonical variates, standardized canonical variate coefficients, variance accounted for by the canonical variates, redundancy and the canonical correlation for each variate. The total percent of variance and the total redundancy indicate that the canonical analysis is approximately equally efficient for each set of variables. The size of the canonical correlations indicate adequate variance for interpretation of both canonical variates.

Using .35 as a cutoff correlation for interpretation, all depression variables were relevant to the first canonical variate in the following order with the highest correlation presented first; parent-report CDI, parent-report RDS, self-report CDI, self-report RDS. All the social skills measures were relevant to the first canonical variate in the following order with highest correlation presented first (all correlations are negative); parent-report SSRS, parent-report MESSY, self-report MESSY, self-report SSRS. These first canonical variates suggest individuals with high scores on one construct (depression or social skills) have low scores on the other construct.

The second canonical variate from the depression
measures was composed of self-report CDI and self-report RDS scores, while the corresponding social skills measures were self-report SSRS and self-report MESSY scores. Taken together these variates suggest low scores on self-report measures of one construct are associated with high scores on self-report measures of the opposite construct. This second variate appears to be specific to self-report measures. This result is not surprising given that parent-report measures were correlated higher with the first canonical variate than the self-report measures.

The Relation Between Each Depression Score and Social Skills Scores, Age, and Gender.

Regression analyses were performed between depression scores (dependent variable) and grade level, gender, and the interaction of these variables (independent variables). Regression models were used to examine these variables for several reasons. First, regression allows one to create a model using several independent variables (e.g. social skills, grade, gender, interaction of grade and gender) to predict a dependent variable (e.g. depression) and provides information about how much of the variance is accounted for in the dependent variable by the total model (thus providing a fuller explanation of the dependent variable than if independent variables were used separately). Second, the
certainty of the effects of a given independent variable is enhanced when using multiple regression because the distorting influences of the other variables is removed (Lewis-Beck, 1985). Third, regression allows the use of information from continuous variables without the loss of information associated with reducing to discrete categories (e.g. actual grades rather than grade groups) and continuous variables can be used in conjunction with dichotomous variables (e.g. gender). Fourth, variables can be combined to represent an interaction effect and be added to the model. In this case, the interaction between grade and gender was included.

Hierarchical regression analyses were performed between depression (dependent variable) and grade level, gender, socioeconomic status, race, and reported social skills (independent variables). Hierarchical regression analyses were chosen due to the unequal representation in socioeconomic status and race (nuisance variables) across groups (based on grade level). These two variables were entered into the equation first to control for these effects.

Overall, the four depression variables were separately regressed on a set of predictor variables consisting of socioeconomic status, race, two parent-report social skills measures (MESSY, SSRS), two self-report social skills measures (MESSY, SSRS), grade, gender, and the cross product
of grade and gender. Table 12 displays the correlations between these predictor variables. The correlations were low to moderate, decreasing the likelihood of multicollinearity and confirms the appropriateness of the analyses. For all the analyses, socioeconomic status and race were non-significant and the overall results were significant (see Table 13). Correlations between socioeconomic status, race, and the four social skills measures by each grade group are contained in Table 14.

Race and socioeconomic status were excluded from further analyses and standard multiple regression analyses were performed using the remaining predictor variables because they did not contribute significantly to the prediction of depression.

The first analysis involved predicting self-report CDI scores from self-report MESSY and SSRS, parent-report MESSY and SSRS, grade, gender, and the cross product of grade and gender. The result was significant; \( F(7,149) = 9.00, p<.001 \) with two variables contributing significantly to the prediction of the depression score; self-report SSRS (\( p<.01 \)) and self-report MESSY (\( p<.01 \)). The total model accounted for 29.7% of the variance. Based on these data, the self-report social skills scores appear to be significant predictors of self-report CDI scores.
The second analysis involved predicting parent-report CDI scores from the same predictor variables as the previous analysis. The result was significant; $F(7, 149) = 13.81, p<.001$. Parent-report SSRS contributed significantly to the prediction of parent-report CDI ($p<.001$) with all other predictor variables nonsignificant. Overall, the model accounted for 39.4% of the variance. This result suggests parent-report SSRS is a significant predictor of parent-report CDI scores. See Figure 1 for a graphic representation of this result, which is a representative example of the significant results from predicting depression from social skills.

The third analysis involved predicting self-report RDS scores from the predictor variables. The equation yielded a significant overall prediction; $F(7,149) = 8.04, p<.001$. Self-report SSRS ($p<.01$) and self-report MESSY ($p<.001$) were the significant predictor variables. The model accounted for 27.4% of the variance suggesting self-report social skills measures are significant predictors of self-report RDS scores.

The fourth analysis examined predicting parent-report RDS scores from the same predictor variables as the previous three analyses. The overall equation was significant; $F(7,149) = 11.83, p<.001$. The model accounted for 35.7% of the variance with parent-report MESSY ($p<.001$) and parent-
report SSRS ($p < .02$) being the significant predictor variables. This result suggests parent-report SSRS and parent-report MESSY significantly predict RDS scores.

The overall results of these four regression equations suggest that social skills measures significantly predict depression scores if the informants are the same for each of the constructs measured. In these analyses grade level, gender, and the interaction of grade level and gender were not significant in predicting any of the depression scores.

Consistency of Relation Between Social Skills and Depression Scores Within Each Grade Group

Variability between the grade groups on the different social skills measures was examined to determine which social skills measures are significant predictors of depression within each grade-group. Separate regression analyses were completed for each grade-group by predicting each depression score from all four social skills scores. A significance value of .01 was chosen due to the number of analyses which increases the possibility of finding differences from error. As mentioned earlier, the correlations between the social skills measures across grade group are presented in Table 14.

In the group composed of third and fourth grade children, the equation for predicting the self-report CDI score
was significant; \( F(4,36) = 5.858, p<.001 \). The model accounted for 39.4% of the variance with the MESSY self-report score \( (p<.001) \) the only significant predictor. The model for predicting the parent-report scores was not significant.

Similar results were obtained when predicting the Reynolds' Depression Scale Scores. For the self-report, the overall equation was significant; \( F(4,36) = 4.014, p<.01 \), accounting for 30.8% of the variance. The MESSY \( (p<.01) \) self-report was the only significant predictor variable. The model for predicting parent-report scores was not significant.

The results from the sixth and seventh grade children were significant for predicting all four depression scores. The equation for predicting the self-report CDI scores \( [F(4,60) = 4.917, p<.01] \) accounted for 24.7% of the variance. The self-report SSRS \( (p<.01) \) was the only significant predictor variable. Similar results were obtained when predicting RDS scores \( [F(4,60) = 5.304, p<.001] \), which accounted for 26.1% of the variance. The SSRS self-report \( (p<.01) \) was the only significant predictor.

In contrast to the younger group, the regression equations for predicting parent-report depression scores were significant. The parent-report SSRS \( (p < .01) \) was the
significant variable for predicting parent-report CDI scores. The overall model \( F(4, 60) = 8.429, p < .001 \) accounted for 36.0% of the variance. The parent-report MESSY score \( (p < .01) \) was the only significant predictor variable of parent-report RDS. The overall equation was significant \( F(4, 60) = 11.482, p < .001 \) accounting for 43.4% of the variance.

The results from the ninth and tenth graders yielded further significant findings. The results obtained were very similar for predicting CDI and RDS self-report scores. \( F(4, 46) = 8.200, p < .001, F(4, 46) = 8.694, p < .001, \) respectively. The significant predictor in each equation was the self-report SSRS \( (p < .01) \) accounting for 41.6% and 43.1% of the variance, respectively.

