The Construct Validity of the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scale (PKBS)

Lindsay A. Barton

This research is a product of the graduate program in School Psychology at Eastern Illinois University. Find out more about the program.

Recommended Citation
https://thekeep.eiu.edu/theses/1560
THESIS/FIELD EXPERIENCE PAPER
REPRODUCTION CERTIFICATE

TO: Graduate Degree Candidates (who have written formal theses)

SUBJECT: Permission to Reproduce Theses

The University Library is receiving a number of request from other institutions asking permission to reproduce dissertations for inclusion in their library holdings. Although no copyright laws are involved, we feel that professional courtesy demands that permission be obtained from the author before we allow these to be copied.

PLEASE SIGN ONE OF THE FOLLOWING STATEMENTS:

Booth Library of Eastern Illinois University has my permission to lend my thesis to a reputable college or university for the purpose of copying it for inclusion in that institution’s library or research holdings.

\[ Aug. 14, 2001 \]

Date

I respectfully request Booth Library of Eastern Illinois University NOT allow my thesis to be reproduced because:

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

Author’s Signature ___________________________ Date ________
The Construct Validity of the Behavior Assessment System for Children (BASC) and the
Preschool and Kindergarten Behavior Scale (PKBS)

By
Lindsay A. Barton

THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
Specialist in School Psychology
IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

2001

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

8/14/01
DATE
8/14/01
DATE
Running Head: THE CONSTRUCT VALIDITY OF THE BASC AND THE PKBS

The Construct Validity of the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scale (PKBS)

Lindsay A. Barton

Eastern Illinois University
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Tables and Appendices</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>iii</td>
</tr>
<tr>
<td>Abstract</td>
<td>iv</td>
</tr>
<tr>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>Review of Literature</td>
<td>14</td>
</tr>
<tr>
<td>Method</td>
<td>25</td>
</tr>
<tr>
<td>Participants</td>
<td>25</td>
</tr>
<tr>
<td>Procedure</td>
<td>26</td>
</tr>
<tr>
<td>Results</td>
<td>29</td>
</tr>
<tr>
<td>Discussion</td>
<td>32</td>
</tr>
<tr>
<td>References</td>
<td>38</td>
</tr>
</tbody>
</table>
List of Tables and Appendices

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41</td>
</tr>
<tr>
<td>2</td>
<td>42</td>
</tr>
</tbody>
</table>

**Table 1**

Pearson Product Moment Correlations for the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Rating Scales (PKBS)

**Table 2**

Descriptive Statistics and Dependent t-tests for the Specific Comparisons Between the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scales (PKBS)

**Appendices**

A Letter to Program Director  
B Data Collection Instructions for Teachers
Acknowledgments

I would like to thank Dr. Gary Canivez for his support and encouragement as the chair to my thesis. I would also like to thank Dr. Christine McCormick and Dr. Assege Hailemariam for being a part of my thesis committee and for their support and encouragement.

I would also like to thank Tara Plopper and David Long for the many hours they spent entering the BASC and PKBS data.

I would like to thank Kenneth Merrell for providing me with the means and standard deviations from the PKBS standardization sample so I was able to transform the raw scores to T scores.

I would also like to thank my family and friends for all of their support and encouragement throughout my educational career. Without all of your encouragement I would have never made it.

Finally, I would like to thank my husband, Joe. Your unending patience, love, and support helped me to make this all possible.
Abstract

The Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scales (PKBS) are two relatively new behavior assessment scales that measure emotional and behavioral problems of children. The BASC is designed to evaluate the behavior and self-perceptions of children aged two and a half to eighteen years old. The PKBS is designed to evaluate social skills and problem behavior patterns of preschool and kindergarten aged children including the ages of three, four, five, and six years old. There are no studies in the empirical literature comparing the preschool form of the BASC and the PKBS behavior rating scales. The present study examined the construct validity of the BASC and PKBS teacher behavior rating scales. Preschool and kindergarten samples were assessed using the preschool form of the BASC and the PKBS. A sample of 3 to 5 year olds (N = 145) from both private and public preschools were participants in the study. Preschool teachers were asked to complete both scales for randomly selected children in their preschool classroom. Comparisons between the two scales were studied through Pearson product-moment correlation coefficients. In addition, dependent t-tests were conducted to determine if significant differences between the scales were present. Results indicated that correlations between similar scales of the BASC and PKBS were mostly in the moderate to high range. These results provided additional evidence for the construct validity of the BASC and PKBS. The results of this study support the BASC and PKBS rating scales are both able to assess children’s emotional and behavioral health and provide similar results.
The Construct Validity of the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scale (PKBS)

Lindsay A. Barton

Eastern Illinois University
The Construct Validity of the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scale (PKBS)

Introduction

Objective measures are designed so that examiners can assess an individual and reduce effects of their own attitudes, opinions, or idiosyncrasies on the outcome of a response. Objective measures have predetermined criteria and standardized scoring procedures. Standardized scoring allows for higher inter-rater reliability (Salvia & Ysseldyke, 1998). Thus, the raters have a predetermined set of answers they must choose from when assessing an individual.

