5-1995

An Investigation of the Construct Validity of the Preschool and Kindergarten Behavior Scales

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AN INVESTIGATION OF THE CONSTRUCT VALIDITY OF THE PRESCHOOL AND KINDERGARTEN BEHAVIOR SCALES

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1995

ABSTRACT

An Investigation of the Construct Validity
of the Preschool and Kindergarten Behavior Scales

by

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Utah State University, 1995

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A relatively recent measure, the Preschool and Kindergarten Behavior Scales (PKBS), has been developed to measure both problem behavior and social competence in young children. The primary purpose of this study was to examine the construct validity of the PKBS through the application of several validation procedures. Results of the study support construct validity of the PKBS. In a discriminant analysis, the PKBS classified correctly 89.36% of the 94 subjects. A secondary purpose of this study was to examine social-emotional behavior differences between kindergarten students who were divided into different behavioral status groups based on a teacher nomination procedure: a behaviorally at-risk group comprised of both internalizing and externalizing students and a comparison group of behaviorally typical students. Statistically significant differences were found between groups on most variables. (84 pages)

ACKNOWLEDGMENTS

I would like to thank Dr. Ken Merrell for his support and encouragement throughout my education at Utah State University. Not only was he a dedicated chairperson, but he also was an excellent advisor. I would also like to thank my committee members (Patricia L. Truhn, Richard Baer, Michael Bertoch, David Bush, and Beth Foley) for their support and expertise throughout the writing of this document.

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PROBLEM STATEMENT

Preschool assessment has become an increasingly important topic for researchers and clinicians in the last 20 years, especially for educators, school psychologists, and school counselors (Hohenshil & Humes, 1988). Contributing to the need for preschool assessment are societal factors that have fostered interest in the area of preschool assessment. Martin (1986) cited three reasons for the increasing interest in preschool assessment: (a) increasing numbers of women in the work force, causing children to spend more time away from their families; (b) emerging evidence linking early social-emotional development to psychopathology; and (c) an increasing focus on prevention and early detection of developmental problems.

Another influence on preschool assessment was the passage of the Education of the Handicapped Act Amendments of 1986 (P.L. 99-457), which expanded public education to include early intervention programs (McLinden, 1989). With the opportunity for early intervention programs came the need for instruments that could not only identify children with disabilities but also help educators with diagnosis and program planning (Paget & Nagle, 1986; Smith, Bauer, & Lyon, 1987).

Preschool assessment includes many different behavioral domains with most tests designed only for specific uses. For example, some instruments are designed to measure developmental characteristics of children (e.g., the Battelle Developmental Inventory; Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984), while others are designed to measure personality characteristics of children (e.g., Personality Inventory for Children; Wirt, Lachar, Klinedinst, & Seat, 1977). Still others are designed for

behavioral assessment of young children (e.g., Child Behavior Checklist; Achenbach, 1991).

A number of behavioral assessment instruments have been developed for use with preschool children, but the content of these measures varies. Some measures for preschool children focus primarily on problem behavior (e.g., Conner's Teacher Rating Scale-Revised; Goyette, Conners, & Ulrich, 1978), whereas others focus more on social competence and exclude problem behavior (e.g., the Walker-McConnell Scale of Social Competence and School Adjustment; Walker & McConnell, 1988). Some researchers have indicated that the content of social competence instruments is quite varied (Saunders & Green, 1993), which may cause confusion as to which measures are appropriate. Even developmental scales frequently include assessment of social functioning as just one of many other subscales (e.g., the Battelle Developmental Inventory; Newborg et al., 1984).

One distinct area of behavioral assessment is social-emotional assessment. Instruments designed to provide information about the social-emotional development of a child have become increasingly important as educators have focused on primary prevention of social-emotional problems (Carroll, 1984). Assessment of social-emotional functioning through behavior rating scales is the focus of this study.

Behavior rating scales are frequently used by psychologists and special educators to aid in diagnosis and program planning for preschool children. When assessing the social-emotional functioning of preschool children, behavior rating scales have some distinct advantages over other assessment methods such as self-report measures and structured interviews. Self-report measures and structured clinical interviews may be of little use with

preschool children because 3- to 5-year-old children usually do not have the reading ability required for self-report measures; they also do not have the conceptual development nor the vocabulary needed for structured interviews (Lidz, 1986; Martin, 1986). Direct observation, another method for collecting data, also has its limitations. Observing children can be time-consuming, requires extensive training, and may provide only fragmented information because children may behave differently in varied settings.

Despite their frequency of use with preschool populations, behavior rating scales also have limitations. One limitation is the instrument's technical adequacy. In order to be technically adequate, a measure must be demonstrated to have reliability and validity. It also must have been normed on the population of its intended use. Many problems with the usefulness and technical adequacy of preschool measures have been noted by researchers (Paget & Nagle, 1986), particularly with the quality of existing instruments (Bracken, 1987).

A relatively recent measure, the Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1994b), has been developed to measure both problem behavior and social competence. Merrell (1994b), the author of the PKBS, claims that the measure differs from other measures in two ways. First, it was designed specifically for use with the preschool and kindergarten age group, and second, it contains two separate scales, Problem Behavior and Social Skills, that can be used to assess behavioral functioning. Additional positive features of the PKBS are its relative ease in administration, scoring, and interpretation. The items also appear to have good face validity for classroom use.

Because it is a new measure, additional validation research on the PKBS is needed. In this study, various forms of construct validity of the PKBS were examined. The convergent and discriminant validity of the PKBS were examined by correlating scores from the PKBS and scores from two measures: a modified version of the Teacher Report Form (Achenbach, 1991) and the Walker-McConnell Scale of Social Competence and School Adjustment (Walker & McConnell, 1988). The construct validity of the PKBS also was examined by testing the sensitivity of the instrument at detecting differences between children who differ behaviorally: behaviorally typical kindergarten children and kindergarten children who are identified by teachers as having internalizing or externalizing problem behaviors.

REVIEW OF THE LITERATURE

Background information on four concepts is important for understanding this study: the construct of early childhood social-emotional development, the problems associated with assessment of preschool children, the psychometric constructs of convergent and discriminant validity, and the variance issues associated with behavior rating scales. These concepts are overviewed in this chapter. Included in the Instrumentation section of this document is information on the test developer's findings related to the validity of the PKBS.

Social-Emotional Development

Adequate social-emotional functioning is important for participation in the benefits of society, including participation in the public school system. Hatch (1987) stated that people who "never learn to be successful participants in interactive situations are confined to the sidelines of human experience" (p. 169). When children reach preschool age, their behavior must increasingly meet the standards of the community in addition to the standards of the home (Vaughan & Litt, 1990). Children who have poor relationships with peers are at risk for later psychological maladjustment (Dodge, 1989). Social competence deficits also have been linked to problems in the home (Matson & Ollendick, 1988). Development related to social competence and problem behavior is an important part of the preschool years.

Social Competence

Defining Social Competence

The term social competence has been used in a variety of ways to describe a person's ability to initiate and maintain social relationships. Initially, the term social competence was used by Edgar Doll (1953), a pioneer in the assessment of mental retardation, to describe adaptive behavior, but the term now is used to describe a more global construct. There is still no universal definition of social competence (Howes, 1987; Saunders & Green, 1993). Many authors have offered definitions of social competence alone, while some researchers distinctly define subsets of social competence such as social skills. For example, Walker, Colvin, and Ramsey (1995) identified three essential elements of social competence:

> (1) to recruit social support networks and friendships, (2) to meet the demands of teachers who control classrooms and peers who control playgrounds, and (3) to adapt to changing and difficult conditions in one's social environment. (p. 227)

In contrast, these authors described social skills as specific competencies that promote positive social relationships and peer acceptance and that allow a person to effectively cope with his or her environment.

Despite the numerous definitions for social competence, it is clear that having adequate social skills is an important factor in being a member of society because children who do not develop adequate social skills risk negative outcomes or maladjustment (Merrell, 1994a; Rubin, Hymel, Mills, & Rose-Krasnor, 1991). Some researchers even feel that social competence is a "necessity for success in school" (Saunders & Green, 1993, p. 39). In this section, social competence will first be defined and then factors that may affect social competence will be delineated.

Definitions of social competence are numerous (Howes, 1987). In a review of the literature on social competence, Saunders and Green (1993) described social competence as "a complex construct which involves the interrelationship of cognitive, social and biological factors" (p. 44). Pellegrini and Glickman (1990) defined social competence as "children's adaptation to their school and home environments" (p. 40). Hatch (1987) described social competence as a complex experience in which children must be able to

> recognize the taken-for-granted norms of acceptable social behavior operating in each new social context. They must be able to interpret the communicative signalling of interaction partners and have the ability and confidence to generate appropriate responses. (p. 176)

Anderson and Messick (1974) described four approaches to defining social competence as delineated by a panel for the Office of Child Development. The first approach was based on a set of virtues or ethics; the second was based on children's characteristics as predictors of adult functioning; the third approach was based on a normative approach in terms of age-appropriate and situation-specific behaviors; and the fourth was based on theoretical conceptions of development. The first two approaches were seen to be seriously flawed because they did not address age or situation in their definitions. The third approach was considered to have value but could be viewed as culturally biased because national norms may not take into account local culture, and the fourth definition was seen to be inadequate because theory may not adequately explain some situations. Because all approaches were seen to be flawed in some way, the panel noted that all approaches should be taken into account when attempting to describe social competence.

Greenberg, Kusche, and Speltz (1991) stated that many theories about development do not adequately integrate behavior, cognition and emotion. Their model, the ABCD (affective-behavioral-cognitive-dynamic) model, emphasizes the integration of affect, behavior, cognition, expectancies, and communication skills in order to understand social competence. The premise for the model is that language, thought, and behavior are intimately connected and that all are developmentally intertwined.

A model for social competence that Gresham and Elliott (1987) proposed includes social skills, peer relations, and adaptive behavior as subordinate constructs to the higher construct of social competence. This model is the most useful for this study as it separates social competence into three distinct areas. Adaptive behavior involves a person's ability to function in the community, social skills are more related to "specific behaviors that lead to desirable social outcomes for the person initiating them," and peer relations are dependent on a person's social skills (Merrell, 1994a, p. 215). Adaptive behavior is not assessed in the instruments used in this study to measure social competence, nor are peer relations directly assessed; rather, teacher perceptions of a child's social competence are assessed.

The Development of Social Competence

The development of social competence is considered to be interrelated with other developmental constructs. The preschool years are characterized by extremely rapid developmental changes with widely varying differences in the way development occurs (Campbell, 1991). Preschool children, who generally range from age 2 to 6 (Fitch, 1985), are considered to be in Erik Erikson's Initiative vs. Guilt stage of psychosocial development, during which children become capable of fantasizing and feeling guilt (Vaughan &

Litt, 1990), which is important for developing adequate peer relations. Erikson believes children at this stage begin to engage in purposeful behavior and learn to initiate their own activities (Cole & Cole, 1989). They also tend to move toward greater independence (Fitch, 1985).

The preschool years are sometimes called the preoperational period of cognitive development, during which advances are made in language development and in the understanding of consequences of manipulations (e.g., conservation) (Vaughan & Litt, 1990). Preschool speech is often characterized by egocentric language. The early preschool child has difficulty identifying with the feelings of others. By age 4, the preschooler's speech grows less egocentric and begins to reflect an ability to make comparative statements, resulting in more of an emphasis on social speech (Fitch, 1985). Preschool children also may have difficulty with some cognitive concepts. One cognitive concept that children begin to understand during the preschool years is the concept of causality. Preschool children often have difficulty linking two events together cognitively and will often create reasons for events having occurred. They also may feel that accidents happen as a result of someone's evil behavior (Fitch, 1985).

As the preschool child gets older, the amount of time spent with peers increases while the amount of time spent with adults decreases (Fitch, 1985). Play is a major part of the preschooler's life, helping children develop and learn about social norms. The preschool period, which is marked by the social organization of the peer group (Howes, 1987), is often the first opportunity children have to participate in structured activities with their same-aged peers. Pelligrini and Glickman (1990) described peer relations in kindergarten as an "important developmental hallmark. . ." (p. 40). During

the preschool years, play becomes an important factor in the socialization and acculturation of children (Vaughan & Litt, 1990).