The equations predicting parent-report depression were also significant. However, none of the predictors were significant for parent-report RDS scores (self-report SSRS \( p < .06 \)) even though the overall model was significant \( F(4, 46) = 7.498, p < .001 \), accounting for 39.5% of the variance. In contrast, 49.3% of the variance was accounted for in predicting parent-report CDI scores \( F(4, 46) = 11.170, p < .001 \) with the parent-report SSRS \( (p < .001) \) the significant predictor.

In general, the significant predictors for depression scores were consistently obtained when the same informant
completed both the depression and social skills measures. The MESSY was a better predictor for the third and fourth grade group, while the SSRS was a better predictor for the sixth-seventh grade and ninth-tenth grade-groups (although the parent-report MESSY was a significant predictor of the RDS parent-report in the sixth-seventh grade-group). Additionally, more of the variance in depression scores was accounted for by social skills in the ninth-tenth grade group than in the other two groups. Figures 2-5 display the result of predicting depression scores (CDI, RDS) from social skills scores (SSRS, MESSY) based on the three different grade groups.

Consistency of Relation Between Social Skills and Depression Scores Within Gender Groups

Variability between gender groups on the different social skills measures was completed. To examine the relation of social skills and depression for each gender, several regression analyses were completed consisting of predicting a depression score from the four social skills scores. These analyses were completed to determine the usefulness of the various measures with each gender. Correlations between the predictor variables for each gender are presented in Table 15.

For the males, self-report CDI and RDS scores [F(4,73)
were significantly predicted from the social skills scores. The self-report MESSY was the significant predictor for each of the measures (p<.001). The regression model accounted for 37.9% of the variance in CDI scores and 30.9% in RDS scores. Parent-report CDI scores were also significantly predicted from the social skills measures [F(4,73) = 14.097, p<.001]. The parent-report SSRS (p<.001) and the self-report MESSY (p<.01) were the significant predictor variables, accounting for 43.6% of the variance. It should be noted that this is the only equation in which one type of informant (self) was significant in predicting the other informant (parent) score. Parent-report RDS was also significantly predicted from the social skills scores [F(4,73) = 6.464, p<.001]. The parent-report MESSY (p<.001) was the significant predictor variable accounting for 26.2% of the variance.

For females, self-report depression scores were significantly predicted from the social skills scores. The self-report SSRS (p<.001) was the significant predictor variable for the self-report CDI scores [F(4,74) = 8.753, p<.001], accounting for 32.1% of the variance. The self-report SSRS (p<.01) was also the significant variable in predicting self-report RDS scores [F(4,74) = 6.545, p<.001], accounting for 26.1% of the variance. Similar results were obtained in
predicting parent-report depression scores from the social skills scores. The parent-report CDI was significantly predicted from the social skills measures \[ F(4,74) = 7.421, p < .001 \]. Parent-report SSRS was the only variable that approached significance \( p < .013 \), although the overall model accounted for 28.6% of the variance. The overall model for predicting parent-report RDS scores was significant \[ F(4,74) = 3.805, p < .01 \], accounting for 17.1% of the variance, although no predictor variables were significant (parent-report MESSY \( p < .06 \) approached significance). Figures 6-9 display the results of predicting depression scores (CDI, RDS) from social skills scores (SSRS, MESSY) based on gender.

Overall, the MESSY scores were better predictor variables for the depression scores of males and the SSRS scores were better predictors for females. As in the grade groups, significant predictors for depression scores were consistently obtained when the same informant completed both the depression and social skills measures (although the self-report MESSY was significant in predicting parent-report CDI scores).

For a complete summary of the results from the regression analyses for the total sample and the subjects divided into grade-groups and gender-groups see Tables 16-18.
DISCUSSION

A relatively strong relationship was found between reported depressive symptoms and social skills behaviors. This result replicates previous research with children (Helsel & Matson, 1984; Wierzbicki & McCabe, 1988; Kazdin, 1990) and adults (Libet & Lewinsohn, 1973; Coyne 1976; Kazdin et al., 1982; Youngren & Lewinsohn, 1980). The results extend previous findings by examining other and more social skills and depression measures. The relationship found in this study with the instruments utilized has particular implications because the information obtained is useful for making treatment plan recommendations. Specifically, the instruments used identify target behaviors for possible interventions. Additionally, the study validates depression and social skills deficits as separate constructs, implicating the need for examining individuals in both construct areas. Although the constructs are related, all individuals with depressive symptomatology do not have serious social skills deficits. Therefore, it would seem that all depressed individuals will likely not benefit from social skills interventions, although this is an empirical question requiring further examination. The study also reinforces the importance of more than one informant and more than one instrument when evaluating individuals.
Finally, the study adds to previous research by examining a wide range of pre-adult subjects demonstrating a possible difference between ages when using different instruments. A discussion of these and other issues follow.

Although this study indicates a strong relationship between social skills and depressive symptoms, a causal role is not implicated from the data. Social skills deficits are hypothesized to cause depression, based on Lewinsohn's theory. However, there is limited data to support his theory, particularly with young subjects. Weirzbicki and McCabe (1988) examined this area using a child population and found social skills behaviors, independent of concurrent depression levels, were significantly related to the level of depressive symptomatology one month later. The present study suggests social skills and depressive symptoms may be related significantly enough to warrant a longitudinal study across several years to further examine this area. This particular study is currently being conducted by this writer and several colleagues.

Answers to several questions that would help clarify the possibility of a causal relationship are: 1. Does depression precede social skills deficits or vice versa? 2. If social skills deficits do precede depression, are they interfering with interpersonal relationships leading to
depression directly or with the acquisition of skills necessary for successful interactions? 3. In contrast, if depression precedes social skills deficits, does the mood disturbance decrease motivation and interfere with performance or is some other factor contributing to the absence of social skills behaviors? Information in these areas would provide further data for possible prevention and treatment of depression.

Even if social skills deficits do not cause depression, the deficits may perpetuate depressive symptoms by interfering with relationships that could help the individual improve. The deficits may be maintaining the depression without causing the disorder directly. Therefore, social skills remediation may be relevant regardless of the presence or absence of a causal relationship. However, in future studies, prior to determining a causal relationship between social skills behaviors and depressive symptoms, it is important to establish the validity of each construct as distinctly separate.

Based on the results of this study, the validity of social skill behaviors as a separate construct from depression is suggested. The main result of concern that may question the validity of two separate constructs is a significant effect for type of rater (parent or self). This result has been discovered in previous studies examining
depression with other constructs; such as anger (Saylor, Finch, Baskin, Furey, & Kelly, 1984) and anxiety (Wolfe, et al, 1987). Although this finding is of concern, it is not surprising and may actually not be undesirable. For example, Saylor et al. (1984) argued the weak relationship between self-ratings of depression and ratings by others suggests a difference in perspective that exists between self and other. Furthermore, having different perspectives actually provides a better understanding of the individual and, according to Reynolds, Anderson, and Bartell (1985), should not be viewed as conflicting per se. In this study, expanding the MTMM model further (adding additional types of correlation coefficients and yielding a predictable pattern of results) increases the evidence for the validity of separate yet related constructs. Therefore, in spite of the significant effect for type of rater, the importance of examining how the parent and self-report ratings differ provide information on the significance each plays in understanding the individual.

In this study, the parents generally reported fewer depressive symptoms than the children reported themselves. This finding is consistent with Lobovits and Handal (1985) and provides evidence for a different contribution from each of the raters. Parents are likely unable to assess affec-
tive states of their children and imply such states from their behavior. This finding could partially explain why parents ratings of depressive symptoms are closely related to their ratings of social skills behaviors, but does not explain the close relationship between depressive symptoms and social skills behaviors based on self-ratings. In addition, the two separate parent-ratings of the two constructs indicate that depression is not the same construct as social skills, indicating parents are reporting something distinctly separate from social behavior when they report depressive symptoms. Therefore, even though it appears that the individual child is the only one privy to both overt and covert symptoms does not mean parents or significant others report the symptoms inadequately.