In addition to reduced influence of emotion or personal prejudice, objective measures are based on observable phenomena (Salvia & Ysseldyke, 1998). Complete objectivity in observable situations may be difficult; however, the objective approach allows examiners to view the key components of an individual’s performance as well as key elements within each component. Objective measures are often used to assess individuals with disabilities because they are less subject to the emotions and prejudices of the examiner. In addition, federal regulations state that students with disabilities must be evaluated with objective procedures (Salvia & Ysseldyke, 1998).

Two of the most recent objective behavior rating scales are the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1998) and the Preschool and Kindergarten Behavior Scale (PKBS; Merrell, 1994). Both of these behavior rating scales are objective measures. The purpose of the BASC is to assess children for differential diagnosis of emotional and behavioral disorders for educational treatment (Reynolds & Kamphaus, 1998). The purpose of the PKBS is to evaluate the
"social skills and problem behavior patterns of preschool and kindergarten-aged children" (Merrell, 1994, p.1).

Objective behavior rating scales are becoming more widely used and offer many advantages for clinicians and researchers. Objective tests such as the BASC and the PKBS provide a standardized format and norms to make data based decisions on a child's behavioral characteristics. The BASC and PKBS are rating scales that attempt to identify children's emotional and behavioral disorders. Both the BASC and the PKBS are quantitative systems where the individual receives a score on a scale that represents the frequency, duration, and intensity of the emotion and behavior. The items are summed to produce overall scores that are used to indicate where an individual falls on a scale for a particular syndrome or problem in comparison to a norm referenced group (Huberty, 1997). Quantitative measures such as the BASC and PKBS provide a system for obtaining parent and teacher reports of a child's emotional and behavioral problems as well as assessing the severity of the problem (Huberty, 1997). These tests yield more reliable data than unstructured interviews or projective techniques.

Objective tests can be used for early screening of children. Early screening of children allows an examiner to provide a child with early intervention or prevention. They can also be used to assess a child's progress during and after an intervention or prevention has been implemented (Merrell, 1994). Finally, several laws make valid objective tests essential to accurately assess individuals with disabilities. Public Law 94-142, the Education of All Handicapped Children Act of 1975 (U.S. Department of Education, 1999), which entitles children between the ages of three and twenty-one to a free and appropriate public education and related services, and Public Law 99-457, the
Education of the Handicapped Act Amendments of 1986 (U.S. Department of Education, 1999) which extends the free and appropriate education and related services to children from birth to three years of age, have been amended and incorporated into the Individuals with Disabilities Education Act (IDEA) of 1990 (U.S. Department of Education, 1999). IDEA was amended and revised again in 1997. IDEA raises the expectations of schools for children with disabilities, increases parental involvement in their child’s educational plan, ensures that regular education teachers are involved in planning and assessing the child’s progress, and supports quality professional development for all personnel who are involved in educating children with disabilities (U.S. Department of Education, 1999).

The literature and the law both support the importance of using reliable and valid assessment tools to assess children’s needs for the purpose of intervention.

**Behavior Assessment System for Children (BASC)**

The BASC is an objective measure that utilizes a “multimethod, multidimensional method approach to evaluating the behavior and self-perceptions of children aged two and a half to eighteen years old” (Reynolds & Kamphaus, 1998, p.1). The BASC is multimethod because it includes five different components consisting of a self-report scale, parent rating scale, teacher rating scale, a structured developmental history, and a classroom observation form. The BASC was designed to identify a variety of emotional and behavioral disorders and to aid in the design of treatment plans. Reynolds and Kamphaus (1998) list several features of the BASC that make it a unique and reliable system of behavioral assessment. For instance, other measures are easily compared to the BASC to help achieve reliable and accurate diagnoses. The BASC components are setting-specific. Because some behaviors are more apparent in some settings rather than
The BASC scales are highly interpretable. They have high internal consistency and test-retest reliability, the parent rating scales are available in Spanish and in English, and the BASC is easy to administer and score (Reynolds & Kamphaus, 1998).

The BASC Teacher Rating Scale (TRS) is a comprehensive measure of both adaptive and problem behaviors in a school setting. It is designed to be used by teachers or others who play a similar role such as teacher aides or preschool caregivers (Reynolds & Kamphaus, 1998). There are three age levels for the TRS, preschool (2½-5), child (6-11), and adolescent (12-18). In addition to Adaptive Skills the TRS assesses Externalizing Problems, Internalizing Problems, and School Problems. The TRS provides subscale scores, composite scores, a broad composite score and a Behavioral Symptoms Index (BSI) that assesses the overall level of problem behaviors (Reynolds & Kamphaus, 1998).