The ability to empathize with others is also an important part of social competence and development during the preschool years. Piaget hypothesized that children during the preschool years are characterized by egocentricism (Fitch, 1985), which makes it difficult for them to consider others' viewpoints. During play, children learn specifically about behaviors that promote social competence, such as role taking and empathy. Role taking involves the ability to make inferences about another person's situation, whereas empathy is seen by some researchers as the core emotion from which comes the motivation for positive social behaviors (i.e., prosocial behaviors) that lead to social competence (Cole & Cole, 1989). Empathy is the ability of one person to emotionally experience another person's distress and emotions. Eisenberg and Miller (1990) stated that children who exhibit high levels of role taking and empathy along with moral reasoning appear to be more likely than children who are low in these capabilities to exhibit prosocial behavior. They also stated that the assumption has been that if a person can emotionally experience another's distress, he or she is more likely to be motivated to do something to relieve that stress than others would. In addition, some researchers hypothesize that the more we empathize with others, the less likely we are to aggress against them (Goldstein, 1988).

As children develop language, cognitive, and motor skills, they also develop and learn social skills. Walker et al. (1995) stated that social skills should be part of the academic curriculum just like math and reading. They wrote that "socially effective behavior lays the groundwork for success in and out of school and throughout one's life" (p. 229). The belief that social skills

can be taught is shared by many researchers (e.g., Goldstein, 1988; Gresham, 1986). Gresham (1986) noted that children may not display adequate social skills for two reasons. They may have a skill deficit in which they have not yet learned the behavior, or they may have a performance deficit in which they choose not to display the behavior. Gresham stated that it is important to note the distinction because the treatment for each varies.

Factors That May Influence Social Competence

Besides being linked to particular developmental milestones, the development of social competence is linked to other factors as well. The child care system in combination with the family system may influence the development of social competence with peers (Howes, 1987). Within the family system, socialization occurs primarily through contact with relatives and local friends and is significantly influenced by the home environment (Saunders & Green, 1987). The child's relationship with the mother may affect a child's behavior (Crowell, Feldman, & Ginsberg, 1988). Parental efficacy, particularly parental locus of control and parental interpersonal support, may influence the development of social competence in preschool children as well (Swick & Hassell, 1990).

Within child care, many factors contribute to the development of social competence. The stability of the adult caregivers and the peer group may affect a child's willingness or ability to form attachments to others (Howes, 1987). A child's social competence may also be affected by the composition and size of the peer group with numbers of children affecting the quality and type of interactions (Howes, 1987). Some researchers have found that some children who are maltreated may be positively affected by their experience in day-care settings (Bradley, Caldwell, Fitzgerald, Morgan, & Rock, 1986). Others

have found that the quality of day care after the second year is of little value in predicting later social competence but may have a stronger relationship with the supportiveness of the family's social network (Lamb, Hwang, Broberg, & Bookstein, 1988). Other researchers have found that maternal employment or attendance at preschool did not seem to affect the behavior of children for good or bad (Richman, Stevenson, & Graham, 1982), while others found a weak relationship between development of prosocial skills and attendance at preschool (Richman et al., 1982).

As preschool children interact with peers, they learn new competencies. They learn how to get along with their peers, and they learn to empathize with others (Fitch, 1985). Difficulties arise in the preschool years when children do not learn or refuse to use appropriate social skill conventions. Rather than displaying prosocial behaviors, children who do not use appropriate social skills often display problem behaviors. Even though the constructs of social competence and behavior problems are discussed separately in this document, the constructs appear to be interrelated. For example, in one study both negative social behavior and social withdrawal predicted depression in children (Bell-Dolan, Reaven, & Peterson, 1993). Likewise, research has been conducted on the comorbidity of externalizing disorders (i.e., conduct disorder) and internalizing disorders (i.e., depression) (Ben-Amos, 1992; McConaughy & Skiba, 1993). A combination of internalizing and externalizing problem behaviors together may pose the greatest threat to interpersonal relationships (Rudolph, Hammen, & Burge, 1994). Some researchers hypothesize that social incompetence is associated with a number of disorders, including Conduct

Disorder, Attention Deficit-Hyperactivity Disorder, Social Phobia, and Avoidant Personality Disorder (Dodge, 1989).

Problem Behavior

Problem behavior most likely develops from a myriad of pathways (Campbell, 1991). Maladaptive behavior patterns are difficult to change and most often do not change without intervention. Young children who exhibit behavior problems are at increased risk for developing behavior problems later in school life (Richman et al., 1982). For example in India, Deb (1988) found support for a gradual development of mental health problems in children 3 years 6 months to 4 years 5 months. Children who have poor peer relations are at risk for a variety of problems, including later aggressive behavior, academic difficulty, and psychological problems (Putallaz & Dunn, 1990). Poor peer relations have been linked to juvenile delinquency (Conger & Miller, 1966), to high-school dropout rates (Amble, 1967), and to low socioeconomic status (Ladd, 1983). Also, boys are more likely to continue to show problematic behavior than are girls (Richman et al., 1982).

McGuire and Richman (1987) studied the persistence of behavior problems over a 20-month period in about 300 preschool students in day nursery settings in the United Kingdom. They found that the preschool children's behavior problems in the high-risk group generally persisted over the 20-month period. The authors hypothesized that social factors might have contributed to the problems in the high-risk group, including parenting difficulties and family stress. The at-risk preschool sample studied by McGuire and Richman is not unlike Head Start and developmental preschool populations in the United States. Other researchers have found that a strong

predictor of the persistence of behavior problems is a currently disturbed family relationship (Richman et al., 1982).

Richman et al. (1982) identified two main categories of problem behavior in preschool children: first are problems characterized by fearfulness and timidity and second are those characterized by aggressive behavior. These two types of problems have frequently been labeled internalizing and externalizing problem behaviors (Quay & La Greca, 1986). These constructs are discussed in the following several pages.

Externalizing Behavior Problems

Preschool children are frequently not diagnosed with disorders but are often given the label "developmentally delayed" if their functional abilities do not match their peers' abilities. Preschool children also are frequently ignored in terms of externalizing behavior because their behavior is often seen as typical for that age (Campbell, 1991). Campbell explained that even though aggressive 2- and 3-year-old children are dismissed as behaving within normal developmental limits, many children with problems in the preschool period continue to have problems later in life. Externalizing behaviors in particular seem to persist over time (Rutter & Giller, 1983). They are especially problematic in relation to peer acceptance because simply limiting or reducing aggressive acts does little to enhance positive social behaviors (Dodge, 1989).

Externalizing disorders are comprised of two main characteristics: aggressive symptomatology and hyperactivity (Cicchetti & Toth, 1991). Thus, two externalizing disorders are important in the development of preschool children: Conduct Disorder and Attention Deficit Hyperactivity Disorder (ADHD). Conduct Disorder is important because it is often linked to early

aggressive behavior, and ADHD is important because children frequently manifest symptoms of ADHD at a young age. In addition, children with ADHD will often display comorbid conduct problems (Barkley, 1990). For example, Campbell (1991) found that symptoms of ADHD like hyperactivity, inattention, and poor impulse control tend to occur along with early indicators of aggression and noncompliance, which are characteristics of Conduct Disorder.

Conduct Disorder. Aggression for preschool children is a predictor of later childhood problems and has been associated with adolescent antisocial behavior and other externalizing problems (Pelligrini & Glickman, 1990). Both biological and environmental factors influence aggression (Perry, Perry, & Boldizar, 1990), making it difficult to be certain why some children act aggressively and others do not. In addition, even though children may behave similarly, the pathway through which they learned that behavior may be very different (Campbell, 1991).

Early aggressive behavior has been linked to juvenile offense and to later Conduct Disorder (Quay, 1986). Conduct Disorder is characterized by physical and verbal aggression, noncompliance, instrusiveness, lack of self-control, and impaired interpersonal relations (Quay, 1986). The prevalence for Conduct Disorder varies, depending on the sample and the methods used to gather the information. Prevalence rates taken from the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV; American Psychiatric Association, 1994) for males range from 6% to 16% and rates for females range from 2% to 9%. The specific criteria for diagnosing Conduct Disorder are as follows:

> The essential feature of Conduct Disorder is a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated. These behaviors fall into four main groupings: aggressive conduct that causes or threatens physical harm to other people or animals, nonaggressive conduct that causes property loss or damage, deceitfulness or theft, and serious violations of rules. (American Psychiatric Association, 1994, p. 85)

Aggression in children, like other behaviors, changes along with other developmental milestones. For example, Fitch (1985) cited two common reasons for the preschool child to display physical aggression: (a) unsuccessful attempts by the parent to train the child in a socially acceptable behavior and (b) conflicts with peers. Parenting training and negotiating with peers are two major portions of preschool development. Likewise, tantrums change over the course of a child's development. Before age 3 tantrums may not be directed at anyone in particular, but after age 3 verbal aggression toward others increases (Cole & Cole, 1989) as socializing with others becomes more important.

Delays in development may also be linked to aggressive behavior. Benasich, Curtiss, and Tallal (1993) found that behavior problems in language-impaired children were not necessarily indicative of underlying disturbances but may have been due to "neurodevelopmental lags seen in these children at a number of levels" (593). Swick and Hassell (1990) found that children who scored low on motor, communication, and concept skills were judged by their teachers as more likely to be hostile. These same children were seen as socially impaired by their parents and by their teachers. Richman et al. (1982) found a strong relationship between language delay and behavior problems by 3 years of age.

The reason early behavior problems are so important is that they may lead to problems later in life, from similar behavior problems in the

following several years (McGuire & Richman, 1987) to Conduct Disorder in later stages of development (Greenberg et al., 1991). Loeber (1982) found that an important factor in antisocial and delinquent behavior was early involvement with delinquent behavior. Children with severe conduct disorders often continue to have difficulties well into adulthood (McMahon & Wells, 1989). And because conduct and antisocial problems are so costly to society (Short & Shapiro, 1993), it is important to identify and remediate aggressive problems early in a child's life. In addition, externalizing behavior problems may also lead to peer rejection, particularly in the case of aggression (Coie, Belding, & Underwood, 1988; Short & Shapiro, 1993).

Attention Deficit Hyperactivity Disorder (ADHD). Conduct Disorder and ADHD frequently co-occur in children. Barkley (1990) reported that young children with ADHD may be more likely than others to develop Conduct Disorder and later antisocial disorder. ADHD, which is an externalizing disorder, is characterized by inattention, impulsivity, restlessness, and hyperactivity. Restlessness is a particularly important symptom because preschool children who are restless are more likely to show antisocial behavior such as aggression, whereas children who are fearful are more likely to show neurotic deviance (Richman et al., 1982). Common comorbid conditions include school underachievement, oppositional defiant behavior, antisocial behavior, and learning disabilities (Barkley, 1990). The specific guidelines for diagnosing ADHD taken from the DSM-IV are as follows:

> The essential feature of Attention-Deficit/Hyperactivity Disorder is a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development. Some hyperactive-impulsive or inattentive symptoms that cause impairment must have been present

> before age 7 years, although many individuals are diagnosed after the symptoms have been present for a number of years. Some impairment from the symptoms must be present in at least two settings (e.g., at home and at school or work). There must be clear evidence of interference with developmentally appropriate social, academic, or occupational functioning. (American Psychiatric Association, 1994, p. 78)

Formal conceptualizations of ADHD vary, but one key factor in conceptualizing the disorder appears to be poor regulation of behavior. Barkley (1989) described ADHD as a developmental deficiency in the use of consequences to regulate and maintain behavior, which in turn cause problems in inhibiting, initiating, or sustaining responses to stimuli. They have particular problems in situations where consequences for behavior are delayed, weak, or nonexistent and in situations where there are competing stimuli (Barkley, 1990) such as a classroom.

ADHD, which has a prevalence of 3% to 5% in school-age children (American Psychiatric Association, 1994), is important to clinicians in the preschool arena because the disorder appears to have its onset in infancy or early childhood. In fact, to diagnose ADHD the symptoms must have begun prior to the age of 7 (American Psychiatric Association, 1994). Although symptoms can be seen as early as infancy, problems in behavior appear to be identified by caregivers most often during the preschool years, between ages 3 and 4 (Barkley, Fischer, Newby & Breen, 1988). By age 6, the symptoms are quite pronounced and the children's behavior is markedly different from peers in the area of sustained attention, impulsivity, and restlessness (Barkley, 1989). Both boys and girls display the similar symptoms although boys are diagnosed almost three times as often as girls (Barkley, 1990). It is interesting to note that by the time symptoms are pronounced at age 7,

intervention may be only marginally useful, making identification of symptoms at the preschool level imperative (Jensen et al., 1993).