For the young children (e.g. fourth grade and below), their ability to report symptoms of depression and social behavior is of concern. Determining at what age they are able to report symptoms becomes particularly important. The results of this study imply that children as young as third grade are able to report their symptoms. The young children's self-reported symptoms yielded similar findings to the results obtained with the older children and high school students.

One purpose of the study was to examine age differences in the possible relationship between social skills and
depression. The findings suggest the relationship was generally consistent across ages, for the different grade-groups. Even in the youngest age group studied a relationship existed, indicating social skills are related to depressive symptoms very early in a child's development and not just during adolescence. Furthermore, it was children's self-ratings and not the parent ratings that led to the significant findings. This finding may be specific to the current sample, or it may indicate that parents in the younger ages are not as aware of the affective states of their children as they are when they get older. Thus, parents may need further education and training to help their awareness of potential problems their children might have, particularly if concerned with prevention and early detection of psychological disorders.

Generally, more variance in depression scores among the older children could be accounted for by social skills behaviors than in the younger children. For high school students, where peer group concerns and socialization is tantamount, this finding is not surprising. However, the relationship from early school years implies that social skills interventions may have relevancy for the young children, especially given the long range effects of depression for the child.
All the social skills instruments used in this study were not significant predictors of depression scores for all age groups. The MESSY was a better predictor for the younger age groups and the SSRS was a better predictor for the older age groups. Although the reason for this difference is unknown, the result may be due to certain items being more relevant for different ages than others. For example, the MESSY appears more heavily loaded with items that measure intense acting out behaviors in contrast to the more passive types of behaviors contained in the SSRS. Perhaps weighting certain items based on age might change this result. However, this is merely speculation and requires further research. The difference in the age groups does suggest the relation between social skills deficits and depression may be overlooked if only one instrument for each construct is used with a given population. For this reason, it is important to use more than one instrument of any given construct with an individual in clinical and research work.

Similar findings to those mentioned with age differences were obtained when examining gender differences. Overall, gender did not account for significant variance in depression scores. However, specific instrument effects were obtained. The MESSY was a better predictor of depression scores in males and the SSRS was a better predictor in females. This result may be due to the specific items of
the instruments as described in the section on age differences. Unfortunately, the current sample did not yield an interaction effect of age and gender on social skills and depression measures, although this may be sample specific since the oldest group endorsed fewer depressive symptoms than in prior samples. However, the implications of gender differences on social skills behaviors has been shown in past research. In fact, the effectiveness of social skills interventions has been shown to increase as the number of females increases. Therefore, increasing the social skills behaviors of females may be particularly effective, especially because they tend to have higher levels of depressive symptoms as they approach the adolescent years. Perhaps the notion that females are more socially conscious than males accounts for the tendency for social skills remediation to be more effective with females than males. Using instruments that are appropriate for females is important for identifying those in which services may be needed. If deficits that are present go undetected, a child may not be treated who could gain from an intervention.

In summary, grade group and gender group did not add significant variance in the depression scores beyond that provided by reported social skills behaviors. Therefore, level of social skill behavior was more important in pre-
dicting depression than whether the individual is male or female, high school age or elementary school age. However, specific effects of the instruments within the grade and gender groups indicate the need for a variety of instruments when assessing social skills behaviors.

Although the relationship between social skills and depression would appear to impact treatment choice for individuals, the studies examining the use of various treatments with depression have had significant problems, leading to inconsistent results. For example, depressed subjects are often assigned randomly to a treatment group rather than based on their own specific deficits. If multiple factors contribute to causing and/or maintaining depression, then it follows that multiple effective treatments based on those specific deficits would logically appear appropriate.

The inconsistent findings of depression outcome studies may be due to a lack of assignments based on the specific deficits of the subjects. For example, in one such study, Imber, Pilkonis, Sotsky, Elkin, Watkins, Collins, Shea, Leber, Glass (1990) concluded common factors (e.g. therapeutic relationship) between different treatments accounted for improvements in patients and not the specific effects of any one treatment although the subjects were not assigned according to their deficits. Proper assignment to groups, sound instruments for detecting deficits and monitoring
change are all needed when examining treatment effects.

The study that assigned subjects (adults) according to their specific deficits (McKnight, et al., 1984) indicated improvements in depression were obtained when specific deficits were targeted for intervention. The current study does not examine the clinical implications of social skills remediation for depressed individuals. However, based on the obtained results in this and other studies, treatment outcome studies that target the specific deficits of children are warranted given the strong relationship between social skills deficits and depressive symptoms in children.

Social skills remediation as a treatment for depression is suggested for several reasons. First, social skills deficits are identified and monitored relatively easily. Second, interventions for social skill deficits have received more attention in the recent past leading to many effective protocols. Third, children must behave adaptively in a variety of settings in order to successfully adjust to the environment (e.g. school, home, neighborhood, with peers). Improving social skills can greatly enhance the effectiveness of individuals adaptation to and manipulation of their environments in a socially acceptable manner. Improved skills can increase the reinforcement gained from the surroundings, which further enhances the effectiveness
of the intervention.

Arguments for the importance of treating children with depression include: 1. it not being as transient as previously thought as it does last into adulthood (Mattison, Handford, Kales, Goodman, 1990); (Kovacs et al., 1984), and 2. the possible serious implications of some symptoms (e.g., suicidal ideation) if not remediated. Therefore, providing the necessary skills for effective interactions may help the individual throughout their life, suggesting it is more than a temporary way to improve mood.

Social skills interventions may provide a viable option for treating young children. Social skills remediation may be a more acceptable option with children than using some of the other interventions (i.e., cognitive therapy or pharmacology). However, proper assessment methods must be used in order to identify persons who may benefit from social skills interventions.

There are several relevant implications that this study suggests. First, social skills interventions appear a warranted avenue for exploring remediation of depressive symptoms. Second, even though it is unclear whether there is a causal relationship or not, there is nonetheless a relationship. A causal relationship may not be a necessary implication for the importance of social skills as a treatment to be proven. Third, remediating social skills defi-
cits would appear appropriate with children as the deficits can be easily identified by obtaining ratings from significant others and self-ratings leading to specific targets that can be identified for remediation. Fourth, providing screening for many children and youth in the school system may prevent individuals from being overlooked who have deficits that could have long ranging effects.

One possible approach to providing services to children is suggested by Reynolds (1985), which could incorporate both depression and social skills instruments. He suggests a step approach to assessment when screening child populations. If one incorporates social skills instruments with the assessment, possible targets for remediation could be quickly identified and remediation could be carried out in groups of children at the school.

Identifying specific deficits that children possess in getting along with others and how these impact affective states, can enhance the likelihood of implementing such interventions when it is necessary to gain the approval of school administrators, officials and parents. In contrast, interventions that target cognitive distortions, self-control, and/or other treatments may require more effort on the part of the clinician to provide care takers and officials with a rationale for their use.
In this study, several factors add to the credibility of the findings. First, the sample is relatively large as compared to samples from previous studies. In spite of the large samples, considerable variance could be accounted for in depression scores from the social skills measures. Often in large samples the results can be statistically significant but have no relevant clinical meaning. In this study the results suggest both statistical and clinical significance. Second, sound assessment instruments that have been shown to be reliable and valid were used. These instruments are also easily administered and scored, keeping the administrative time needed for their use at a minimum. If one is screening a large number of students, this approach could be particularly useful and practical. Third, the sample used two informants and implicated the need for more than one informant since the perceptions of the informants were clearly different. Fourth, the study was an attempt to have homogeneous subjects in the groups regarding age rather than lumping all subjects together on the analyses. Thus, an attempt was made to look for developmental differences. When a wide age range of subjects are placed together inconsistent findings may result if age is indeed a factor. For example, Wolfe et al. (1987) examined the relation of anger to depression in 6-16 year old subjects and concluded that their was not a relationship. This approach is contrary to
findings from other studies (Saylor et al., 1984; Shoemaker et al., 1986) suggesting that anger and depression are related. A fifth strength of the study is that some items that were similar across constructs were eliminated to decrease the likelihood of significant results from item similarity rather than construct similarity. Nichols, Licht, and Pearl (1982) reported that this is often a problem in studies that examine the relation between different constructs leading to spuriously high relationships. In this study, an attempt was made to prevent such a problem. However, eliminating items changes the instrument and the results should be interpreted cautiously for this reason.