The Parent Rating Scale (PRS) is a comprehensive measure of a child’s adaptive and problem behaviors in community and home settings. The PRS uses the same age levels as the TRS, and the two forms have similar content and structure. Like the TRS, the PRS assesses Externalizing Problems, Internalizing Problems, and Adaptive Skills; however, unlike the TRS, the PRS does not assess School Problems (Reynolds & Kamphaus, 1998). Both the TRS and PRS use a four-point Likert scale ranging from never (1) to almost always (4), and each takes ten to twenty minutes to complete. A third component of the BASC is the Self-Report of Personality (SRP). The SRP consists of 186 true or false statements a child responds to that takes approximately thirty minutes to complete. There are two age level forms of the SRP: child (8-11) and adolescent (12-18). The two levels of the SRP produce composite scores for School Maladjustment, Clinical
Maladjustment, Personal Adjustment, and the Emotional Symptoms Index (EMI) (Reynolds & Kamphaus, 1998). The fourth component of the BASC is the Structured Developmental History (SDH) survey. The SDH is completed by a clinician during an interview with a child’s caregiver, or it may be completed as a questionnaire by the caregiver. Sample information gathered by the SDH that can be helpful in the diagnostic and treatment process are the medical history of the child, the family structure, and developmental milestones. The SDH is considered an asset to the evaluation of a child (Reynolds & Kamphaus, 1998). The last component of the BASC, the Student Observation System (SOS), is a direct observation of the child’s behavior. The SOS uses a time sampling approach to observe both the positive and negative behaviors of a child. This observational system may be used in multiple settings (e.g. regular and special education classrooms) for gathering diagnostic data and to evaluate the effectiveness of treatments (Reynolds & Kamphaus, 1998).

The BASC-TRS is a multidimensional measure that assesses both adaptive and problem behaviors. There are three age levels of the BASC-TRS (2 ½ to 5, 6-11, and 12-18) that assess children’s behaviors. This study specifically examines the preschool (2 ½ to 5) BASC-TRS which assesses three composite areas, Externalizing Problems, Internalizing Problems, and Adaptive Skills. In addition, the preschool BASC-TRS has three subscales, Atypicality, Withdrawal, and Attention Problems, that are not included among the composite scores. The preschool BASC-TRS also includes a Behaviors Symptoms Index (BSI) that measures the overall level of problem behaviors.

Externalizing Problems are those described as undercontrolled and having difficulties with aggression, conduct problems, and acting out behaviors (Kamphaus &
Frick, 1996). Specifically, the Externalizing Problems Composite is comprised of two scales, Aggression and Hyperactivity which measure the tendency of the child to act in a hostile manner towards others, and to be overly active and to rush through activities, respectively. The Internalizing Problems Composite consists of problems that are characterized as overcontrolled indicating problems of inhibition, anxiety, and perhaps shyness (Kamphus & Frick, 1996). The Internalizing Problems Composite is comprised of three scales, Anxiety, Depression, and Somatization. The Anxiety scale measures the tendency of a child to be nervous, fearful, or worried about real or imagined problems. The Depression scale measures an individual’s tendency to have feelings of unhappiness, sadness, or stress that may make it difficult to carry out everyday activities. Finally, the Somatization scale measures the tendency of an individual to complain of minor physical problems or discomforts.

The Adaptive Skills Composite is comprised of the following four positively oriented scales and measure the individual’s competency in each area.

- **Adaptability**: ability to adapt to changes in the environment.
- **Social Skills**: skills necessary to interact with other peers and adults across settings.
- **Study Skills**: organizational skills and study habits of a child that develop a strong academic performance.

The Attention Problems subscale examines the individual’s abilities to concentrate in order to learn educational tasks at school. In addition, the Attention Problems subscale measures the tendency of the individual to be easily distracted and have difficulty concentrating for long periods of time. The Atypicality subscale measures
the tendency of an individual to behave in ways that are considered to be immature, bizarre, or “odd,” while the Withdrawal scale measures the tendency of an individual to evade others and to not feel comfortable approaching other individuals. Finally, the Behavioral Symptoms Index is comprised of six scales Aggression, Hyperactivity, Anxiety, Depression, Attention Problems, and Atypicality, which examines the overall level of problem behaviors (Reynolds & Kamphaus, 1998).

The standardization sample was representative of the 1990 United States Census. Four geographic regions of the United States were represented: West (18%), North Central (24%), South (36%), and Northeast (21%). Additional normative data for ages two through six and three through eleven for the TRS and PRS was collected in winter of 1997 and spring of 1998 (Reynolds and Kamphaus, 1998). Disabled children were included in the sample, and variables such as socioeconomic status, ethnicity, geographic area, gender, and age were stratified using different testing sites (Flanagan, 1995). Socioeconomic status was determined by using the mother’s educational level. The approximate percentage of race/ethnic groups represented in the normative sample was as follows: African-American (16%), Hispanic (11%), White (70%), and other (3%) (Reynolds & Kamphaus, 1998). For each age group, there were approximately 50% males and 50% females.