Another reason ADHD is important to clinicians is that some research indicates that children with ADHD tend to have poor interpersonal relations, especially relations with peers, which indicates that inattention and impulsivity may interfere with social cues. Because most children generally do not outgrow the symptoms of ADHD in adolescence (Barkley, 1989), the social problems most likely will continue. In addition to poor peer relations, they are more likely to have internalizing symptoms like depression and low self-esteem than matched samples (Johnston, Pelham, & Murphy, 1985). Depression and low self-esteem frequently persist along with interpersonal problems into adulthood (Weiss, Hechtman, Milroy, & Perlman, 1985).

Internalizing Behavior Problems

Internalizing disorders in childhood have not been researched as often as externalizing disorders and internalizing disorders of adulthood (Cichetti & Toth, 1991). The internalizing behavior problem construct appears to be comprised of indicators of anxiety, social withdrawal, and depressive symptoms (Grossman & Hughes, 1992) rather than full-blown disorders (Quay & La Greca, 1986). Among the disorders that comprise subtypes of internalizing disorders for children are childhood depressive disorders and anxiety disorders (i.e., Separation Anxiety Disorder, Avoidant Disorder, and Overanxious Disorder).

Other than Separation Anxiety Disorder, internalizing disorders are rarely diagnosed in early childhood as is evidenced by the paucity of such disorders in the DSM-IV (American Psychiatric Association, 1994) listed under disorders that are usually first diagnosed in childhood. Separation

Anxiety Disorder is the only child-specific internalizing disorder listed in this section. For other disorders, clinicians use the same section of the manual that is used to diagnose adults with some additional guidelines for children. But little research exists on childhood manifestations of depressive disorders, and it is important to determine whether distinctions between disorders for adults fit children and adolescents (Jensen et al., 1993).

Although clinicians currently use guidelines in the DSM-IV to diagnose internalizing disorders, there have been many schools of thought related to childhood depression since the 1950s (Clarizio, 1989). A view that dominated the field of child psychology in the 60s and 70s was that disorders, like depression, do not occur in children (Kazdin, 1989). Consequently, some researchers believe that depression in children has been underestimated over the years (Stark, 1990). Currently, most professionals agree that children can manifest depressive symptomatology, and some even believe that the age of onset for depression has been steadily decreasing (Jensen et al., 1993). Even though currently most professionals believe depressive symptomatology occurs in children, clinicians are faced with difficult questions related to depression and development because depression in children may present differently than in adults (Kazdin, 1989). Even in children, depressive symptoms may vary as a result of age and gender with some features of depression in older children (e.g., suicide) rarely occurring in younger children (Kazdin, 1989).

Similar problems exist in the area of anxiety disorders of childhood. Definitional problems are associated with anxiety disorders. For example, terms like "stress" and "anxiety" are frequently used interchangeably as are "fear," "anxiety," and "phobia" (Ramirez, Kratochwill, & Morris, 1987, p. 150).

This makes it difficult to determine exactly what disorder is being described. Although Separation Anxiety Disorder is clearly listed in the DSM-IV (American Psychiatric Association, 1994) as a disorder of childhood, other anxiety disorders are not listed as such. Many disorders for children (e.g., Major Depressive Disorder) are based solely on adult criteria (Jensen et al., 1993). Part of the difficulty is the developmental nature of problems in childhood because what may seem like an inordinate fear at one age may be very different at another age, depending on the child's cognitive and emotional development. They may also differ qualitatively. For example, infants most often fear heights, loss of physical support, and sudden changes in stimuli, whereas preschoolers and first-graders fear such things as darkness, parental separation, and abandonment (Barrios & O'Dell, 1989). Thus it is difficult to diagnose specific phobias in younger children because of the overlap between developmentally relevant fears and inordinate fears.

For childhood fears and anxiety, it was originally thought that childhood fears dramatically decrease over the course of a child's development, but more recent studies show that childhood fears may actually be fairly stable (Barrios & O'Dell, 1989), making identification of problems related to fear and anxiety important in the preschool population. Some researchers believe that many adult disorders begin in childhood (Jensen et al., 1993). The internalizing population is at greater risk than the externalizing population for not being identified because internalizers are often quiet and well-behaved children; it is the rowdy, acting-out children who are frequently identified as having problem behavior (Stark, 1990).

Although classification systems have paid little attention to preschool children (Richman et al., 1982), it is important to identify children who are at

risk for developing or continuing to display behavior problems. Even though diagnosing internalizing behavior problems is difficult, from a learning perspective it is reasonable to assume that behaviors practiced early in a child's life are likely to occur later in the child's life in some form. Early intervention is essential because many preschool children with behavior problems show similar behavior problems as they get older. Adequate assessment instruments are essential for early identification.

Problems Associated with Assessment of Preschool Children

There are many problems associated with the assessment of preschool children. Frequently, techniques used with adolescents and adults cannot be used with young children (Martin, 1986). Many assessment techniques rely on a person's current cognitive ability, making it especially difficult to assess young children. Preschool children often have not reached a developmental level that is congruent with the requirements of some assessment instruments. Most young children cannot comprehend written instructions, limiting the use of personality assessment, and they often do not have the cognitive ability to understand and answer interview questions (Martin, 1986). Likewise, they may not understand the demand characteristics of the situation, thus increasing the likelihood that boredom, fear, or fatigue may affect their performance (Martin, 1986; Pellegrini & Glickman, 1990).

Direct behavioral observation is a useful technique but often is too time-consuming and costly to be practical. Martin (1986) cited three main reasons that direct observations frequently are not used in preschool assessment. First, he stated that because behavior changes over time,

observations must be carried out over a time period. Second, he stated that the setting may affect the behavior of young children. And third, some observation systems require lengthy training, adding to their impracticality.

Behavior rating scales are frequently used with preschool children in place of self-reports, interviews, and direct observation. Behavior rating scales are easily administered and scored, providing an efficient means of collecting data. The rating scale relies on people who are a part of the child's daily life; thus the person who completes the rating usually provides frequent and direct care to the child as is the case with the child's parent or teacher. Behavior rating scales often yield data on several dimensions, and can provide information on the frequency and duration of certain behaviors. Another advantage to using rating scales is that scores from them can be easily compared to other measures, thus facilitating generalizability of findings.

Despite their advantages, behavior rating scales are not without limitations. One of the main weaknesses of rating scales is the variance associated with having a third person make judgments about a child's behavior without systematic data collection.

Sources of Variance

Behavior rating scales are popular to use because they can provide a plethora of information about a person in a relatively short time period. The disadvantage to using rating scales is that they are susceptible to different types of variance, which may hinder the true reflection of a person's behavior.

Behavior ratings may be affected by setting variance. Ratings require that a person rate an individual on dimensions that may not have been directly observed in a specific setting. Also, ratings are made without systematic data collection. Rather, the observation is made from "cumulative, uncontrolled observations of daily life" (Anastasi, 1988, p. 645). In order to improve the accuracy of the report, several considerations should be made. First, the person making the rating should have had contact with the person in the relevant setting. For example, if a rating scale asks information about playground activity, the person supplying the rating should have directly observed the child on the playground. Second, the rater should be directed to average a person's typical behavior patterns over a given time period.

Another type of variance that is a problem with behavior rating scales is rater or source variance. Raters who view the same child in the same setting may rate the child very differently. For example, two preschool teachers may work with the same child in a classroom, but one teacher may rate the child as having better social skills. The difference between the raters scores may be a result of the "unique perceptual biases of individual raters" (Martin, 1986; p. 221).

Another source of variance related to the rater is the halo effect. The halo effect occurs when one characteristic about a person affects the way he or she is viewed in other arenas. For example, a student may perform well during seatwork activities but may cause problems during large group activities. However, the teacher may describe the child as a good student because the student works hard during seatwork activities. Likewise, the halo effect can occur in the opposite direction. For example, a parent or

teacher who is frustrated with a particular student might tend to let an unfavorable trait influence ratings. To minimize the halo effect, researchers should tie the behavioral ratings to concrete behaviors rather than subjective descriptors, and they should use carefully formulated behavioral anchors (Anastasi, 1988).

Another problem with rating scales is that raters tend to avoid judging people and placing them at the extremes of the rating system. Two types of errors are derived from this: the error of central tendency and the leniency error. The error of central tendency reflects the tendency for people to rate individuals in the middle of the scale and avoid the extreme positions both positive and negative. The leniency error reflects the reluctance for people to rate people on the negative or unfavorable end of the scale. One way to combat the tendency for people to avoid judging others is to train raters on techniques used in observation of behavior and to train them about rating scale formats (Anastasi, 1988). Emphasizing the importance of accurately considering the ratings for children can help minimize the variance associated with behavior rating scales.

Despite their problems, rating scales are an efficient and cost-effective method for obtaining information. Merrell (1994a) outlined some of the basic advantages of using rating scales. First, they are fairly simple to learn to use, thus minimizing the amount of time needed for training in order to use the system. Second, they are useful for gathering information on low-frequency behaviors that might be missed with other assessment techniques (i.e., direct observation). Third, they provide more reliable data than unstructured interviews or projective techniques. And fourth, they utilize the judgment

and observations of individuals who know the subject well (i.e., parents or teachers) and, therefore, know the subject's behavior well.

Training raters can help eliminate sources of variance, but training raters does little for the validity of results received on a measure that has weak psychometric properties. The instrument itself must be psychometrically sound in order for it to be useful in providing information about preschool children.

Construct Validity

Psychometrically sound tests are essential for accurate identification of children with social competence deficits or behavior problems. Measures must be both valid and reliable to be technically adequate. Reliability refers to the consistency of scores across time or the consistency of scores under different conditions. Adequate reliability of a measure does not guarantee that it is also valid because an instrument may repeatedly yield the same scores but may not measure what its authors purport it to measure. Accurate conclusions from test information cannot be made unless measures are both reliable and valid.

A valid test is a test that measures what it is designed to measure. This simplistic definition can be misleading because there are many forms of validity (e.g., predictive validity, concurrent validity, etc.), and tests are valid only for specified uses. Construct validity is the extent to which a test measures a particular hypothetical construct (Borg & Gall, 1989). In order for a test to have construct validity, the test must be shown to correlate with tests that are designed to measure the same theoretical construct. This process is called convergent validity. Tests also must be shown to differ from those constructs that are theoretically different, which is called discriminant

validity. Another way of showing construct validity is to show that an instrument is sensitive to differences between groups that should be different on the construct being measured (Gregory, 1992). For example, scores on an intelligence test should differ for individuals depending on whether they are low or high intellectual functioning. Likewise, a problem behavior and social skills measure should be able to distinguish between groups of children who have adequate social skills and those who do not.

Anastasi (1990) cautioned that validating a test is a process, not an end result of one study, and that it is only through empirical investigation that we can determine what a test measures. She wrote that the validation of a test should take into account "the variables with which the test correlated significantly as well as the conditions found to affect its scores and the groups that differ significantly in such scores" (p. 162). Convergent validity and discriminant validity of the PKBS were examined in this study. In addition, the PKBS's sensitivity to group differences also was examined.

PURPOSE AND OBJECTIVES

The primary purpose of this study was to examine the construct validity of the Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1994b) through the application of several validation procedures. A secondary purpose of this study was to examine social-emotional behavior differences between kindergarten students who were divided into different behavioral status groups based on a teacher nomination procedure: a behaviorally at-risk group comprised of both internalizing and externalizing students and a comparison group of behaviorally typical students.

The convergent construct validity of the PKBS was examined by correlating scores from the PKBS with scores from two measures: a modified version of the Teacher's Report Form (TRF; Achenbach, 1991) and the Walker-McConnell Scale of Social Competence and School Adjustment (SSCSA; Walker & McConnell, 1988). The PKBS sensitivity to group differences was examined by comparing PKBS scores between children identified by teachers as externalizers and internalizers through a gating procedure from the Early Screening Project (ESP; Walker, Severson & Feil, 1995).

Specifically, the study was designed to answer the following primary research questions:

1. What is the relationship between scores on the PKBS and scores on the modified TRF?

2. What is the relationship between scores on the PKBS and scores on the SSCSA?

3. Does the magnitude of each relationship support convergent and discriminant construct validity of the PKBS?

4. Is the PKBS sensitive to group differences between behaviorally typical preschoolers and preschoolers who are nominated by teachers as exhibiting internalizing and externalizing behavior problems?

5. Are the three rating scale measures together (i.e., the PKBS, the SSCSA, and the TRF) sensitive to differences between different behavioral status groups?