There are several problems with the study that may influence the conclusions. First, while it is the general convention to do so, the study used a cross-sectional sample rather than following subjects for a period of time. Perhaps the differences in the results of the various instruments are due to age specific effects and will not generalize. Second, the study examined "normal" subjects and did not examine clinical levels of depression in subjects. It could be that differences in social skills and depressive symptoms are very transient at subclinical levels. Therefore, the step approach outlined by Reynolds (1985) may be particularly relevant. In his approach, students that are
identified on the first assessment level as potentially in need of treatment are further assessed before remediation is implemented. This approach could lead to effective use of resources. Studies with clinical samples of depressed subjects will help clarify this area. Third, the scores obtained from the subjects in this study were not entirely consistent with previous studies (e.g. lower depression scales scores of adolescents than elementary age students). These differences could have an effect on conclusions concerning age and gender differences. Fourth, the confound between age group, race, and socioeconomic status could pose a potential problem. Even though the available information to date suggests that race and socioeconomic status do not effect the scores on the instruments used in the study (Matson, Rotatori, & Helsel, 1983; Fauber et al., 1987; Reynolds, 1987, 1989; Helsel & Matson, 1984; Nelson et al., 1987), the data are somewhat limited and should be examined further before these conclusions can be reached. In this study, an attempt was made to partition out the effects of race and socioeconomic status which did not apparently play a significant role.

In addition to the possible future studies mentioned previously, there are several others that could be conducted to aid in our understanding of the relation between social skills and depression. First, it would be useful to examine
scale factors rather than the total scores of the instruments to determine if some factors are more relevant than others. It may be that some subset(s) of social skills behaviors have a greater impact on depressive symptoms than others, which may be indicated on the individual item level as well as the factor level. Some items measuring social skills behaviors may be more indicative of depression than others. Certain items may be more critical than other items suggesting that a weighting system may be relevant.

In conclusion, although considerable future research is needed to determine the role of social skills behaviors in the presence of depression and/or depressive symptoms, there appears to be a strong relationship between these two constructs. With the wide variety of assessment instruments and treatments available for depression, identifying when to use them most effectively is of concern. As the efficiency of delivering services to those in need increases then the number of the individuals receiving services can also increase.
## TABLE 1
DIFFERENCES IN DEPRESSIVE SYMPTOMS ACROSS
AGES AND/OR GENDER BASED ON EMPIRICAL STUDIES

<table>
<thead>
<tr>
<th>Study</th>
<th>Age</th>
<th>Gender</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achenbach &amp; Edelbrock 1983</td>
<td>12-16 yrs.</td>
<td>Boys</td>
<td>No consistent symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Girls</td>
<td>Withdrawn, shy, secretive</td>
</tr>
<tr>
<td></td>
<td>6-11 yrs.</td>
<td>Boys</td>
<td>Suicidal talk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Girls</td>
<td>Anxious &amp; reported feeling persecuted</td>
</tr>
<tr>
<td></td>
<td>4-5 yrs.</td>
<td></td>
<td>No consistent symptoms</td>
</tr>
<tr>
<td>Smucker, et. al., 1986</td>
<td>8-16 yrs.</td>
<td>Males</td>
<td>Acting out behavior correlated with depression in adolescence (not in preadolescence - grades 3-6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Females</td>
<td>Sadness, crying, somatic complaints, negative body-image, self-hate, symptoms more stable across than for males</td>
</tr>
<tr>
<td>McConville, et. al., 1973</td>
<td>6-8 yrs.</td>
<td></td>
<td>Sadness, helplessness, occasional hopelessness</td>
</tr>
<tr>
<td></td>
<td>8-11 yrs.</td>
<td></td>
<td>Thought &amp; feelings of being unloved, worthless, feeling used</td>
</tr>
<tr>
<td></td>
<td>12-13 yrs.</td>
<td></td>
<td>Guilt, being no good, feeling need to be punished</td>
</tr>
<tr>
<td>Jacobsen, et. al., 1983</td>
<td>2nd-7th Grade Subjects</td>
<td>Females</td>
<td>Nonverbal behavior, unpopularity, somatic complaints associated depression</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Males</td>
<td>None of symptoms listed for females above</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Differences between genders on these symptoms are not characteristic of adults according to the authors</td>
</tr>
<tr>
<td>Helsel &amp; Matson, 1984</td>
<td>4-10 yrs.</td>
<td></td>
<td>Guilt &amp; somatic complaints not as common as in studies of adults</td>
</tr>
<tr>
<td>Source</td>
<td>Age</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Blumberg &amp; Izard, 1985</td>
<td>10-11 yrs.</td>
<td>Anger rather than sadness typical reported in adult samples was most associated with depression</td>
<td></td>
</tr>
<tr>
<td>Puig-Antich, et. al., 1982</td>
<td>Children</td>
<td>Less sleep abnormalities than adults</td>
<td></td>
</tr>
<tr>
<td>Christ, et. al., 1981</td>
<td>6-8 yrs.</td>
<td>Sadness, helplessness, loneliness, unspecified feelings of being bad, negative self-esteem, being used by others, feel unable to do things for others</td>
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<tr>
<td></td>
<td>8-10 yrs.</td>
<td>Feelings of being wicked hated, being punished, wishing self dead as restitution for guilt feelings</td>
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<tr>
<td>Pearce, 1978</td>
<td>3-17 yrs.</td>
<td>Males sleep and eating disorders, phobias, school refusal, obsessions, hypochondriasis</td>
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<tr>
<td></td>
<td>Females</td>
<td>abdominal pain, alimentary disorder (digestive tract)</td>
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<tr>
<td></td>
<td>Prepuberty</td>
<td>abdominal pain, irritability, school refusal, obsessions, alimentary disorder (digestive tract)</td>
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</tr>
<tr>
<td></td>
<td>Postpuberty</td>
<td>sleep disturbance, phobias</td>
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### TABLE 2

**SAMPLE CHARACTERISTICS**

**GROUP 1** (3rd & 4th grade)

TOTAL N = 41 (13 white 28 black)

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**GROUP 2** (6th & 7th grade)

TOTAL N = 66 (47 white 19 black)

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**GROUP 3** (9th & 10th grade)

TOTAL N = 51 (49 white 1 black 1 other)

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<td>DSMIII-R</td>
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X = Each X represents an item on the scale that measures the area. If more than one X then more than one item is contained on the scale that measures the area.
### TABLE 4