In the development of the BASC, reliability studies were conducted using three types of estimates; internal consistency, test-retest reliability, and interrater reliability. Standard Errors of Measurement (SEM) based on internal consistencies was also determined. Internal Consistency was found to be high for each of the levels of the TRS (pre-school, child, adolescent) averaging above .80. Test-retest reliability was found to
be adequate with median values for the TRS for each of the age levels equalling, .89, .91, and .82. Interrater reliability was found to be reasonably high for the TRS with a median value of .83 (Reynolds & Kamphaus, 1998). Merenda (1996) found that there were no formal validity studies (content-related, criterion-related, or construct-related) presented in the BASC manual.

Preschool and Kindergarten Behavior Scale (PKBS)

The PKBS is another objective “behavior rating instrument for use in evaluating social skills and problem behavior patterns of preschool and kindergarten-aged children including the ages of three, four, five, and six years old” (Merrell, 1994, p.1). The PKBS is comprised of two major scales that are used to identify Social Skills and Problem Behaviors. The PKBS was designed to be used as a screening tool to indicate those preschool and kindergarten-aged children who are at-risk of having serious behavioral, social, and emotional problems. Additionally, the PKBS was intended to be used as a part of a multi-axial assessment battery, to assess social skills deficiencies and behavioral problems for developing interventions and be used as a research tool (Merrell, 1994).

The PKBS can be completed by either a teacher, parent, or other caregiver. The Social Skills scale is comprised of items that describe adaptive or positive behaviors that can lead to positive social outcomes. Like the BASC, the PKBS uses a four point Likert scale. The PKBS Likert scale range includes never (1), rarely, sometimes, and often (4). The Social Skills Scale is comprised of three subscales, Social Cooperation, Social Interaction, and Social Independence (Merrell, 1994). The Social Cooperation subscale includes items that assess how a child can follow directions from an adult, cooperate and compromise with a peer, and show appropriate self-restraint. The Social Interaction
subscale has items that show how a child gains and maintains acceptance and friendship from others. Finally, the Social Independence subscale has items that evaluate a child’s social independence within a peer group, such as, being able to separate from caregivers or confidence and positive assertiveness in interactions with peers (Merrell, 1994).

The Problem Behavior scale describes various problem behaviors that are often found in the preschool/kindergarten population. The Problem Behavior scale is also rated on a four-point Likert scale and has five subscales: Self-Centered/Explosive, Attention Problems/Overactive, and Antisocial/Aggressive (Externalizing Problems domain) and Social Withdrawn and Anxiety/Somatic Problems (Internalizing Problems domain) (Merrell, 1994). A description of each scale follows:

- **Self-Centered/Explosive**: has externalizing problem items that reflect volatile, inconsiderate, and unpredictable behaviors. Children with high scores on this subscale may be described as oppositional, defiant, emotionally and behaviorally labile, and unpredictably temperamental.

- **Attention Problems/Overactive**: has items exhibiting externalizing problems such as impulsiveness, restlessness, fidgety, noisy, and overactive behavioral styles. Children with Attention Deficit Hyperactivity Disorder (ADHD) usually score high on this subscale.

- **Antisocial/Aggressive**: includes externalizing problem items that assess behaviors of intimidation and harm to others through coercive means. High scores on this subscale are usually indicative of children who are disliked and avoided by other children because of their hurtful behavior.

- **Social Withdrawn**: has items reflecting internalizing behaviors such as
patterns of avoidance and withdrawal from other children as well as excessive unhappiness.

- **Anxiety/Somatic Problems**: is another subscale that illustrates internalizing problems such as fearful, tense, and anxious patterns of behavior that can be accompanied by various somatic or physical problems. High scores on this subscale often characterize children who have difficulty separating from their caregivers.

The normative sample included 2,855 children (50% male and 50% female) ranging between the ages of three and six who were rated by parents, grandparents, caregivers, or teachers in 1992 and 1993. Based on the 1990 United States Census, population representation was achieved (Merrell, 1996). The normative sample consisted of Caucasian (80%), African-American (12%), Hispanic (5%), Asian-American (2%), and Native American (1%) children. Caucasians were slightly overrepresented and Hispanics were slightly underrepresented (Merrell, 1996). Socioeconomic status was determined by the occupation of the subject’s parents. A proportion of the subjects in the normative sample were identified as being developmentally delayed (8.4%) while 89% of the participants were identified as not having a disability. The remaining participants (2.9%) were in the process of being evaluated for a possible developmental disability or delay.