6. What are the score differences between the internalizing, externalizing, and comparison groups on the three behavioral measures (i.e., the PKBS, the SSCSA, and the TRF)?

7. Does the separation of behaviorally at-risk kindergarten students into internalizing and externalizing subgroups result in a different pattern of behavioral comparisons than when this group is kept intact?

METHOD

Subjects

The sample for the study was 94 subjects from an array of socioeconomic backgrounds from the southeast portion of Idaho. Subjects were comprised of 47% females (n = 44) and 53% males (n = 50). All subjects were attending kindergarten and ranged from 5 to 6 years old. For ethnicity, 98% (n = 92) were Caucasian and 2% were Hispanic (n = 2).

Procedure

Each subject's kindergarten teacher completed the PKBS, the nomination procedure (the ESP), the TRF, and the SSCSA. The protocols were given to the teachers in a counterbalanced fashion. They also were coded to protect the identity of each subject. Teachers who participated in the study received an honorarium of $50 for completing protocols for 24 children.

The procedure for selecting subjects involved teacher nomination and random selection. Teachers were asked to review characteristics of internalizing and externalizing problem behaviors and then were asked to nominate three children who most closely matched the internalizing characteristics and three who matched the externalizing characteristics for a total of six students. Six comparison children were also randomly selected from the same class. Teachers completed 12 sets of protocols for two classes for a total of 24 children per teacher. Two cases were eliminated because of missing data, resulting in 94 total subjects. Specific instructions, which were given to the teachers, on how to use the nomination procedure and complete the protocols are included in the Appendix.

Study Design

The primary purpose of this study was to examine the construct validity of the PKBS. Both convergent and discriminant validity of the PKBS were examined. The PKBS's sensitivity to group differences also was examined through a discriminant function analysis.

Convergent Validity of the PKBS

The convergent validity of both the Social Competence scale and the the Problem Behavior scale was examined by correlating scores with two measures that are designed to measure similar constructs. The scores on the PKBS Social Competence Scale were compared with scores on the SSCSA. The convergent validity of the PKBS Problem Behavior Scale was examined by comparing scores on the PKBS Problem Behavior scale with scores on a modified version of the TRF.

Discriminant Validity of the PKBS

The discriminant validity of both the Social Competence scale and the Problem Behavior scale was examined by correlating scores with the same two measures used to investigate the PKBS's convergent validity. The scores on the PKBS Social Competence Scale were compared with scores on the TRF. The discriminant validity of the PKBS Problem Behavior Scale was examined by comparing scores on the PKBS Problem Behavior scale with scores on the SSCSA.

Sensitivity to Group Differences

The PKBS's sensitivity to group difference was examined by comparing PKBS scores of three different groups of children: those identified by their teacher as internalizers, those identified as externalizers, and those randomly selected.

Secondary Purpose of the Study

A secondary purpose of the study was to examine social-emotional behavior differences between kindergarten students who were divided into different behavioral status groups based on a teacher nomination procedure: a behaviorally at-risk group comprised of both internalizing and externalizing students and a comparison group of behaviorally typical students.

Instruments

Preschool Kindergarten Behavior Scales

The PKBS (Merrell, 1994b) is a norm-referenced behavior rating scale used to assess social skills and problem behavior in children 3 to 6 years of age. The standardization sample was comprised of 2,855 preschool and kindergarten students from the four U.S. geographical regions. The rating scale is designed to be used by parents and teachers or by other individuals who know the child well (e.g., foster parents, grandparents, etc.).

The PKBS is comprised of two scales: Social Skills and Problem Behavior. The Social Skills scale contains 34 items that are rated on a 4-point scale with 0 indicating "never" and 3 indicating "often." The items are

designed to reflect child behaviors that are likely to lead to positive social outcomes, such as cooperating with peers and adults and maintaining friendships. The Social Skills scale is divided into three subscales as follows: Social Cooperation, Social Interaction, and Social Independence.

The Problem Behavior scale is comprised of 42 items that are also rated on the same 4-point scale previously described. The items are designed to reflect problem behaviors that occur in the kindergarten and preschool population. The Problem Behavior scale is divided into two broad-band subscales, Internalizing and Externalizing problems, and five narrow-band subscales as follows: Self-Centered/Explosive, Attention Problems/ Overactive, Antisocial/Aggressive, Social Withdrawal, and Anxiety/Somatic Problems. The Internalizing problems scale is comprised of the narrow-band subscales of Social Withdrawal and Anxiety/Somatic Problems, while the Externalizing problems scale is comprised of the narrow-band subscales of Self-Centered/Explosive, Attention Problems/Overactive, and Antisocial/ Aggressive.

Scores on the PKBS are given for the subscales in terms of functioning levels, while total scores for each scale (i.e., Social Skills Total and Problem Behavior Total) are converted to standard scores, percentile ranks, and functioning levels. The functioning levels for the Social Skills scale and subscales include the following: High Functioning, Average, Moderate Deficit, and Significant Deficit. The functioning levels for the Problem Behavior scale and subscales include the following: No Problem, Average, Moderate Problem, and Significant Problem.

Scale of Social Competence and School Adjustment

The SSCSA is a social skills rating scale for teachers designed to identify social skills deficits in children. The scale contains 43 positively worded items that comprise three subscales as follows: Teacher-Preferred Social Behavior, Peer-Preferred Social Behavior, and School Adjustment Behavior. Items on the SSCSA are rated on a 5-point Likert-type scale from 1 (never occurs) to 5 (frequently occurs). The normative sample for the SSCSA consisted of 1,812 children from a wide ethnic, geographic, academic, and socioeconomic diversity.

Technical data published in the test manual are satisfactory. Reliability of the scale was evaluated using test-retest, internal consistency, and interrater reliability. Test-retest reliability coefficients for short-term studies ranged from .88 to .97, while the longitudinal test-retest reliability coefficients ranged from .61 to .70. Internal consistency coefficients ranged from .95 to .97. Coefficients for interrater reliability were modest (e.g., .53 between teachers and aides total score), which may be due to differences in perceptions of the children's behavior on the part of the raters.

Results of studies assessing the validity of the SSCSA were reported in the test manual. Construct validity was examined through factor analysis of the item selection pool sample. The SSCSA's sensitivity to group differences was examined through several studies. Separate discriminant function analyses were conducted using the three subscale scores and the total score could correctly classify a group of seriously emotionally disturbed students. The results were 77.27% for Subscale 1, 69.32% for Subscale 2, 64.77% for Subscale 3, and 80.68% for the Total Score. Criterion-related validity was examined through a variety of criterion variables. Results of the most

noteworthy include a teacher rating of school adjustment, which correlated .74 with the Total Score on the SSCSA, and total reading achievement, which correlated .50 with the Total Score on the SSCSA. Concurrent validity coefficients were adequate, ranging from .16 to .75. Most coefficients were .50 and above.

Teacher's Report Form

The TRF (Achenbach, 1991) is a behavior checklist that is designed to assess the social competencies and problems of children and adolescents. The TRF, which can be used with children age 5 to 18, is completed by the child's teacher. The TRF provides scores in the area of social competence and problem behavior. Only the problem behavior scale was used for this study. Two broadband scales, Internalizing and Externalizing, provide scores for both boys and girls. Narrow band subscales for boys age 5 to 11 are provided in the following areas: Anxious, Social Withdrawal, Unpopular, Self-Destructive, Obsessive-Compulsive, Inattentive, Nervous-Overactive, and Aggressive. For 5- to 11-year-old girls, the profile provides scores in the following areas: Anxious, Social Withdrawal, Depressed, Unpopular, Self-Destructive, Inattentive, Nervous-Overactive, and Aggressive.

Psychometric properties of the TRF are sound. Test-retest reliabilities were reported for a 2-week period (mean $\underline{r}$ = .89), and test stability was reported for a 2-month period ($\underline{r}$ = .74) and a 4-month period ($\underline{r}$ = .68). Interrater reliabilities with teacher aides were also reported (median $\underline{r}$ = .57). The validity of the TRF was supported through factor analytic work and through a concurrent validity study with the Conners Revised Teacher Rating Scale. The coefficient between these scales was high ($\underline{r}$ = .85).

A modified version of the TRF, which consisted of fewer items than the original test, was used for this project for several reasons. First, reducing the number of items was desirable to help reduce the time required by the teachers to complete the protocols. Second, only the relevant items (i.e., those on internalizing and externalizing characteristics) were included, thus eliminating items that might be irrelevant or offensive.

Early Screening Project (ESP)

The Early Screening Project (ESP; Walker et al., 1995) is a child-find process that is based on the Systematic Screening for Behavior Disorders (Walker & Severson, 1990), which was designed to be used with children in grades 1 to 6. The ESP, which can be used with children age 3 to 5, is a multiple-gated screening system, which consists of three stages. During Stage I, teachers nominate the 5 students in their class who most closely match a list of internalizing and externalizing characteristics, resulting in 10 students total. During Stage II, teachers complete a series of behavior checklists, and during Stage III, direct observation is used. In addition, a parent questionnaire is available. The ESP is designed to utilize teachers' abilities to identify problem behavior children while also limiting teacher bias through independent observations. Only Stage I, the teacher nomination procedure, was used in this study.

The reliability and validity data for the ESP are adequate. The authors gathered data from 2,853 subjects ages 3 to 6 in various parts of the country. Interrater reliability of most of the ESP measures was .80. For concurrent validity, correlations between ESP measures and the Conners Teacher Rating Scales (Conners, 1989) and the Preschool Behavior Questionnaire (Behar &

Stringfield, 1974) ranged from .34 to .87, with most above .70. In addition, the authors used the Achenbach Child Behavior Checklist measures, which correlated from .19 to .83 with the ESP measures used in Stage II. Results of a discriminant analysis indicate that the ESP was acceptably accurate in predicting problem behaviors among preschoolers (Feil, Walker, & Severson, in press). The data taken for Stage III, the direct observation phase, also were adequate. The average interrater reliability coefficient was .93.

RESULTS

Construct Validity of the PKBS

The main objective of the study was to examine the construct validity of the PKBS. The construct validity of the PKBS was analyzed in three stages by computing Pearson product-moment correlations and by conducting a discriminant function analysis. First, scores on the PKBS were compared with scores on the SSCSA. Second, scores on the PKBS were compared with scores on a modified version of the TRF. And third, a discriminant function analysis was conducted to determine if PKBS scores on both scales could accurately classify the subjects based on their behavioral status (i.e., internalizers, externalizers, and comparison or behaviorally typical children).

The PKBS and the SSCSA

Correlations Between the PKBS and the SSCSA

Correlations between PKBS and SSCSA scores along with the calculations of their shared variance (r^2 values) are presented in Table 1. Coefficients ranged from moderate to strong in magnitude. Most coefficients were significant at the $p < .001$ level, although a few coefficients were significant at the $p < .01$ level. On the Social Skills scale of the PKBS, the lowest coefficient was between scores on the Social Cooperation subscale of the PKBS and the Peer-Preferred Social Behavior on the SSCSA (.46). The highest coefficient (.88) was between the PKBS Social Skills Total and the SSCSA Total Score. For the Social Skills scale, 13 of the 16 coefficients (81%) were above .64.

Table 1

Correlations Between PKBS and SSCSA Scores with r^2 Values in Parentheses

Preschool and Kindergarten Behavior Scales	Walker McConnell Scale of Social Competence and School Adjustment			
	Subscale 1 Teacher-Preferred Social Behavior	Subscale 2 Peer-Preferred Social Behavior	Subscale 3 School Adjustment Behavior	Total Score
A1 Social Cooperation	.83*** (.69)	.46*** (.21)	.81*** (.66)	.77*** (.59)
A2 Social Interaction	.64*** (.41)	.82*** (.67)	.47*** (.22)	.77*** (.59)
A3 Social Independence	.67*** (.45)	.83*** (.69)	.52*** (.27)	.79*** (.62)
AT Social Skills Total	.81*** (.66)	.79*** (.62)	.68*** (.46)	.88*** (.77)
B1 Self-Centered/Explosive	-.73*** (.53)	-.37*** (.14)	.-.57*** (.32)	-.61*** (.37)
B2 Attention Problems/Overactive	-.72*** (.52)	-.34*** (.12)	-.72*** (.52)	-.64*** (.41)
B3 Antisocial/ Aggressive	-.74*** (.55)	-.31** (.10)	-.65*** (.42)	-.61*** (.37)
B4 Social Withdrawal	-.71*** (.50)	-.77*** (.59)	-.48*** (.23)	-.76*** (.58)
B5 Anxiety/Somatic Problems	-.53*** (.28)	-.60*** (.36)	-.28** (.08)	-.56*** (.31)
Externalizing Problems	-.76*** (.58)	-.36*** (.13)	-.67*** (.45)	-.64*** (.41)
Internalizing Problems	-.66*** (.44)	-.73*** (.53)	-.40*** (.16)	-.70*** (.49)
BT Problem Behavior Total	-.80*** (.64)	-.53*** (.28)	-.63*** (.40)	-.73*** (.53)

** $p < .01$. *** $p < .001$.

On the Problem Behavior scale, coefficients ranged from -.28 to -.80. Of the 32 coefficients, 21 (66%) were between -.60 and -.80, while 4 (13%) were between -.50 and -.59. In total, 25 of the 32 (78%) coefficients were between -.50 and -.80. The weakest negative coefficient was between the PKBS Anxiety/Somatic Problem subscale and the SSCSA School Adjustment Behavior subscale (-.28). The strongest negative coefficient was between the Problem Behavior Total on the PKBS and the Teacher-Preferred Social Behavior subscale on the SSCSA (-.80).