**INTERNAL CONSISTENCY RELIABILITIES OF THE DEPRESSION AND SOCIAL SKILLS MEASURES (CRONBACH'S ALPHA)**

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<th>ALPHA</th>
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<td>Children's Depression Inventory</td>
<td>.91</td>
</tr>
<tr>
<td>Reynold's Depression Scales (RADS &amp; RCDS)</td>
<td>.93</td>
</tr>
<tr>
<td>Depression Self Rating Scale</td>
<td>.84</td>
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<tr>
<td>Matson Evaluation of Social Skills for Youngsters</td>
<td>.93</td>
</tr>
<tr>
<td>Social Skills Rating System</td>
<td></td>
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<tr>
<td>(Elementary)</td>
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<tr>
<td>(Secondary)</td>
<td>.85</td>
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<table>
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<td>.81</td>
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<td>Reynold's Depression Scales (RADS &amp; RCDS)</td>
<td>.90</td>
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<td>Depression Self Rating Scale</td>
<td>.71</td>
</tr>
<tr>
<td>Matson Evaluation of Social Skills for Youngsters</td>
<td>.93</td>
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<tr>
<td>Social Skills Rating System</td>
<td></td>
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<tr>
<td>(Elementary)</td>
<td>.88</td>
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<tr>
<td>(Secondary)</td>
<td>.90</td>
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TABLE 5

MITM CORRELATION MATRICES FOR CHILDREN’S DEPRESSION INVENTORY AND SOCIAL SKILLS MEASURES

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<td>.90</td>
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<tr>
<td>SSRS</td>
<td>-.47</td>
<td>-.54</td>
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CDI = CHILDREN’S DEPRESSION INVENTORY
MESSY = MATSON EVALUATION OF SOCIAL SKILLS WITH YOUNGSTERS
SSRS = SOCIAL SKILLS RATING SYSTEM

SEC = SECONDARY SCHOOL
ELM = ELEMENTARY SCHOOL
### Table 6

MTMM Correlation Matrices for Reynolds' Depression Scales and Social Skills Measures

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**SELF**

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<td>MESSY</td>
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</table>

**RDS** = Reynolds Depression Scales

**MESSY** = Matson Evaluation of Social Skills with Youngsters

**SSRS** = Social Skills Rating System

**SEC** = Secondary School

**ELM** = Elementary School
TABLE 7
EXPANDED MTMM CORRELATION MATRIX FOR MEASURES OF DEPRESSION AND SOCIAL SKILLS FROM PARENT AND CHILD REPORT

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<td>.34=</td>
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<td>.30=</td>
<td>.61**</td>
<td>.90*</td>
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MESSY - .49# - .45# - .30## - .20## .93* SEC

SSRS - .47# - .40# - .30## - .15## .63** .80* ELM

MESSY - .18# - .13## - .47# - .46# .36= .28== .93* SEC

SSRS - .18# - .15## - .54# - .34# .33== .48= .62** .85* ELM

CDI | RDS | CDI | RDS | MESSY | SSRS | MESSY | SSRS

A SELF-REPORT | B PARENT-REPORT | A SELF-REPORT | B PARENT-REPORT

1 DEPRESSION | 2 SOCIAL SKILLS

TYPES OF COEFFICIENTS

1. * Same Construct, Same Informant, Same Instrument (Cronbach's alpha)
   (monotrait-monomethod-monoinstrument)
2. ** Same Construct, Same Informant, Different Instrument
   (monotrait-monomethod-heteroinstrument)
3. = Same Construct, Different Informant, Same Instrument
   (monotrait-heteromethod-monoinstrument)
4. == Same Construct, Different Informant, Different Instrument
   (monotrait-heteromethod-heteroinstrument)
5. # Different Construct, Same Informant, Different Instrument
   (heterotrait-monomethod-heteroinstrument)
6. ## Different Construct, Different Informant, Different Instrument
   (heterotrait-heteromethod-heteroinstrument)

Notes. 1. SSRS consists of items from the Social Skills Factor only.
2. MESSY contains only items from the factors obtained in the normative sample.
### TABLE 8
Means and Standard Deviations of Depression and Social Skills Scores

#### Self-Report

<table>
<thead>
<tr>
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<th>CDI Mean</th>
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<th>RDS Mean</th>
<th>SD</th>
<th>MESSY Mean</th>
<th>SD</th>
<th>SSRS Mean</th>
<th>SD</th>
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<td>16.01</td>
<td>233.74</td>
<td>24.50</td>
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<td>8.78</td>
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<td>11.86</td>
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<td>29.06</td>
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<td>17.44</td>
<td>59.27</td>
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<td>7.95</td>
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<td>8.49</td>
<td>54.49</td>
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<td>50.54</td>
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#### Parent-Report

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<th>SD</th>
<th>MESSY Mean</th>
<th>SD</th>
<th>SSRS Mean</th>
<th>SD</th>
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<td>26.68</td>
<td>53.37</td>
<td>10.34</td>
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</table>

CDI = Children's Depression Inventory  
RDS = Reynold's Depression Scales (RADS, RCDS)  
MESSY = Matson Evaluation of Social Skills for Youngsters (all items)  
SSRS = Social Skills Rating System (Social Skills Factor)

GROUP 1 = 3rd and 4th grade subjects  
2 = 6th and 7th grade subjects  
3 = 9th and 10th grade subjects
**TABLE 9**

ITEM NUMBERS FOR ALL THE SCALES USED IN
THE FINAL CANONICAL AND REGRESSION ANALYSES

**CHILDREN'S DEPRESSION INVENTORY**
Self & Parent 1-21, 23-26

**REYNOLDS DEPRESSION SCALES**
1-30 (all items)

**MATSON EVALUATION OF SOCIAL SKILLS FOR YOUNGSTERS**
Self 2-17, 19-24, 28-44, 46, 50, 52-62
Parent 1-19, 21-42, 44-45, 47-64

**SOCIAL SKILLS RATING SYSTEM**
Elementary Self 1-34 (all items)
Elementary Parent 1-38
(all social skills scale items)
Secondary Self 1-39 (all items)
Secondary Parent 1-40
(all social skills scale items)
TABLE 10
MEANS AND STANDARD DEVIATIONS OF DEPRESSION AND SOCIAL SKILLS SCORES
(based on items used in the study)

**SELF-REPORT**

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<th>MESSY</th>
<th>SSRS</th>
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<td>Mean</td>
<td>SD</td>
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<td>9.68</td>
<td>54.70</td>
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**PARENT-REPORT**

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<td>4.44</td>
<td>4.40</td>
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CDI = Children's Depression Inventory
RDS = Reynolds Depression Scales (RADS, RCDS)
MESSY = Matson Evaluation of Social Skills for Youngsters
SSRS = Social Skills Rating System

GROUP 1 = 3rd and 4th grade subjects
GROUP 2 = 6th and 7th grade subjects
GROUP 3 = 9th and 10th grade subjects
## TABLE 11

Correlations, Standardized Canonical Coefficients, Canonical Correlations, Percent of Variance, and Redundancies Between Depression Variables and Social Skills Variables and Their Corresponding Variates

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**Notes.** Gender Male=1 Female=2  
Race White=1 Black=2 Other=3  
* p<.01  
** p<.001  

1 Pearson Correlations except with Race and Gender (Spearman Correlations)
TABLE 13
HIERARCHICAL REGRESSION RESULTS PREDICTING DEPRESSION SCORES FROM SES, RACE, SOCIAL SKILLS SCORES, GRADE, GENDER AND THE INTERACTION OF GRADE AND GENDER

**SELF-REPORT CDI**

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**PARENT-REPORT CDI**

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TABLE 13 (CON’T)