In the development of the PKBS three types of reliability were assessed including internal consistency, test-retest, and interrater reliability. Standard errors of measurement were also provided. Internal consistency was conducted using the coefficient alpha and the Spearman-Brown correlated split-half reliability procedures. When these methods
were completed the coefficients ranged from .81 to .97 for the subscales. Internal consistency for the composite scores ranged from .94 to .97. The coefficients of internal consistency suggest there is strong internal consistency for the PKBS (Merrell, 1994). Test-retest reliabilities were conducted using two procedures. Three-week and a three-month retest intervals were used and resulted in moderate to high test-retest coefficients of temporal stability ($r = .58$ to $.87$ for the three-week; $r = .36$ to $.78$ for the three-month) for preschool-based assessment (Merrell, 1996). Interrater reliabilities were obtained using classroom teachers and aides with coefficients for the Social Skills scale ranging between $.36$ and $.61$, and coefficients for the Behavior Problems scale ranging between $.42$ and $.63$. These correlations are considered to be fair and may indicate rater bias (Merrell, 1994). Interrater reliabilities were also obtained between classroom teachers and parents with coefficients for the Social Skills scale ranging between $.20$ to $.57$, and coefficients for the Behavior Problems scale ranging between $.13$ to $.48$. The lower coefficients are most likely due to source and setting variance (Merrell, 1994). Standard errors of measurement (SEM) were based on the internal consistency coefficients to establish confidence intervals.

Test validity is also important in developing a behavior rating scale like the PKBS. There were three types of validity (content, construct, and criterion-related) assessed in the development of the PKBS. Content validity was determined using Pearson product-moment correlations that indicated that the items in each scale and subscale are in the appropriate domain of content. Construct validity was determined using several different methods such as, internal consistency and interrelationships among PKBS scales, factorial validity, assessment of group differences, and convergent and
divergent construct validity. Moderately strong to strong relationships were found between the PKBS and other established rating scales measuring similar constructs, such as the School Social Behavior Scales (SSBS; Merrell, 1993), Social Skills Rating System (SSRS; Gresham & Elliott, 1990), Matson Evaluation of Social Skills with Youngsters (MESSY; Matson, Rotari, & Helsel, 1985), and the Conners Teacher Rating Scales (CTRS-39; Conners, 1990) (Merrell, 1994). Criterion-related validity was also determined by using the PKBS to predict the special education status of rated children. The PKBS was able to correctly identify the majority (90.18%) of the children identified in special education (Merrell, 1994). Merrell (1996) stated that further research needs to be done on the validity of the PKBS in order for the PKBS to be used for specific purposes.
Review of Literature

Several published studies have examined the validity of the BASC. Lett and Kamphaus (1997) studied the differential validity of the BASC Student Observation System and the BASC Teacher Rating Scale. The study was conducted in two phases. The first phase consisted of a group of children with Attention Deficit Hyperactivity Disorder (ADHD) and a nondisabled group. There were thirty-seven children in the ADHD group that may or may not have had a codiagnosis such as Behavior Disorder or Learning Disability. The nondisabled group had eighteen children that had no diagnosis. Children with intelligence scores below 70 were excluded from the study. The second phase consisted of a “pure” ADHD group and an ADHD+ group. Those children placed in the ADHD+ group had a codiagnosis such as a Learning Disability, Behavior Disorder, Oppositional Defiant Disorder, or Conduct Disorder while the children that were selected for the “pure” ADHD group had no codiagnosis. In addition, those children with undifferentiated Attention Deficit Disorder were excluded from the “pure” ADHD group.

Graduate students and undergraduate interns in School Psychology were trained in a thirty-minute training sessions by one of the authors of the BASC on how to use the Student Observation System. Interobserver reliabilities were collected on some of the participants and most of the reliabilities were in the 80's (Lett & Kamphaus, 1997). Observations of the children were made during independent seat work in their classroom. The Teacher Rating Scale (TRS) was placed in the teacher's mailbox one week prior to the observation, and it was collected at the time of the observation.

The results of the study indicated that the BASC Teacher Rating Scale (TRS) has good differential validity in diagnosing ADHD. The TRS was able to correctly identify...
73 percent of children either identified as ADHD or nondisabled, and it correctly identified children as ADHD and ADHD+ in 62 percent of the cases (Lett & Kamphaus, 1997). Thus, the TRS is able to consistently differentiate between children with behavior problems and those who do not have behavior problems (Lett & Kamphaus, 1997). The Student Observation System (SOS) was found to not add much more information in diagnosing ADHD than what was already produced by the TRS. Modified Kappa was used to determine interdiagnostician agreement for 22 of the participants in the study. Of the 22 cases, there was interdiagnostician agreement among 14 of the cases. This produced a modified kappa of .60 showing moderate agreement among the diagnosticians (Lett & Kamphaus, 1997). The independent diagnostician and the original clinician agreed on 14 out of 22 cases. Lett and Kamphaus suggested that a multimethod approach can still be used when diagnosing ADHD; however, the TRS would be the more valuable component of the assessment battery.