Shared Variance Between the PKBS and the SSCSA

The next analysis was conducted to determine the amount of shared variance between PKBS and SSCSA scores by calculating the coefficient of determination. The coefficient of determination is obtained by squaring the correlation coefficients. For example, if the coefficient between the total scores of the two measures was .50, the coefficient of determination (r^2) would be .25, indicating that 25% of the shared variance of the measures is accounted for in the coefficient.

Results from this analysis are also included in Table 1. The r^2 values on the Social Skills scale ranged from .21 to .77. PKBS and SSCSA scores with the highest degree of shared variance were the Social Skills Total on the PKBS and the total score on the SSCSA. In all, 12 of the 16 coefficients were above .59. On the Problem Behavior scale, values ranged from .08 to .64. In total, 11 of the 32 values (34%) were above .50.

The PKBS and the TRF

Correlations Between the PKBS and the TRF

Correlations between PKBS and TRF scores along with the calculations for their shared variance (r^2 values) are presented in Table 2. Coefficients ranged from weak to strong in magnitude. Most coefficients were significant at the $p < .001$ level, although a few coefficients were significant at the $p < .01$ level, and a few were not statistically significant. On the Social Skills scale of the PKBS, the lowest coefficient was between scores on the Social Interaction subscale of the PKBS and the Externalizing scale on the TRF (-.21). The strongest coefficient (-.78) was between the PKBS Social Cooperation Subscale and the TRF Total Score; the same coefficient occurred between the Social Independence subscale and the Internalizing scale on the TRF. For the Social Skills scale, 6 of the 12 coefficients (50%) were above .62.

On the Problem Behavior scale, coefficients ranged from .25 to .94. Fifteen (63%) of the 24 coefficients were between .60 and .94., and 18 (75%) of the coefficients were between .50 and .94. The weakest coefficient (.25) was between the PKBS Antisocial/Aggressive subscale and the TRF Internalizing scale. The strongest coefficient (.94) was between the PKBS Externalizing subscale and the TRF Total Score.

Shared Variance Between the PKBS and the TRF

The next analysis was conducted to determine the amount of shared variance between PKBS and TRF scores by calculating the coefficient of determination. Results from this analysis are included in Table 2. The r^2

Table 2

Correlations Between PKBS and TRF Subscale and Total Scores with r^2 Values in Parentheses

	Teacher Report Form Items		
Preschool and Kindergarten Behavior Scales	Externalizing	Internalizing	Total Score
A1 Social Cooperation	-.74*** (.55)	-.36*** (.13)	-.78*** (.61)
A2 Social Interaction	-.21* (.04)	-.68*** (.46)	-.40*** (.16)
A3 Social Independence	-.26* (.07)	-.78*** (.61)	-.47*** (.22)
AT Social Skills Total	-.46*** (.21)	-.69*** (.48)	-.62*** (.38)
B1 Self-Centered/Explosive	.91*** (.83)	.37*** (.14)	.94*** (.88)
B2 Attention Problems/ Overactive	.90*** (.81)	.27** (.07)	.89*** (.79)
B3 Antisocial/ Aggressive	.93*** (.86)	.25* (.06)	.90*** (.81)
B4 Social Withdrawal	.51*** (.26)	.77*** (.59)	.70*** (.49)
B5 Anxiety/Somatic Problems	.32** (.10)	.66*** (.44)	.50*** (.25)
Externalizing Problems	.94*** (.88)	.32** (.10)	.94*** (.88)
Internalizing Problems	.43*** (.18)	.76*** (.58)	(.63)*** .40
BT Problem Behavior Total	.85*** (.72)	.51*** (.26)	.93*** (.86)

*Not statistically significant. **$p < .01$. ***$p < .001$.

values on the Social Skills scale ranged from .04 to .55. In all, 3 of the 12 coefficients were above .50. On the Problem Behavior scale, values ranged from .06 to .88. In total, 10 of the 24 values (42%) were above .50.

Discriminant Analysis Using the PKBS

Next, a discriminant function analysis was conducted to determine if scores on the PKBS alone could be used to classify accurately subjects based on the Early Screening Project teacher nomination procedure. The subscale scores from the PKBS were utilized as classification variables, while group membership was used as a predictor or grouping variable. The results from the discriminant analysis were significant: Wilks $F(7) = .42$, $p < .001$, indicating that the PKBS could be used to classify or predict the group membership of subjects with a high degree of accuracy. Overall, 89.36% of the "grouped" cases were classified correctly. The procedure classified correctly 91.7% of the internalizing group, 82.6% of the externalizing group, and 91.5% of the comparison group. A summary of the classification results is contained in Table 3.

Other Analyses

In addition to examining the construct validity of the PKBS, there were two other objectives for this study. The first objective was to examine whether the separation of behaviorally at-risk kindergarten students into internalizing and externalizing subgroups results in a different pattern of behavioral comparisons than when this group is kept intact. The second objective was to examine the score differences between the internalizing,

Table 3

Classification Results of a Discriminant Function Analysis[a] with the PKBS

		Predicted Group Membership		
Actual Group	No. of Cases	Internalizing	Externalizing	Comparison
Internalizing	24	22 91.7%	1 4.2%	1 4.2%
Externalizing	23	1 4.3%	19 82.6%	3 13.0%
Comparison	47	3 6.4%	1 2.1%	43 91.5%

[a]Percent of "grouped" cases classified correctly: 89.36%.

externalizing, and comparison groups on the three behavioral measures (i.e., the PKBS, the SSCSA, and the TRF).

Discriminant Analysis Using the PKBS, the TRF, and the SSCSA

To determine if scores on the PKBS, the SSCSA, and the TRF could be used to classify accurately subjects based on the Early Screening Project teacher nomination procedure, a discriminant function analysis was conducted. The scores on the PKBS, the SSCSA, and the TRF were utilized as classification variables, and group membership was used as a predictor or grouping variable. The results from the discriminant analysis were statistically significant: Wilks $F(12) = .34$, $p < .001$, indicating that the PKBS, the SSCSA, and the TRF scores could be used in a combined manner to classify or predict the group membership of subjects with a high degree of accuracy. Overall,

92.47% of the "grouped" cases were classified correctly. The procedure classified correctly 91.3% of the internalizing group, 87.0% of the externalizing group, and 95.7% of the comparison group. A summary of the classification results is contained in Table 4.

Differences on the Three Measures by Group

To examine whether scores on all three measures (i.e., the PKBS, the TRF, and the SSCSA) differed systematically by behavioral status, a one-way multivariate analysis of variance (MANOVA) was conducted with the internalizing and externalizing group combined into one problem behavior group. A MANOVA was chosen in order to limit the possibility of a Type I error. With a Type I error, an observed difference is found between groups when in fact there is no statistical difference between the group scores (Borg & Gall, 1989). Doing the MANOVA first helps to control for experimentwise error (Haase & Ellis, 1987). The dependent variables included two scores from the TRF, three from the SSCSA, and eight from the PKBS, while the independent variable was group membership. Only subscale scores were utilized in the MANOVA to reduce the problem of colinearity. The MANOVA found an overall significant group effect $F(13, 79) = 11.98$, $p < .001$.

Following the MANOVA, univariate procedures (ANOVAs) were computed for each dependent measure by group. All were significant at the $p = .001$ level. A summary of the ANOVA results is included in Table 5.

Effect size estimates (Glass, McGraw, & Smith, 1981) also were calculated to determine the significance of the mean score differences between groups. Effect size estimates are an aid to making clinical judgments about

Table 4

Classification Results of a Discriminant Function Analysis with the TRF, the SSCSA, and the PKBS[a]

		Predicted Group Membership		
Actual Group	No. of Cases	Internalizing	Externalizing	Comparison
Internalizing	23	21 91.3%	1 4.3%	1 4.3%
Externalizing	23	0 0%	20 87.0%	3 13.0%
Comparison	47	1 2.1%	1 2.1%	45 95.7%

[a]Percent of "grouped" cases correctly classified: 92.47%.

the meaning of differences in scores between groups (Borg & Gall, 1989). The calculations should be interpreted taking into account factors such as the type of measures used and the clinical relevance of the score difference. Borg and Gall (1989) cautioned that there is no single answer to determining the practical significance of research results and that effect size estimates are only aids to interpretation. For this study, effect size estimates were used to aid in examining the score differences between the at-risk and the comparison group. Large differences would be practically significant and clinically meaningful as the prognosis is different for children who have behavior problems and social skill deficits than for those who do not.

Effect size estimates were calculated by determining the mean score differences of the at-risk and behaviorally typical groups and dividing these differences by the standard deviation of the normal comparison group for

Table 5

Results of Univariate ANOVA

Variables	SS Between	SS Within	MS Between	MS Within	F (1,91)	Sig. of F
TRF Externalizing	3694.48	10799.97	3694.48	118.68	31.13	<.001
TRF Internalizing	617.98	988.75	617.98	10.87	56.88	<.001
SSCSA 1 Teacher-Preferred	429.51	542.38	429.51	5.96	72.06	<.001
SSCSA 2 Peer-Preferred	531.95	1022.52	531.95	11.24	47.34	<.001
SSCSA 3 School Adjustment	315.92	698.36	315.92	7.67	41.16	<.001
A1 Social Cooperation	1510.10	2884.17	1510.10	31.69	47.65	<.001
A2 Social Interaction	1602.11	3495.84	1602.11	38.41	41.70	<.001
A3 Social Independence	1244.26	2273.64	1244.26	24.99	49.80	<.001
B1 Self-Centered/Explosive	2257.69	4684.82	2257.69	51.48	43.85	<.001
B2 Attention Problems/Overactive	1875.68	3105.89	1875.68	34.13	54.96	<.001
B3 Antisocial/ Aggressive	1035.60	2746.71	1035.60	30.18	34.31	<.001
B4 Social Withdrawal	1654.31	1761.39	1654.31	19.36	85.47	<.001
B5 Anxiety/Somatic Problems	831.62	2223.69	831.62	24.44	34.03	<.001

scores from each measure. Effect size estimates in the positive direction ranged from 1.49 to 2.64, while effect size estimates in the negative direction ranged from -1.70 to -2.22. The effect size estimates in the negative direction are indicative of the comparison group having higher scores than the at-risk group, whereas the ones in the positive direction are indicative of the at-risk group having higher scores than the comparison group. The direction of the relationships is as expected in that the at-risk group scored higher than the

comparison group by at least 1 standard deviation on the variables that reflect problem behavior (both internalizing and externalizing) and lower on those variables that reflect social competence. These results indicate that there is a practical difference between the groups on the dependent variables (i.e., scores from each measure). Table 6 contains the results of the effect size estimate calculations.

MANOVA with Three Groups

In the next phase of analysis, another one-way MANOVA was conducted using three groups--the internalizing, externalizing, and the comparison groups--in order to determine if further separation of behaviorally at-risk kindergarten students resulted in a significantly different pattern of behavioral comparisons. The dependent variables included two scores from the TRF, three from the SSCSA, and eight from the PKBS, while the independent variable was group membership. The MANOVA found an overall group effect that was significant $F(26, 156) = 14.18$, $p < .001$.

Univariate procedures (ANOVAs) were then computed for each dependent measure by group. All were significant at the $p = .001$ level. A summary of the ANOVA results is contained in Table 7.