SELF-REPORT RCDS/RADS

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INTERCEPT = 87.56

R SQUARE = .37

ADJUSTED R SQUARE = .33

R = .61

PARENT-REPORT RCDS/RADS

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INTERCEPT = 83.98

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ADJUSTED R SQUARE = .32

R = .61
TABLE 14
CORRELATIONS BETWEEN SOCIAL SKILLS, SOCIOECONOMIC STATUS
AND RACE*** BASED ON GRADE GROUPS

<table>
<thead>
<tr>
<th>GROUP</th>
<th>SSRS (self)</th>
<th>SSRS (parent)</th>
<th>MESSY (self)</th>
<th>MESSY (parent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.146</td>
<td></td>
<td>.615** .229</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(parent)</td>
<td>(self)</td>
<td>(parent)</td>
</tr>
<tr>
<td></td>
<td>- .044</td>
<td>.391* .291</td>
<td>(self)</td>
<td>(parent)</td>
</tr>
<tr>
<td></td>
<td>-.074</td>
<td>-.160 .040</td>
<td>-.037</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.319</td>
<td>-.033 -.137</td>
<td>.417*</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.409**</td>
<td></td>
<td>.588** .191</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(parent)</td>
<td>(self)</td>
<td>(parent)</td>
</tr>
<tr>
<td></td>
<td>.316 .607**</td>
<td>.352*</td>
<td>(self)</td>
<td>(parent)</td>
</tr>
<tr>
<td></td>
<td>-.249</td>
<td>-.138 .101</td>
<td>-.041</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.282</td>
<td>-.095 -.270</td>
<td>-.098</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.399*</td>
<td></td>
<td>.652** .344*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(parent)</td>
<td>(self)</td>
<td>(parent)</td>
</tr>
<tr>
<td></td>
<td>.312 .735**</td>
<td>.319</td>
<td>(self)</td>
<td>(parent)</td>
</tr>
<tr>
<td></td>
<td>.002</td>
<td>-.125 -.072</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.096</td>
<td>.267 .188</td>
<td>.246</td>
<td></td>
</tr>
</tbody>
</table>

* \( p < .05 \)
** \( p < .01 \)
*** \( p < .001 \)

Spearmans correlations for SES and/or RACE, others are Pearsons.
<table>
<thead>
<tr>
<th></th>
<th>SSRS (self)</th>
<th>SSRS (parent)</th>
<th>MESSY (self)</th>
<th>MESSY (parent)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MALES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSRS (parent)</td>
<td>.534**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MESSY (self)</td>
<td>.664**</td>
<td>.432**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MESSY (parent)</td>
<td>.300*</td>
<td>.542**</td>
<td>.433**</td>
<td></td>
</tr>
<tr>
<td><strong>FEMALES</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SSRS (parent)</td>
<td>.410**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MESSY (self)</td>
<td>.658**</td>
<td>.265*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MESSY (parent)</td>
<td>.244</td>
<td>.683**</td>
<td>.303*</td>
<td></td>
</tr>
</tbody>
</table>

SSRS = Social Skills Rating System  
MESSY = Matson Evaluation of Social Skills with Youngsters

* \( P < .01 \)  
** \( P < .001 \)  
*** Spearman's correlations for SES and/or RACE, others are Pearsons.
TABLE 16

REGRESSION RESULTS PREDICTING DEPRESSION SCORES FROM SOCIAL SKILLS SCORES, GRADE, GENDER AND THE INTERACTION OF GRADE AND GENDER

<table>
<thead>
<tr>
<th>TYPE OF DEPRESSION SCORE</th>
<th>F VALUE</th>
<th>SIGNIFICANCE LEVEL</th>
<th>SIGNIFICANT PREDICTORS (sign. level)</th>
<th>R SQUARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Report</td>
<td>9.00</td>
<td>p&lt;.001</td>
<td>SSRS (.01)</td>
<td>.297</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MESSY (.01)</td>
<td></td>
</tr>
<tr>
<td>Parent-Report</td>
<td>13.81</td>
<td>p&lt;.001</td>
<td>SSRS (.001)</td>
<td>.394</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MESSY (.001)</td>
<td></td>
</tr>
<tr>
<td>RDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Report</td>
<td>8.04</td>
<td>p&lt;.001</td>
<td>SSRS (.01)</td>
<td>.274</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MESSY (.001)</td>
<td></td>
</tr>
<tr>
<td>Parent-Report</td>
<td>11.83</td>
<td>p&lt;.001</td>
<td>SSRS (.02)**</td>
<td>.357</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MESSY (.001)</td>
<td></td>
</tr>
</tbody>
</table>

*degrees of freedom (7,149)

**approaches significance
# Table 17

Regression Results Predicting Depression Scores from Social Skills Scores: Differences Between Males and Females

<table>
<thead>
<tr>
<th>MALES (df=4,73)</th>
<th>Type of Depression Score</th>
<th>F Value</th>
<th>Significance Level</th>
<th>Significant Predictors (sign. level)</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CDI</strong></td>
<td>Self-Report</td>
<td>11.16</td>
<td>p&lt;.001</td>
<td>MESSY (.001)</td>
<td>.379</td>
</tr>
<tr>
<td></td>
<td>Parent-Report</td>
<td>14.10</td>
<td>p&lt;.001</td>
<td>SSRS (.001) MESSY (.01)</td>
<td>.436</td>
</tr>
<tr>
<td><strong>RDS</strong></td>
<td>Self-Report</td>
<td>8.17</td>
<td>p&lt;.001</td>
<td>MESSY (.001)</td>
<td>.309</td>
</tr>
<tr>
<td></td>
<td>Parent-Report</td>
<td>6.46</td>
<td>p&lt;.001</td>
<td>MESSY (.001)</td>
<td>.262</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FEMALES (df=4,74)</th>
<th>Type of Depression Score</th>
<th>F Value</th>
<th>Significance Level</th>
<th>Significant Predictors (sign. level)</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CDI</strong></td>
<td>Self-Report</td>
<td>8.75</td>
<td>p&lt;.001</td>
<td>SSRS (.001)</td>
<td>.321</td>
</tr>
<tr>
<td></td>
<td>Parent-Report</td>
<td>7.42</td>
<td>p&lt;.001</td>
<td>SSRS (.013)*</td>
<td>.286</td>
</tr>
<tr>
<td><strong>RDS</strong></td>
<td>Self-Report</td>
<td>6.55</td>
<td>p&lt;.001</td>
<td>SSRS (.01)</td>
<td>.261</td>
</tr>
<tr>
<td></td>
<td>Parent-Report</td>
<td>3.81</td>
<td>p&lt;.01</td>
<td>MESSY (.06)*</td>
<td>.171</td>
</tr>
</tbody>
</table>

*approaches significance
### TABLE 18

REGRESSION RESULTS PREDICTING DEPRESSION SCORES FROM SOCIAL SKILLS SCORES: DIFFERENCES BETWEEN GRADE GROUPS

<table>
<thead>
<tr>
<th>TYPE OF DEPRESSION</th>
<th>SIGNIFICANCE LEVEL</th>
<th>SIGNIFICANT PREDICTORS (sign. level)</th>
<th>R SQUARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Report</td>
<td>5.86</td>
<td>p&lt;.001</td>
<td>MESSY (.001)</td>
</tr>
<tr>
<td>Parent-Report</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| RDS                |                     |                                      |          |
| Self-Report        | 4.01                | p<.01                               | MESSY (.01) | .308 |
| Parent-Report      | ns                  |                                      |          |

<table>
<thead>
<tr>
<th>SIXTH AND SEVENTH GRADE (df=4,60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE OF DEPRESSION</td>
</tr>
<tr>
<td>SCORE</td>
</tr>
<tr>
<td>CDI</td>
</tr>
<tr>
<td>Self-Report</td>
</tr>
<tr>
<td>Parent-Report</td>
</tr>
</tbody>
</table>

| RDS                |                     |                                      |          |
| Self-Report        | 5.30                | p<.001                              | SSRS (.01) | .261 |
| Parent-Report      | 11.48               | p<.001                             | MESSY (.01) | .434 |

ns = not significant
### Table 18 (Con't)