Flanagan, Alfonso, Primavera, Povall, and Higgins (1996) studied the convergent validity of the BASC and the Social Skills Rating System (SSRS). The Social Skills subscale of the BASC was of particular interest in this study because the BASC was a new instrument and there was a limited amount of evidence supporting its underlying constructs (Flanagan et al., 1996). Kindergarten students from a parochial school participated in this study. There were 26 males and 27 females with ages ranging from four years, eight months to five years, ten months. The majority of the children were African-American (n = 41) and there was a small number of Hispanic children (n = 12) (Flanagan et al, 1996). These children came from families with incomes below the federal poverty level. The parent forms of both the BASC and the SSRS were sent to the
homes of the kindergarten students and the primary caregiver of the child was requested to complete the form. The forms were sent in counterbalanced order by placing the BASC rating scale form first in the envelope for half of the participants and then the SSRS rating scale in first for the other half of the participants. The majority of the BASC and SSRS rating scales were returned within two weeks, and the other rating scales were obtained by phone interviews or parent conferences conducted by a school psychologist. The teacher forms of the BASC and the SSRS were also sent to the teachers in counterbalanced order. The teacher rating scales were sent to the teachers four to six weeks after the parent forms to allow the teachers more time to become familiar with the children’s behaviors. The teachers then returned the rating scales within two weeks.

General norms were used when scoring both the SSRS and the BASC behavior rating scales (Flanagan et al., 1996). Flanagan et al. (1996) found that the parents and teachers differed on their ratings on the Problem Behavior scales; however the parents and teachers Social Skills ratings were similar on the BASC and the SSRS. The Social Skills scales on the parent forms of the BASC and SSRS had a moderate positive correlation of .58; whereas, the Social Skills scales of the teacher forms of the BASC and SSRS had a nonsignificant correlation of .23. Flanagan et al. concluded that convergent validity was found for the parent form of the BASC, but not for the teacher form of the BASC. In addition, they noted that further research is needed in the area of construct validity of the social skills scales.

Vaughn, Riccio, Hynd, and Hall (1997) examined the discriminant validity of the BASC and the Child Behavior Checklist (CBCL; Achenbach, 1991a) Parent and Teacher Rating Scales. The BASC and the CBCL behavior rating scales were used to
discriminate Attention Deficit Hyperactivity Disorder (ADHD) subtypes. Participants for this study were children who had been referred to a university-based child neuropsychology clinic for cognitive, academic, and/or behavioral concerns. All of the children were classified as ADHD with cognitive abilities within the average range. There were 73 children in the study and all were caucasian except three. Children with intelligence scores below 70, epilepsy, closed head injury, or other neurological disorders were excluded from this study. As a part of a complete neuropsychological evaluation, parents were asked to complete the BASC Structured Developmental History and later participated in the Structured Interview for the Diagnostic Assessment for Children (SDIAC) (Vaughn et al., 1997). Furthermore, a parent and a classroom teacher were asked to complete the Swanson, Nolan, and Pelham (SNAP) checklist for ADHD. The SDIAC and SNAP checklist were used to make the diagnosis of ADHD. Parents and teachers also completed the respective forms of the BASC and the CBCL. Vaughn et al. (1997) indicated that the BASC and the CBCL agreed significantly on the Total behavior, Externalizing, and Internalizing problem scales. The Externalizing scales of the PRS and TRS of both the BASC and CBCL had moderate to high correlations ($r_s$ from .60s-.90s) (Vaghn et al., 1997). The Hyperactivity scale and the Attention Problems scale on the BASC-PRS and CBCL, respectively had high correlation ($r = .71$); however, the teacher forms ($r = .54$) were lower. Thus, Vaughn et al. concluded that both the BASC and CBCL are highly accurate in detecting ADHD (Vaughn et al., 1997).

Lastly, Doyle, Ostrander, Skare, Crosby, and August (1997) studied the convergent and criterion-related validity of the BASC Parent Rating Scale. Validity was assessed through correlations between the BASC-PRS and the CBCL/4-18 (CBCL form
for ages 4 through 18) (Achenbach, 1991b). The children selected for the study were identified as disruptive by both their teachers and their parents. Criterion-related validity was examined by evaluating how the BASC-PRS could predict children that have no diagnosis, children with ADHD, and children with ADHD plus another externalizing disorder as compared to the CBCL/4-18. Two separate discriminant function analyses were conducted to examine the criterion-related validity of the BASC-PRS and the CBCL/4-18 respectively (Doyle et al., 1997). Children (124 boys and 32 girls) who were enrolled in a school-based preventative-intervention study who were at risk for conduct disorder (CD) participated in this study. Those children with pervasive developmental disorder or psychosis were excluded from the study. The CBCL/4-18 was mailed to each child's caregiver, and then the caregiver was interviewed over the phone using the Diagnostic Interview for Children and Adolescents, Revised-Parent Version (DICA-R-P; Reich & Welner, 1990). When the interviews were completed the caregiver received the BASC-PRS in the mail.