Because the results of the univariate procedure were significant, post hoc analyses were conducted to determine where the groups differed on each variable. The Scheffe Multiple Range Test was selected over other post hoc procedures for several reasons. First, it is the most conservative of the post hoc procedures, thus limiting Type I errors. And second, it can be used with unequal groups as was the case with this sample.

Table 6

Effect Size (ES) Estimates Between the Behaviorally At-Risk Group and the Comparison Group

	At-Risk		Comparison		
Variables	M	SD	M	SD	ES
TRF Externalizing	16.46	14.70	3.89	4.94	2.54
TRF Internalizing	6.29	4.27	1.17	1.94	2.64
SSCSA 1 Teacher-Preferred	7.98	2.65	12.28	2.18	-1.97
SSCSA 2 Peer-Preferred	7.13	3.84	11.96	2.76	-2.22
SSCSA 3 School Adjustment	7.74	3.27	11.43	2.11	-1.75
A1 Social Cooperation	25.38	7.19	33.26	3.57	-2.21
A2 Social Interaction	19.81	7.22	28.13	4.89	-1.70
A3 Social Independence	22.04	5.71	29.46	4.17	-1.78
B1 Self-Centered/Explosive	12.91	9.41	3.32	4.05	2.37
B2 Attention Problems/ Overactive	12.04	7.25	3.19	3.97	2.23
B3 Antisocial/ Aggressive	8.51	6.99	2.02	3.52	1.84
B4 Social Withdrawal	11.49	4.96	3.04	3.70	2.28
B5 Anxiety/Somatic Problems	10.26	5.69	4.13	4.12	1.49

Table 7

Results of the ANOVA with Three Groups

Variables	SS Between	SS Within	MS Between	MS Within	F(2,90)	Sig. of F
TRF Externalizing	9282.51	5211.95	4641.25	57.91	80.15	<.001
TRF Internalizing	866.88	739.86	433.44	8.22	52.73	<.001
SSCSA 1 Teacher-Preferred Social Behavior	462.58	509.32	231.29	5.66	40.87	<.001
SSCSA 2 Peer-Preferred Social Behavior	678.12	876.35	339.06	9.73	34.82	<.001
SSCSA 3 School Adjustment Behavior	354.26	660.01	177.13	7.33	24.15	<.001
A1 Social Cooperation	1979.87	2414.41	989.93	26.83	36.90	<.001
A2 Social Interaction	2040.46	3057.49	1020.23	33.97	30.03	<.001
A3 Social Independence	1448.80	2069.09	724.40	22.99	31.51	<.001
B1 Self-Centered/Explosive	3986.48	2956.04	1933.24	32.84	60.69	<.001
B2 Attention Problems/ Overactive	3169.95	1811.62	1584.97	20.13	78.74	<.001
B3 Antisocial/ Aggressive	2308.74	1473.59	1154.37	16.37	70.50	<.001
B4 Social Withdrawal	1655.70	1760.00	827.85	19.56	42.33	<.001
B5 Anxiety/Somatic Problems	888.16	2167.15	444.08	24.07	18.44	<.001

For the internalizing and externalizing groups, significant differences were found on all variables except four: SSCSA1-Teacher-Preferred, SSCSA3-School Adjustment, B4 Social Withdrawal, and B5 Somatic Problems. For the externalizer and comparison groups, significant differences were found on all variables. For the internalizing and comparison groups, significant differences were found on all but three variables: TRF Externalizing, Self-Centered Explosive, and B3 Antisocial Aggressive. The results of the post hoc analysis are included in Table 8.

Effect size estimates also were calculated for the mean scores of the three groups to determine the practical significance of these differences. Effect size estimates in the positive direction between the internalizing and the comparison group ranged from .27 to 3.86, while effect sizes in the negative direction ranged from -1.32 to -2.38. Effect size estimates in the positive direction between the externalizing and the comparison groups ranged from 1.18 to 4.81, while effect sizes in the negative direction ranged from -1.07 to -3.15. The results indicate that there is a practical difference between the groups on most dependent variables (i.e., scores from each measure) in that there appears to be a difference of 1 to 4 standard deviations for the groups. The positive and negative values were as expected with the internalizing and externalizing groups scoring higher on the problem behavior variables and lower on the social competence variables. Table 9 contains the results of the ES calculations.

Table 8

Results of the Post Hoc Comparison Using the Scheffe Multiple Range Test

Variables	Mean			Significant differences between groups (Marked with X)		
	Internal	External	Compar	Internalizer/ Externalizer	Externalizer/ Comparison	Internalizer/ Comparison
TRF Externalizing	5.25	27.67	3.89	X	X	
TRF Internalizing	8.71	3.88	1.17	X	X	X
SSCSA 1 Teacher-Preferred	8.83	7.17	12.28		X	X
SSCSA 2 Peer-Preferred	5.39	8.79	11.96	X	X	X
SSCSA 3 School Adjustment	8.65	6.88	11.43		X	X
A1 Social Cooperation	28.63	22.00	33.26	X	X	X
A2 Social Interaction	16.83	22.91	28.13	X	X	X
A3 Social Independence	19.92	24.26	29.47	X	X	X
B1 Self-Centered Explosive	6.79	19.30	3.32	X	X	
B2 Attention Problems	6.83	17.48	3.19	X	X	X
B3 Antisocial/ Aggressive	3.29	13.96	2.02	X	X	
B4 Social Withdrawal	11.67	11.30	3.04		X	X
B5 Somatic Problems	11.45	9.00	4.13		X	X

Note. Comparisons where a significant difference was found are marked with an X.

Table 9

Effect Size Estimates Between Groups

Variables	Intern (1) M SD	Extern (2) M SD	Comp (3) M SD	Group Internal/ Comparison ES	Group External/ Comparison ES
TRF Externalizing	5.25 8.11	27.67 10.66	3.89 4.94	.27	4.81
TRF Internalizing	8.70 3.22	3.88 3.83	1.17 1.95	3.86	1.39
SSCSA 1 Teacher-Preferred	8.83 2.31	7.17 2.75	12.26 2.18	-1.57	-2.33
SSCSA 2 Peer-Preferred	5.39 2.73	8.79 4.05	11.96 2.76	-2.38	-1.15
SSCSA 3 School Adjustment	8.65 3.56	6.88 2.77	11.43 2.11	-1.32	-2.16
A1 Social Cooperation	28.63 6.24	22.00 6.62	33.26 3.57	-1.30	-3.15
A2 Social Interaction	16.83 5.10	22.91 7.88	28.13 4.89	-2.31	-1.07
A3 Social Independence	19.92 4.30	24.26 6.22	29.47 4.17	-2.29	-1.25
B1 Self-Centered Explosive	6.79 5.30	19.30 8.50	3.32 4.05	.86	3.95
B2 Attention Problems	6.83 5.37	17.48 4.38	3.19 3.97	.92	3.60
B3 Antisocial/ Aggressive	3.29 2.96	13.96 5.69	2.02 3.52	.36	3.39
B4 Social Withdrawal	11.67 3.62	11.30 6.14	3.04 3.70	2.33	2.23
B5 Somatic Problems	11.46 5.70	9.00 5.53	4.13 4.12	1.78	1.18

DISCUSSION

In this section, the results of this study will be discussed. First, the results of the statistical analyses are discussed, and second, implications for early screening and intervention are included. Next, the findings of this study are related to previous research. Finally, study limitations and implications for future research are included.

PKBS Construct Validity

Comparison with the SSCSA

Overall, the study provided evidence of the construct validity of the PKBS. Coefficients between the PKBS and the SSCSA were indicative of both convergent and discriminant validity. The shared variance (r^2) between the PKBS Social Skills Total and the SSCSA Total Score was .77, indicating that approximately 77% of the shared variance of the measures is accounted for in the correlation. This relationship is a strong one, indicating that the PKBS Social Skills scale and the SSCSA measure similar constructs. Correlations with the three subscales (A1 to A3) ranged from moderate to strong in magnitude with most scores above .64.

The correlations between Scale B (Problem Behavior) and the SSCSA provide evidence of discriminant validity. In order to demonstrate discriminant validity, scales that are designed to measure different constructs (i.e., social skills on the SSCSA and problem behavior on the PKBS) should have strong negative correlations. The correlations for Scale B (Problem Behavior) ranged from weak to strong although most correlations were

moderately strong to strong. This finding shows that, although there are some similarities between Scale B of the PKBS and the SSCSA subscales and Total Score, the two instruments appear to be measuring different constructs, thus demonstrating discriminant validity. This finding would be expected as one is purported to measure problem behavior (Scale B of the PKBS) and one is purported to measure social skills (the SSCSA).

Comparison with the TRF

Convergent and discriminant validity were also demonstrated through correlations with the shortened version of the TRF. For convergent validity, PKBS subscale scores would be expected to correlate strongly with the TRF. Correlations ranged from weak to strong, with most ranging from moderately strong to strong. Some correlations were as high as .94.

A major feature of both the PKBS and the TRF is the broad-band scores they provide. Both instruments provide scores for internalizing and externalizing behavior problems. The correlation between the PKBS Internalizing subscale and the TRF Internalizing scale was .76, and the correlations between the PKBS Externalizing subscale and the TRF Externalizing scale was .94. These correlations were strong, indicating that they measure similar constructs.

The shared variance (r^2) between the PKBS Problem Behavior Total and the TRF Total Score was .86, indicating that approximately 86% of the shared variance of the measures is accounted for in the correlation. This relationship is a strong one, indicating that the PKBS Problem Behavior scale and the shortened version of the TRF measure similar constructs.

To establish discriminant validity, Scale A (Social Skills) on the PKBS was compared with the TRF. Correlations ranged from weak to moderately strong with most moderately strong. As was the case when the SSCSA and Scale B of the PKBS were compared, the correlations between Scale A (Social Skills) on the PKBS as compared with the TRF support discriminant validity of the PKBS.

PKBS Sensitivity to Group Differences

The PKBS's sensitivity to group differences was examined through a discriminant function analysis. The PKBS classified correctly 89.36% of the subjects into an internalizing, an externalizing, and a comparison group. This finding shows that the PKBS may be useful for screening children who may be behaviorally at risk.

Secondary Objective of the Study

In addition to examining the construct validity of the PKBS, this study had a secondary purpose: to examine social-emotional behavior differences between Kindergarten students who were divided into different behavioral status groups based on a teacher nomination procedure.

Discriminant Function Analysis with All Three Measures

A discriminant function analysis was conducted to determine how well all of the rating scale measures together would predict group membership. The three measures classified correctly 92.47% of the subjects into either an internalizing, an externalizing, or a comparison group. This finding shows that the three measures together may be useful for screening

children who may be behaviorally at risk. The results are not much different from those when a discriminant function analysis was conducted using the variables from the PKBS alone, with which 89.36% of the subjects were classified correctly.

Differences Between Groups

Results of a MANOVA and univariate procedures (ANOVA) with two groups (i.e., a problem behavior group comprised of the internalizing and externalizing groups and the comparison group) were statistically significant. Likewise, results of a MANOVA and univariate procedures (ANOVA) with the three groups (internalizing, externalizing, and comparison) were also statistically significant.

Although the samples of the internalizing and externalizing groups were small, enough evidence existed to support doing post hoc analysis. The results of the Scheffe Multiple Range Test are discussed below. The subscales on which the scores did not differ between the internalizing and externalizing groups were the following: SSCSA 1--Teacher-Preferred Behavior, SSCSA 3--School Adjustment, PKBS B4--Social Withdrawal, and PKBS B5--Somatic Problems. On two of the SSCSA subscales the two groups had similar scores in terms of teacher-preferred behavior and school adjustment behavior. Two of the variables on which the groups did not differ (i.e., PKBS B4--Social Withdrawal, and PKBS B5--Somatic Problems) are traditionally seen as characteristics of internalizers rather than externalizers. This means that the externalizing group had similar scores to the internalizing group on these variables. This is interesting in light of intervention programs for externalizers, which often focus on the aggressive behavior but do not address

internalizing behaviors as well. There was a significant difference in the scores on all other variables, indicating that the groups do differ, especially on the variables associated with externalizing behavior.

Between the externalizing and comparison group, there were significant differences on all variables, including ones typically associated with internalizing problems (e.g., somatic problems). Thus, the two groups differed on all variables, indicating that there is a vast difference between their behavior in the classroom as perceived by their teachers.