**Ninth and Tenth Grade** (df=4,46)

<table>
<thead>
<tr>
<th>Type of Depression Score</th>
<th>F Value</th>
<th>Significance Level</th>
<th>Significant Predictors (sign. level)</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CDI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Report</td>
<td>8.20</td>
<td>p&lt;.001</td>
<td>SSRS (.01)</td>
<td>.416</td>
</tr>
<tr>
<td>Parent-Report</td>
<td>11.17</td>
<td>p&lt;.001</td>
<td>SSRS (.001)</td>
<td>.493</td>
</tr>
<tr>
<td><strong>RDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Report</td>
<td>8.69</td>
<td>p&lt;.001</td>
<td>SSRS (.01)</td>
<td>.431</td>
</tr>
<tr>
<td>Parent-Report</td>
<td>7.50</td>
<td>p&lt;.001</td>
<td>SSRS (.06)*</td>
<td>.395</td>
</tr>
</tbody>
</table>

*approaches significance

ns = not significant
Figure 1
Predicting Depression from Social Skills Scores

PARENT-REPORT
Figure 2
Predicting Children's Depression Inventory (CDI) Scores from Social Skills Rating System (SSRS) Scores Based on Grade Groups

**SELF-REPORT**

**PARENT-REPORT**
Figure 3
Predicting Children's Depression Inventory (CDI) Scores from Matson Evaluation of Social Skills with Youngsters (MESSY) Based on Grade Groups

**SELF-REPORT**

![Graph showing CDI scores for different grade groups based on MESSY scores.](image)

**PARENT-REPORT**

![Graph showing CDI scores for different grade groups based on MESSY scores.](image)
Figure 4
Predicting Reynolds Depression Scale (RDS) Scores from Social Skills Rating System (SSRS) Scores Based on Grade Groups

SELF-REPORT

PARENT-REPORT

--- 3rd & 4th Grade --- 6th & 7th Grade --- 9th & 10th Grade

--- 3rd & 4th Grade --- 5th & 6th Grade --- 9th & 10th Grade
Figure 5
Predicting Reynold's Depression Scale (RDS) Scores from Matson Evaluation of Social Skills with Youngsters (MESSY) Based on Grade Groups

**Self-Report**

**Parent-Report**

---

---
Figure 6
Predicting Children's Depression Inventory (CDI) Scores from Social Skills Rating System (SSRS) Scores Based on Gender

SELF-REPORT

PARENT-REPORT
Figure 7
Predicting Children's Depression Inventory (CDI) Scores from Matson Evaluation of Social Skills with Youngsters (MESSY) Based on Gender

SELF-REPORT

PARENT-REPORT
Figure 8
Predicting Reynolds' Depression Scale (RDS) Scores from Social Skills Rating System (SSRS) Scores Based on Gender

**SELF-REPORT**

![Graph showing self-report RDS scores based on SSRS scores for males and females.](image)

**PARENT-REPORT**

![Graph showing parent-report RDS scores based on SSRS scores for males and females.](image)
Predicting Reynold's Depression Scale (RDS) Scores from Matson Evaluation of Social Skills with Youngsters (MESSY) Based on Gender

**SELF-REPORT**

**PARENT-REPORT**
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APPENDICES
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BACKGROUND INFORMATION FROM PARENT

PLEASE PRINT!!!

Child's Name__________________________________________
Child's AGE_______ GRADE_______ SCHOOL______________

Relationship to Child of person completing the form: (Check one)

_____MOTHER _____FATHER

_____STEPMOTHER _____STEPFATHER OTHER (List)____________

RACE: (Check one) _____WHITE _____BLACK _____OTHER

PERSONS LIVING WITH THE CHILD:

_____MOTHER HOW MANY BROTHERS DOES THE CHILD HAVE?____

_____FATHER HOW MANY SISTERS DOES THE CHILD HAVE? _____

_____STEPFATHER

_____STEPMOTHER

OTHER(S) (list) ______________________________________

FATHER'S JOB ________________________________________
MOTHER'S JOB ________________________________________

HOW FAR DID THE CHILD'S FATHER GO IN SCHOOL? (Check one)

_____GRADE K-6 _____GRADE 7-8 _____SOME HIGH SCHOOL

_____FINISHED HIGH SCHOOL _____SOME COLLEGE

_____FINISHED COLLEGE _____GRADUATE, LAW, OR MEDICAL SCHOOL

OTHER________________________________________________

HOW FAR DID THE CHILD'S MOTHER GO IN SCHOOL? (Check one)

_____GRADE K-6 _____GRADE 7-8 _____SOME HIGH SCHOOL

_____FINISHED HIGH SCHOOL _____SOME COLLEGE

_____FINISHED COLLEGE _____GRADUATE, LAW, OR MEDICAL SCHOOL

OTHER________________________________________________
You are being invited to participate in a study of school students to examine how the way students are feeling compares to the way they get along with others. You will be asked to complete several lists of questions which will ask about how you are feeling and how you act toward others. Your mother was asked to rate how she thinks you are feeling and how you act toward others.

Answering the questions will take about 40-50 minutes. You may get some value out of thinking about some of the questions. All information from the questions you answer and the ones your parents answer will remain strictly confidential. The results of the study will be reported as group averages. This means no one student's scores can be identified in the final report.

Being in the study is completely voluntary. Your decision whether or not to participate will not effect your relations with your school or teacher. If you decide to participate, you are free to discontinue participation at any time without consequence.

This research is being conducted by Ramasamy Manikam and Larry Friedt. Dr. Johnny Matson (Professor at Louisiana State University) is supervising the project. If you have any questions, please call Mr. Manikam at 388-8745.

If you decide to participate, please write your name on this form and not on any of the following pages.

I HAVE READ AND UNDERSTOOD THIS CONSENT FORM AND AGREE TO TAKE PART IN THIS STUDY.

Signed: ___________________________ Date: ______________

Age:____ Grade:____ School:________________________

Gender: Male Female Teacher:________________________ (Circle one)

Name of Parent who completed the forms:________________________

Please complete all the questions the best you can.

THANK-YOU VERY MUCH
You and your child are being invited to participate in a study of school students to examine how the way students are feeling compares to the way they get along with others. You will be asked to complete several lists of questions which will ask about how you think your child is feeling and he/she acts toward others. Your child will be asked to rate how he/she is feeling and acts toward others.

Answering the questions will take about 30 minutes. You may get some value out of thinking about some of the questions. All information from the questions you answer and the ones your child answers will remain strictly confidential. The results of the study will be reported as group averages. This means no one person's scores can be identified in the final report.

Being in the study is completely voluntary. If you decide to participate, you are free to discontinue participation at any time.

If you choose not to participate, please return the forms to school with your child.

This research is being conducted by Ramasamy Manikam and Larry Friedt. Dr. Johnny Matson (Professor at Louisiana State University) is supervising the project. If you have any questions, please call

I HAVE READ AND UNDERSTOOD THIS CONSENT FORM AND AGREE TO TAKE PART AND FOR MY CHILD TO TAKE PART IN THIS STUDY.

Signed: __________________________ Date: ___________

Child's Name: __________________________

Please complete all the questions the best you can.