Doyle et al. (1997) found that the BASC-PRS had comparable convergent and criterion-related validities to the Child Behavior Check-List (CBCL/4-18). The first discriminant function analysis for both the BASC-PRS and CBCL/4-18 were found to be significant; therefore, they are adequate to distinguish between diagnostic groups. A jackknife procedure (Tabachnick & Fidell, 1989) of discriminant analysis was then used to determine sensitivity and specificity. The BASC-PRS produced a .88 sensitivity estimate and a .37 specificity estimate. Likewise, the CBCL/4-18 produced a .80 sensitivity estimate and a .44 estimate for specificity (Doyle et al., 1997). The researchers stated that the Hyperactivity, Aggression, and Attention Problem scales on the BASC-
PRS may be useful in identifying externalizing disorders in disruptive children. They concluded that the BASC-PRS is comparable to the CBCL/4-18 in its ability to discriminate between diagnostic groups.

There has been little independent research conducted on the PKBS. Merrell (1995) reported the convergent and discriminant (divergent) construct validity of the PKBS. Convergent and divergent construct validity of the PKBS was evaluated by obtaining correlations between the PKBS and four other measures. The four measures included the preschool level parent rating form of the SSRS, the teacher report form of the Mattson Evaluation of Social Skills with Youngsters (MESSY), the thirty-nine-item version of the Conners Teaching Rating Scale (CTRS-39), and the School Social Behavior Scales (SSBS). Four different samples of preschool and kindergarten age children were used for this study (Merrell, 1995). The parents or teachers rated the children with the PKBS and then one of the other comparison measures. The children in the PKBS and the SSRS sample were between the ages of three and five. These children had been referred to a special education child find program. The PKBS and the SSRS record forms were completed as a part of a large battery of screening measures. The PKBS and MESSY study was comprised of developmentally delayed children (n = 116) between the ages of three and six. These children were served in special education developmental preschools. Teachers received three rating packets with both the PKBS and MESSY record forms and were asked to complete the rating scales for the children they would randomly select from their class roster. The studies comparing the PKBS with the CTRS-39 (n = 46), and the PKBS with the SSBS (n = 47) rated regular Kindergarten students between the ages of five and six. Again, teachers received rating
scale packets and were asked to randomly select three students they would rate using these measures (Merrell, 1995).

Merrell found that the PKBS Social Skills scale had moderate to strong relationships with the SSRS ($r_s = .32$ to $.76$). The problem behavior scores on the two scales had more variation with coefficients ranging from $.25$ to $.83$. Moderate to high correlations were found between the PKBS and the MESSY social skills scores ($.62$ to $.85$); however, the problem behavior scores ranged from weak to strong ($.22$ to $.72$). Weak to very strong correlations were found between the PKBS and the SSBS depending on the scale comparisons made. Externalizing Problems scores of the PKBS correlated highly with the Hyperactivity ($r = .85$), Conduct Problems ($r = .87$), and the Hyperactivity Index ($r = .85$) scales of the CTRS-39. Similarly, the Internalizing Problem scales of the PKBS correlated highly with the Emotional/Indulgent ($r = .78$) and Anxious/Passive ($r = .61$) scales of the CTRS-39. Correlations between social skills scores and problem behavior scores for the PKBS and the CTRS were all negative ranging from $-.08$ to $-.83$. A strong correlation was found between the PKBS and the SSBS for the social skills scores ($r = .86$), however; problem behavior scores were variable (Merrell, 1995). Merrell found that the correlations between the PKBS and the other four established rating scales provide evidence for the construct validity of the PKBS. In addition, Merrell suggested that further research of the PKBS is needed to demonstrate test validity.

Merrell and Wolfe (1998) examined the relationship of teacher rated social skills deficits and ADHD characteristics among kindergarten-aged children (construct validity) of the PKBS. Preschool and kindergarten children ($n = 190$) between the ages of five and six were selected from a nation wide sample that comprised the national normative group
for the PKBS. The children were divided into two groups. The first group (ADHD group) \((n = 95)\), consisted of children who received high ratings from their teachers on ADHD characteristics on the PKBS. The second group (non-ADHD group) \((n = 95)\), was comprised of children receiving ratings below the top five percent of the normative sample on the PKBS Attention Problems/Overactive Scale. These children were enrolled in half or full day kindergarten classes and the ratings were completed by their teachers. The majority of the children were enrolled in regular education (86%) while few were enrolled in developmental or special education (14%) kindergarten classes. Merrell and Wolfe (1998) found that children that were rated by their teachers to have characteristics of ADHD were more likely to have significant social skills deficits than children who were not rated to have ADHD characteristics. A discriminant function analysis was performed to test the power of social skills when classifying participants into groups. The discriminant function analysis was done by using group membership (ADHD and non-ADHD). The discriminant function analysis was found to be significant and resulted in 87% of the participants being correctly classified into their respective groups based on their rated social skills (Merrell & Wolfe, 1998). The social skills scores of the PKBS were able to separate those children who are identified as ADHD and those who are not identified as ADHD. Therefore, children with ADHD appear to be at risk of experiencing deficits in social competence (Merrell & Wolfe, 1998).