The subscales on which the scores did not differ between the internalizing and comparison groups were the following: TRF Externalizing, PKBS B1--Self-Centered/Explosive, and PKBS B3--Antisocial/Aggressive. Scores differed on all other variables. These groups were similar in terms of scores on externalizing variables (e.g., physical aggression). The scores on the externalizing variables were lower for both the comparison and the internalizing groups than they were for the externalizing group.

Effect size estimates also were calculated to determine the practical significance of the mean score differences between groups. The effect size estimates for the comparison with two groups (i.e., an at-risk group and a comparison group) were at least 1 standard deviation apart with many being more than 2 standard deviations apart. This shows that there is a large practical difference between the groups on each variable. This is an important finding when considering the practical implications between scores on each variable. This could be useful when identifying children at risk for behavior problems and who might benefit from intervention.

The effect size estimates for the comparison with three groups (i.e., an internalizing, an externalizing, and a comparison group) varied more than

the comparison with two groups. For the internalizing and comparison group analysis, on most variables there was a practical difference. The greatest difference occurred on the TRF Internalizing scale, with almost 4 standard deviations difference. This is expected as there should be a practical difference between the internalizing and comparison groups on variables linked to internalizing behavior. On some variables, there was not a practical difference with these variables being linked to externalizing types of problem behavior (e.g., aggression). This finding indicates that these groups are not much different on some of the externalizing variables.

For the externalizing and comparison group calculations, there was a practical difference on all variables of at least 1 and as much as 4 standard deviations. Scores were profoundly different on the externalizing variables, especially the TRF Externalizing score, in which there was more than a 4 standard deviation difference. It is interesting to note that there were practical differences on many of the internalizing variables as well as variables related to social withdrawal and somatic problems, giving some credibility to the link between internalizing and externalizing disorders. This is not a new concept as many researchers have found similar results (for more discussion on this topic, see Ben-Amos, 1992).

Implications for Early Screening and Intervention

Even though the study is limited because of sample size and the age of subjects (i.e., only 5- and 6-year-old children were used in the study), the results provide some means for generating practical information related to use of the PKBS. First, the PKBS appears to yield results similar to those obtained from teacher nominations, the SSCSA, and the shortened version of

the TRF. Because the SSCSA and the TRF are solid pyschometrically, this adds to the construct validity of the PKBS. Second, the PKBS may be more convenient to use for screening than the other two measures because it requires less time for administration and scoring than the SSCSA or the long version of the TRF, thus making the PKBS more convenient to use. With the PKBS, only one instrument needs to be administered as it contains scores for both social skills and problem behavior.

Third, the PKBS appears to be a good discriminator of children who are behaviorally at risk. Specifically, it appeared to accurately discriminate between an internalizing and externalizing group. This is useful information for planning appropriate interventions for children who may benefit from intervention for behavioral problems.

A fourth implication from this study is that teachers tend to rate children similarly across measures. This is especially useful when considering the parsimonious task of teacher nominations. Teacher nominations appear to be powerful in identifying students who may benefit from intervention and yet the nominations require little energy and time to complete.

The fifth implication is that the PKBS is a useful instrument for early childhood assessment, an area which has too few valid assessment tools. As a result of P.L. 99-457, demand has increased for preschool assessment; likewise, increased attention needs to be given to the technical adequacy of preschool instruments (Bracken, 1987). With the need to have social competence instruments developed (Saunders & Green, 1993), the PKBS fills an important gap in early childhood assessment.

Relationship of Findings to Previous Studies

No independent research was located on the psychometric properties of the PKBS, although the author included information on the technical adequacy of the PKBS in the test manual. A difference was noted, however, in the ability of the PKBS to predict group membership. To assess construct validity, Merrell (1994b) used a discriminant function analysis to determine how well the PKBS would predict group membership of special education (i.e., developmentally delayed) children. The sample for the study was 1,771 subjects with 192 of these subjects identified as qualifying for special education services. Through the procedure, 90.18% of the subjects were classified correctly based on the scores from the combined scores of Scale A (Social Skills) and Scale B (Problem Behaviors) on the PKBS. The discriminant analysis for the current study yielded a classification rate that was similar: 89.36% of the grouped cases were classified correctly into either the internalizing, externalizing, or comparison group. While in Merrell's study the subscale that had the largest correlation (.82) with the discriminant function was Scale A2 (Social Interaction), the subscale that had the largest correlation (.80) in this study was Scale B3 (Antisocial/Aggressive). In addition, in Merrell's study the lowest correlation (-.11) was on Scale B3 (Antisocial/Aggressive), whereas the lowest correlation (-.02) for the current study was Scale A3 (Social Independence). Subscale A2, which correlated the highest in the discriminant function analysis in Merrell's study, had a correlation with the discriminant function of .03 in this study. Although the overall "hit" rate of both studies was similar, it appears that different subscales contributed more to classifying correctly the subjects into various

groups in each study. This finding provides additional evidence for the construct validity of the PKBS.

It should be noted that the aims of both studies were different in that in Merrell's study the PKBS's ability to predict group membership of special education students was examined, whereas in this study behaviorally at-risk students were used. It is interesting that the overall hit rate was similar (i.e., 90.18% in Merrell's study and 89.36% in this study) because it would seem that the PKBS would be better at predicting group membership of the problem behavior group. However, the hit rate in Merrell's study may be inflated because there was a large N in the nondevelopmentally delayed group.

Study Limitations

The current study has several limitations that may hinder the generalizability of the results. First, the size of the groups was modest, thus limiting the inferences that could be made from the statistical procedures. This study would need to be replicated with a larger sample size for the internalizing and externalizing groups in order to draw more global conclusions in relation to the sample population from the data presented.

Second, the sample used in this study was comprised of children from the same region (i.e., a rural southeast Idaho community), resulting in geographic centralization and a nonrepresentative sample in terms of ethnicity (i.e., most subjects were Caucasian). It is unclear how this may have affected the results obtained from the measures. This study would need to be replicated with a group of subjects that was more representative of the geographic and ethnic diversity of the population in the United States in order for the results to be generalized more confidently to other populations.

Third, the age of the subjects limits the generalizability of the results. Only 5- and 6-year-old children were used in this study, and yet the PKBS is useful with 3- and 4-year-olds as well. Thus, the findings from this study are applicable only to kindergarten populations.

Fourth, no research was conducted via direct behavioral observation. Direct observation is an important source for collecting information about subjects because it requires fewer inferences than other types of data collection like rating scales, which tend to measure perceptions of behavior (Merrell, 1994). Because direct observation was not used in this study, there are no data on the relationship between direct observation and the PKBS ratings. However, observation alone carries its own risk for measurement error, and the ideal situation would be to use another design such as the multitrait-multimethod matrix (Gregory, 1992), which requires the assessment of two or more traits by two or more methods. To limit measurement error, it would be best to gather information from different methods (e.g., direct observation and rating scales), different sources (e.g., parents, aides and teachers), and different settings (e.g., home and school environments). Pelligrini and Glickman (1990) have advocated the use of a combination of measures that includes peer nominations, teacher ratings, and standardized instruments.

A fifth limitation of the study is source variance. One person rated each child per classroom, and so it is only the perception of each child's teacher that is reflected in the nominations and the ratings. People tend to rate individuals according to their own perceptions, and these perceptions may be very idiosyncratic (Martin, 1988; Merrell, 1994a). For example, an aide who works in the same classroom may have a very different opinion about various students' behaviors than the teacher. The ratings are reflective only

of the perceptions of the individual who completed the rating scale but do not reflect others. A limitation of this study is that the ratings are only reflective of the perceptions of the teacher who completed the rating scale but are not reflective of parents or aides, who also interact with and observe the child.

A sixth limitation is setting variance. People tend to behave differently in various settings. Thus the ratings are only reflective of the behavior that the teachers observed in the classroom or at school. Lidz (1986) emphasized the importance of obtaining data in a variety of settings. Parents, who observe their children at home, may have very different perceptions than teachers, who observe their children at school. Again, using a multitrait-multimethod matrix (Gregory, 1992), wherein a researcher gathered information about a subject in multiple settings, would help limit this type of variance.

Implications for Future Research

The findings of this study have several implications for future research. First, this study needs to be replicated with a larger sample in order to gain both ethnic and geographic diversity so that results would be generalizable to a larger population. Second, because no independently conducted research was found that examined the validity of the PKBS (other than what was provided in the test manual), it is apparent that more research needs to be done in this area. Although this study and the studies listed in the test manual provide evidence of the technical adequacy of the PKBS, more research in this area would be desirable. Specifically, it would be useful to conduct a study using direct behavioral observation in conjunction with other procedures (e.g., teacher and/or peer nomination, parent and teacher

rating scales) to limit both source and setting variance. Using a multitrait-multimethod matrix (Gregory, 1992) would be ideal but often is impractical, especially with a preschool population in which self-report measures are not an option. However, it would be possible to use both parent and teacher reports along with direct observation and rating scales in order to get a more accurate description of students' behavior in various settings.

Third, a study should be conducted on how sensitive the PKBS is to treatment or intervention. Although it appears useful as a screening instrument for children with social skill deficits and behavior problems, there is no information on how useful it is for assessing behavior change as a result of treatment.

Summary

The main objective of this study was to examine the validity of the PKBS (Merrell, 1994b). Results of the analyses provide support for both convergent and discriminant validity of the PKBS and also provide evidence that the PKBS is sensitive to group differences. A secondary objective was to examine social-emotional behavior differences between Kindergarten students who were divided into different behavioral status groups based on a teacher nomination procedure: a behaviorally at-risk group comprised of both internalizing and externalizing students and a comparison group of behaviorally typical students. The results support the differences in the behavioral status groups and lend credence to the teacher nomination procedure to predict behaviorally at-risk students. Although the study had some limitations, it does provide useful information about the validity of the

PKBS and about group differences amongst teacher-nominated problem behavior groups.

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APPENDIX

Rater Data Sheet

Directions: Please complete the following information. We must have your full name, your Social Security Number, and your address in order to issue you your honorarium.

Teacher Name: _____

Address: _____

_____

Social Security Number _____

School _____

Date _____

Class: morning afternoon other _____

Please Turn the Page Í

Directions for Completing this Packet

Step

1. Review the characteristics for internalizing and externalizing behaviors on pages 3 and 4 of this packet.

2. Select 3 students from your class that closely match the externalizing characteristics and record their initials in the space provided on page 3 of this packet.

3. Select 3 students from the same class that closely match the internalizing characteristics and record their initials in the space provided on page 4 of this packet.

4. In the space provided on page 4, write the initials of the first 3 students and the last 3 students from your class list who are **not** already listed under the externalizing and internalizing list.

5. Now, complete the assessment materials for each child listed on page 3 and 4. The assessment materials consist of the following:
   - Child Behavior Checklist - Teacher Report Form
   - Walker McConnell Scale of Social Competence and School Adjustment
   - Preschool and Kindergarten Behavior Scales

Remember: Where the assessment materials ask for names, write only the students 3 INITIALS. Do not write their full names.

Please Turn the Page

Externalizing refers to all behavior difficulties that are directed outwardly by the child, toward the external social environment. Externalizing behaviors usually involve behavior excess (i.e., too much behavior) and are considered inappropriate by teachers. Non examples of externalizing behavior would include all behavior that are appropriate for their age and the school.

Examples:
- Aggression toward objects or persons
- Not listening to the teacher
- Arguing
- Having tantrums
- Being hyperactive
- Disturbing others
- Stealing
- Not following classroom rules

Non Examples:
- Cooperating and sharing
- Listening to the teacher
- Interacting appropriately with others
- Complying with teacher requests
- Attending to the activity

Directions: Write the initials of the 3 students in your class who most closely match the externalizing characteristics.

Externalizing

1.
2.
3.

Please Turn the Page

Internalizing refers to all behavior that are directed inwardly (i.e., away from the external environment) and that represent problems within the child. Internalizing behavior frequently involve behavioral deficits and patterns of social avoidance and withdrawal. Non-examples of internalizing behavior problems would be social behavior that show social involvement with other children in expected social development.

Examples:	Non Examples:
• Low activity levels	• Starting social interactions with peers
• Not talking with other children	• Having conversations with others
• Being shy, timid, and/or unassertive	• Playing with others, having appropriate social contact with other children
• Prefers to play or spend time alone	• Participates willingly in games and activities
• Not standing up for him or herself	• Joining in with others

Directions: Write the initials of the 3 students in your class who most closely match the internalizing characteristics. They must not be included on the list for externalizers.

Internalizers

1.
2.
3.

Directions: In the space provided below, write the initials of the first 3 students and the last 3 students from your class list who are not already listed under the externalizing and internalizing list.