THANK-YOU VERY MUCH FOR YOUR TIME AND HELP.
Curriculum Vita
Personal Data

Larry Ray Friedt

Home Address: 5430 9th St.
Lubbock, Texas 79416

Home Phone No.: (806) 791-2026

Office Address: Mental Health Clinic
64th FTW Hospital
Reese AFB, Texas 79489

Office Phone: (806) 885-3739

Education

1990 Ph.D. Louisiana State University
Baton Rouge, LA.
Major: Clinical Psychology
Minor: Developmental Psychology

1986 M.A. Louisiana State University
Baton Rouge, LA.
Major: Psychology

1984 B.A. University of Akron
Akron, Ohio
Major: Psychology
Honors: Summa Cum Laude

Professional Organizations

Jan. 90 Society of Air Force Clinical Psychologists
to present

Professional Related Experience

Aug. 90 to present Air Force Psychologist
Title: Chief of Mental Health
Mental Health Clinic
64th FTW Hospital
Reese AFB, Texas 79489

Duties: Supervision of Mental Health Technician,
provide psychological services for the entire under-
graduate pilot training base. Services provided
include evaluation for occupational disposition, treatment for a variety of disorders and conditions (depression, anxiety, headaches, pain, alcohol, etc.). Most evaluations include psychological testing and interviewing. In addition to individual services several group psycho-educational services are provided (stress management, smoking cessation, relaxation training, depression management) in addition to support groups.

Aug. 89 Internship
Title: Clinical Psychology Resident
Wilford Hall Medical Center
United States Air Force
San Antonio, Texas 78242

Duties:

1. A rotation that involved the selection, administration, scoring, and interpretation of neuropsychological tests culminating in a final written neuropsychological evaluation report.
2. A rotation that involved the evaluation of Basic Airmen for disposition and conducting group treatment that focused on increasing coping skills.
3. A behavioral health rotation that involved the evaluation and treatment of a variety of medically related problems (headaches, chronic back pain, etc.). Treatment modalities included both individual and group. Group treatments included stress management, smoking cessation, relaxation training, and depression management. Biofeedback utilizing thermal and EMG treatments were used with individual patients.
4. An outpatient rotation which consisted of conducting Command Directed Evaluations for disposition, evaluating and treating individual patients which had a variety of problems (depression, anxiety, hypochondriasis, occupational/personal stress, etc.). Several marital couples were also treated using a behavioral intervention.

Supervisors: Denise Fiducia, Ph.D.
Reginald Larkin, Ph.D.
Robert Klepac, Ph.D.
William Kelleher, Ph.D.
Wayne Talcott, Ph.D.
Rex Frank, Ph.D.

Sept. 88 Externship (20 hrs. per week)
to July 89  Title: Clinical Assistant in Psychology
Behavioral Science Consultants, Inc.
Our Lady Of The Lake Regional Medical Center
Rehabilitation Care Center
Baton Rouge, LA 70809

Duties:

Complete initial evaluations and implement treatment (group and individual) of patients who have sustained a closed head injury, stroke, spinal cord injury, or other medical related problem and function as a member of a transdisciplinary team (interacting with speech, physical, recreational and occupational therapists). Treatments implemented with these patients include a wide variety of techniques based on individual need (i.e. relaxation training, cognitive training, visual scanning training, behavioral management techniques, sensory feedback).

Supervisors: W. Drew Gouvier, Ph.D.
            Phillip J. Brantley, Ph.D.
            Eleanor B. Callon, Ph.D.

Oct. 1986 to Sept. 1988  Externship  (40 hrs. per week)
Title: Psychological Associate
Feliciana Forensic Facility
Jackson, LA.

Duties:

Complete initial intake interviews and more extensive forensic psychological evaluations through interviews, reviewing records, and administering/interpreting psychometric instruments; Interdisciplinary Treatment Team Manager and participation in clinical staffings; conduct individual and group therapy (special problems group with schizophrenic and depressed patients); and conduct research.

Supervisors: Thomas C. Pain, Ph.D. ABPP
            Charles P. Vosburg, Ph.D.

June to Oct. 1986  Externship  (40 hrs. per week)
Title: Psychological Associate
Hammond State School (facility for mentally retarded)
Hammond, LA.

Duties:

To write behavior management programs; participate
as a member of an interdisciplinary treatment team; provide training of staff members; and coordinate the implementation of treatment programming.

**Supervisor:** Gene Todd, Ph.D.

**June to Aug. 1985**

**Title:** Psychology Trainee (summer position 40 hrs. per week)

Veteran's Administration Medical Center
Waco, Texas

**Duties:**

Complete intake interviews and psychological evaluations; participate as a member of an interdisciplinary treatment team; and provide individual therapy for psychiatric inpatients.

**Supervisor:** James Madden, Ph.D.

**May 1983 to Aug. 1984**

**Title:** Therapeutic Program Worker (40 hrs. per week)

Sagamore Hills Children's Psychiatric Hospital
Northfield, Ohio

**Duties:**

To provide in hospital supervision and care of severely disturbed youth, write daily evaluations of specific target behaviors, participate in interdisciplinary treatment teams, and write/implement special activity programs (e.g. weight training).

**Supervisor:** Randy Laws

**1979-84**

**Title:** Parent Therapist
Youth Residential Services
Akron, Ohio

**Duties:**

Provide in home therapy and counseling for emotionally disturbed children; including writing daily evaluations of identified target behaviors toward specific goals.

**Supervisors:** John Lasher, M.A.
Lorena Goold, M.Ed.

**1982-83**

**Title:** Residential Assistant
Metropolitan Akron Residential Services
Akron, Ohio
Duties:

Care, supervision, and education (e.g. program writing and teaching adaptive skills) of mentally retarded adults and children in a residential setting.

Supervisor: Lynn Stratton

Practicum Experience

1987-88 Psychological Services Center
Louisiana State University
Baton Rouge, LA.

Duties:

Completion of evaluations through interviewing and testing. Provide consultation and treatment for children in schools and other outpatient settings.

Supervisor: Johnny L. Matson, Ph.D.

1985-86 Title: Pediatric Psychology Intern
Earl K. Long Memorial Hospital
Baton Rouge, LA.

Duties:

Evaluate through interviewing and testing, and provide individual therapy for outpatient and inpatient children.

Supervisor: Mary L. Kelley, Ph.D.

1984-85 Psychological Services Center
Louisiana State University
Baton Rouge, LA.

Duties:

Interview, evaluate, and provide counseling for children; participate in a group for providing parent training for parents of problem children.

Supervisors: Tommy Stigall, Ph.D.
Mary L. Kelley, Ph.D.

Publications

Articles in Press
Published Articles


Master's Thesis


Manuscripts Submitted

Blanchard-Fields, F., & Friedt, L.R. Relationship and job satisfaction: The moderating influence of age and sex.

Book Chapters


Paper Presentations

the National Academy of Neuropsychology conference in Orlando, Florida in November.


Book Reviews


Dissertation


Editorial Responsibilities

Guest Reviewer  Applied Research in Mental Retardation

Workshops Attended

"MMPI-2 Workshops and Symposia: Overview of the MMPI-2" Presented by James Butcher, Ph.D. and directed by Rex Frank, Ph.D. Wilford Hall Medical Center, Lackland AFB,
Texas  June 6, 1990.

"Psychological Effects of Physical Violence and Trauma"
directed by Edna Fiedler, Ph.D. & Denise Fiducia, Ph.D.
Wilford Hall Medical Center, Lackland AFB, Texas May 17-19, 1990.

"The Second Annual Clinical Adult Neuropsychology Workshop"
directed by R. John Wakeman, Ph.D. Alton Ochsner

"Intimate and Sexual Relationships" presented by Constance
Avery-Clark, Ph.D. Sponsored by Parkland Hospital (HCA)
and presented at the Embassy Suites Hotel, Baton Rouge,
Louisiana March 19, 1987

Professional Interests

Therapy and Research (current research interests include:
  depression, and neuropsychological assessment, behavioral
  medicine issues)

Honorary Societies

Psi Chi
Phi Sigma Alpha
Candidate: Larry Ray Friedt

Major Field: Psychology


Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature]
[Name]

[Signature]
[Name]

[Signature]
[Name]

[Signature]
[Name]

Date of Examination:

November 30, 1990