Other Children in Class

1.
2.
3.
4.
5.
6.

Now complete the assessment materials for each of the 12 children whose initials appear on pages 3 and 4. For each child, please **staple** the materials together.

VITA

CLARICE ELAINE JENTZSCH

6309 28th Street
Arlington, VA 22207
(703) 534-8547

EDUCATION & TRAINING

1995 to Present	Georgetown University Medical Center Washington, D.C. APA-Accredited Psychology Internship Training Program Child Development Center Completion Date: August 1996
1991 to Present	Doctoral student in a Clinical, Counseling, and School Psychology Combined Program (APA-Accredited Professional-Scientific Psychology Program) Anticipated graduation date June 1996 Utah State University Logan, Utah
1994	M.S. in Counseling Psychology Utah State University Logan, Utah
1988	B.A. in Journalism Cum Laude Honors University of Oregon Eugene, Oregon

RELEVANT EMPLOYMENT HISTORY

Psychology Intern, Georgetown University Medical Center
Washington, D.C. (September 1995-Present) Provide pediatric and child clinical services to children and their families in a variety of settings, including the medical center, child development center, and community-based sites (e.g., homeless shelters, mobile pediatric medical van). Rotations include Neuropsychology, Eating Disorders, Developmental Assessment (e.g., Autism, Mental Retardation, etc.), Infant Assessment, Community Outreach, and Oncology Assessment. Services provided include assessment, treatment, and school consultation. This internship provides extensive experience and training in cross-cultural competence. Populations served include a variety of ethnic groups from throughout the world with extensive experience with disadvantaged populations from the District of Columbia.

Teaching/Research Assistant, Utah State University
Logan, Utah (September 1994-Present) Contracted through school year to assist Psychologist/Instructor for three graduate assessment courses: Intellectual Assessment (Psy 631), Advanced Assessment (Psy 641), Assessment of Disturbed Children and Adolescents (Psy 689). Supervise projects for students in the Rural School Psychology Training Program. Coordinate activities for the Rural Training Program. Responsible for assisting with supervision to School Psychology students.

School Psychologist, Westside School District
Dayton, Idaho (August 1994 to Present) Contracted for 45 days.
Provide individual and group counseling one day a week for the school year. Provide crisis intervention as needed. Perform special education assessment. Participate in IEP meetings. Advise principal on behavior management strategies.

School Psychologist (Idaho Certification), Internship, Preston School District
Preston, Idaho (September 1993-June 1994)
Administered intellectual assessments and provided counseling for three schools (about 2,000 students) preschool to high school. Provided training to teachers in behavior management. Responsible for providing case management for students with severe psychiatric disturbances. Participated in IEP meetings. Provided crisis intervention.

Research Assistant/Technical Writer, Center for Persons with Disabilities
Utah State University, Logan, Utah (September 1991 - September 1994)
Responsible for conducting literature searches on technology and disabilities. Prepared a module on communication with people who have disabilities. Wrote sections of publications. Edited grants and manuscripts. Designed various publication formats. Performed desktop publishing tasks, including photograph cropping and sizing. Wrote pre- and posttests for five videotape programs to satisfy governmental grant requirements. Assigned to write and design training manuals for educating the public on various aspects of assistive technology.

TECHNICAL WRITING/EDITORIAL EXPERIENCE

Technical Editor, Utah State Office of Education
Salt Lake City, Utah (November, 1994)
Responsible for editing a 300-400 page manuscript on special education guidelines for teachers and administrators.

Technical Writer/Editor, Utah State Office of Education
Salt Lake City, Utah (January -June 1994)
Enlisted to write four chapters for a state manual on inclusion of individuals with disabilities. Edited the manual for clarity of content. Responsible for editing manuscript and video scripts.

Technical Editor, Harding Lawson Associates
Los Angeles, California -- Tustin-based office (April 1991 - September 1991)
Edited work proposals for environmental engineering projects. Edited draft and final reports, including documents for permit-granting and penalty-imposing regulatory agencies. Edited and revised plates (figures) and tables, including site plans and boring logs. Worked with engineers on quality control of final product.

Editor/Conference Coordinator
University of Oregon, Eugene, Oregon (1986 - 1991)
Edited the *The Oregon Conference Monograph*, a conference for special educators at the University of Oregon. Edited textbook on classroom assessment, written by Dr. Gerald Tindal of the University of Oregon. Edited publications (Research Reports, Training Modules, and Monographs) for the Resource Consultant Training Program (RCTP) at the University of Oregon. Collaborated on Oregon Conference brochure and monograph design. Designed typographical specifications for RCTP Publications. Performed desktop publishing tasks. Edited and proofread grants.

PUBLICATIONS

Jentzsch, C., & Merrell, K. (Manuscript under review). The Construct Validity of the Preschool and Kindergarten Behavior Scales. *Diagnostique.*

Hammond, M., & Jentzsch, C. E. (In Press). Positive portrayal of persons with disabilities in print and video. *Educational Technology.*

Menlove, M., Hammond, M., & Jentzsch, C. E. (In Press). Inclusion of learners with disabilities is easier than you may think. *Educational Technology.*

Merrell, K. W., Pratt, S., Forbush, D., Jentzsch, C., Nelson, S., Odell, C., & Smith, M. (Fall, 1994). Special education, school psychology, and community mental health practice in rural settings: Common problems and overlapping solutions for training. *Rural Special Education Quarterly, 13*(4), 28-36.

Jentzsch, C. E. (1994). *Technologies and techniques for accessibility* [video]. Logan, Utah: Utah State University.

Jentzsch, C. E. (1994). *Manual for technologies and techniques for accessibility.* Logan, Utah: Utah State University.

Hammond, M., Jentzsch, C. E., & Menlove, M. (1994). *Fostering inclusive schools and communities: A public relations guide.* Logan, UT: Utah State University.

Beck, J. T., Jentzsch, C. E., & Justesen, T. (1993). *Americans with Disabilities Act: Accessibility on the "Path of Travel"* Proceedings from the international conference for the Rehabilitation Society of North America. Las Vegas, NV.

Hammond, M., & Jentzsch, C. E. (1993). *Effective, Low-cost marketing strategies for assistive technology programs and I&R networks.* Proceedings from the international conference for the Rehabilitation Society of North America. Las Vegas, NV.

Hammond, M., Jentzsch, C., McCarty, D., & Justesen, T. (1992). *Funding and Assistive Technology: A Guide and Directory for Utah.* Logan, UT: Utah State University, Utah Assistive Technology Program.

Merrell, K. W., Stein, S., & Jentzsch, C. E. (1992). Using rating scales to assess social competence with children and youth. *The Oregon Conference Monograph,* 10-18.

Jentzsch, C., & Tindal, G. (1991). *Analytic Scoring of Writing* (Training Module No. 8). Eugene, OR: University of Oregon, Resource Consultant Training Program.

PUBLICATIONS
(In Preparation)

Jentzsch, C. E., & Merrell, K. W. (In preparation). An evaluation of the sensitivity of a teacher-nomination procedure for identifying behaviorally differing groups.

Jentzsch, C. E. (In preparation). Characteristics of school refusers and their families: A conceptualization for school practitioners.

Jentzsch, C. E., & Merrell, K. W. (In preparation). The predictive validity of the Battelle Developmental Inventory as compared to the Scales of Independent Behavior.

PRESENTATIONS AT PROFESSIONAL MEETINGS

Merrell, K., Jentzsch, C., Pratt, S., Walters, A., Gimpel, G., & Laurent, J. (March, 1996). Practical school-based prevention and intervention techniques for childhood depression. Accepted for presentation at the annual convention of the National Association of School Psychologists. Atlanta, GA.

Hammond, M., Jentzsch, C., & Menlove, M. (April, 1995). Strategies for promoting integration of young children with disabilities. Presentation at the Utah Early Intervention Conference. Salt Lake City, UT.

Jentzsch, C. (March, 1995). Techniques for fostering inclusive schools and communities. Presentation at the annual convention of the National Association of School Psychologists. Chicago, IL.

Jentzsch, C., Walters, A., & Merrell, K. (April, 1994). Characteristics of School Refusers. Presentation at the annual convention of the Rocky Mountain Psychological Association. Las Vegas, NV.

Jentzsch, C., & Thorkildsen, R. (March, 1994). Incorporating Assistive Technology into the IEP Process. Presentation at the annual convention of the National Association of School Psychologists. Seattle, WA.

Hammond, M., & Jentzsch, C. (February 1994). Portrayal of Students with Disabilities in Print and Media. Presentation at the annual convention of the American Education and Communication Technology. Nashville, TN.

Beck, J., Jentzsch, C., & Justesen, T. (June 1993). The ADA: Accessibility on the Path of Travel. Presentation at the international conference for the Rehabilitation Society of North America (RESNA). Las Vegas, NV.

Hammond, M., & Jentzsch, C. (June 1993). Marketing I&R Systems. Presentation at the international conference for the Rehabilitation Society of North America (RESNA). Las Vegas, NV.

Merrell, K., Stein, S., & Jentzsch, C. E. (February 1992). Assessing Social Competence Presentation at The Oregon Conference: A Northwest Conference for Special Educators. Eugene, OR.

ADDITIONAL RESEARCH EXPERIENCE

Research Assistant, Western Institute for Research and Evaluation
Utah State University, Logan Utah (November, 1994)
Established guidelines for evaluation of school counseling program. Created format for questionnaires. Performed editorial and desktop publishing tasks.

Research Assistant/Editor, Utah Assistive Technology Program
Logan, Utah (June 1993 - Present)
Prepare presentations at national and international conferences. Assist in preparation of manuscripts for publication. Edit and contribute to grant manuscripts. Edit video scripts and publications.

Research Assistant, Psychology Department
Logan, Utah (May 1992)
Administer tests to students for a curriculum evaluation of a school in southern California. Responsible for coordinating schedule to test individual classrooms.

Research Assistant, Cottage Grove Norming Project (1990): Managed and trained data scorers, including data entry and coding tasks. Constructed analytic rating criteria for scoring writing tests. Documented interrater and intrarater reliability on scoring tasks. Collected data. Wrote portions of final report, dealing with directions for scoring writing and reading comprehension tasks.

Research Assistant, Portfolio Assessment Monograph Project (1989 - 1990): Performed a literature-based review for monograph. Wrote sections of the introduction. Administered tests to elementary school students to provide research data on portfolio assessment. Enlisted participant teachers, who selected students based on our demographic profiles of optimal subjects.

Research Assistant, Bethel School District Norming Project (1989 - 1990): Administered tests to groups and individuals for a district-wide norming project. Scored tests in math, reading, and writing. Entered data into the project computer database and coded data to ensure subject anonymity. Volunteered for on-call status to help project leaders meet deadlines.

SUPERVISED EXPERIENCE

Psychology Practicum Student, Psychology Community Clinic
Utah State University, Logan, Utah (June 1994 - Present)
Provide assessment and counseling for a variety of clients. Conduct comprehensive assessments. Provide services to adults, children and adolescents as well as families. Perform comprehensive assessment. Facilitate assessment and diagnosis of childhood

disorders. Utilize cognitive-behavioral, family systems and gestalt theories and techniques.

School Psychologist, Internship, Preston School District
Preston, Idaho (September 1993-June 1994)
Administered intellectual assessments and provided counseling for three schools (about 2,000 students) preschool to high school. Provided training to teachers in behavior management. Responsible for providing case management for students with severe psychiatric disturbances. Participated in IEP meetings. Provided crisis intervention as needed. Utilized cognitive-behavioral techniques. Provided parent consultation.

Psychology Practicum Student, Counseling Center
Utah State University, Logan, Utah (September 1993-May 1993)
Provided brief and long-term counseling to students on a campus of about 17,000 students. Completed intake interviews and reports. Received training in crisis intervention. Participated in seminars focusing on family, gestalt, and object relations therapy. Participated in case presentations. Co-lead group therapy focusing on interpersonal relationships.

Psychology Practicum Student, Cache County School District
Logan, Utah (September 1992-June 1993)
Conducted interviews with parents and students. Assessed students for qualification of special services under state guidelines. Participated in Individualized Education Plan meetings. Interpreted test results and wrote reports.

Psychology Practicum Student, Psychology Community Clinic
Logan, Utah (September 1991-June 1992)
Provided marital and individual counseling. Wrote psychological reports and interpreted test results. Performed comprehensive assessment. Utilized cognitive-behavioral, family systems and gestalt theories and techniques.