Additional research by Merrell and Holland (1997) examined the social-emotional behavior of preschool-age children with and without developmental delays and the validity of the PKBS. Children between the ages of three and five were chosen from the PKBS national normative sample. The children either attended a public or private
preschool or Headstart program. Either the parent or the teacher of the children completed the PKBS. The children were divided into two groups. The first group consisted of children \((n = 199)\) who had been identified as Developmentally Delayed (DD). The second group \((n = 199)\), were not identified as being DD or having any other disability. Using discriminant function analysis, the results indicated that both teachers and parents identified preschool-aged children with developmental delays as having significantly lower social skills and significantly higher levels of problem behavior than those children that are not identified as having developmental delays. These findings are important for clinical purposes in identifying social, emotional, and behavioral problems. Furthermore, Merrell and Holland. (1997) found that the PKBS scores were effective in classifying the DD children and the non-DD children into their respective groups.

Both the preschool form of the BASC and the PKBS are behavior rating scales that purport to measure similar constructs. The BASC and the PKBS are behavior rating scales designed to assess a variety of social behaviors and problem behaviors. There are no studies in the empirical literature comparing the preschool form of the BASC and the PKBS behavior rating scales. The present study examined the BASC and PKBS teacher behavior rating scales. Preschool and kindergarten samples were assessed using the preschool form of the BASC and the PKBS. It was predicted that:

- **Externalizing Problems Composite of the PKBS**, Self-Centered/Explosive, Attention Problems/Overactive, and Antisocial/Aggressive, were expected to correlate highly with scales of the Externalizing Problems Composite, Hyperactivity and Aggression, of the BASC.

- **Internalizing Problems Composite of the PKBS**, Social Withdrawal and
Anxiety/Somatic Problems, would correlate highly with the scales of the Internalizing Problems Composite, Anxiety, Depression, and Somatization, of the BASC.

- Behavior Problems Composite of the PKBS (Attention Problems/Overactive, Antisocial/Aggressive, Social Withdrawal, and Anxiety/Somatic Problems) would correlate highly with the BSI of the BASC, Attention Problems, Hyperactivity, Aggression, Depression, and Anxiety.


- The Social Skills Composite of the PKBS, Social Cooperation, Social Interaction, and Social Independence, would correlate highly with the Social Skills subscale of the BASC.

- The Attention Problems/Overactive subscale of the PKBS would correlate highly with the Attention Problems subscale of the BASC.

- The Attention Problems/Overactive subscale of the PKBS would correlate highly with the Hyperactivity subscale of the BASC.

- The Social Withdrawal subscale of the PKBS would correlate highly with the Withdrawal subscale of the BASC.

- The Antisocial/Aggressive subscale of the PKBS would highly correlate with the Aggression subscale of the BASC.

- The Anxiety/Somatic subscale of the PKBS would correlate highly with
the Anxiety subscale of the BASC.

It is imperative that the validity of the BASC and PKBS behavior rating scales for young children is established because accurate early identification of children's needs must be based on valid assessment tools. Furthermore, because assessment must be linked to intervention, the use of valid assessment tools is necessary for sound intervention strategies that may prevent more serious problems in the future. Specifically, this study examines the construct validity between the preschool BASC and the PKBS teacher behavior rating scales.
Method

Participants

Participants were between the ages of three and five from the Peoria, Illinois area. Fifty-two (36%) of children rated were 3 years old, 76 (52%) of the children were 4 years old, and 17 (12%) of the children were 5 years old (N = 145). The mean age of the children was 4.24 (SD = .61). Seventy-three of the children were male and 72 of the children were female. There were 103 (71%) children that were considered to be "normal" or without a diagnosed disability. Six (4%) of the children had a diagnosed disability and 36 (24%) of the children were considered at-risk. The majority of the children rated were Caucasian (65%). Two of the children (1%) were Asian American, 1 (.7%) was African American, 1 (.7%) was Hispanic, 1 (.7%) was Black/Caucasian, and 46 (32%) of the children did not have race/ethnicity specified. The children were chosen randomly and rated by their teachers.

Instruments

Behavior Assessment Scale for Children (BASC). The BASC is a nationally normed multidimensional, multimethod means of evaluating the behavior and self-ratings of children two and a half through eighteen years of age. The BASC is designed to assess children for the differential diagnosis and educational treatment of emotional and behavioral disorders (Reynolds & Kamphaus, 1998). The Teacher Rating Scale (TRS) preschool version includes one hundred thirty-one items and is used to assess problem and adaptive behavior in a school setting. The described behaviors are rated on a four point likert scale from (1) never to (4) almost always. Ten behavior scales are rated for preschoolers: Aggression; Hyperactivity; Anxiety; Depression; Somaticization; Attention;
Atypicality; Withdrawal; Adaptability; Social Skills. The TRS scale is designed so that high standard scores indicate greater levels of the behavior measured (Reynolds & Kamphaus, 1998).

There are three composite scores of the BASC in the preschool TRS. The composite scores include the Externalizing Problems Composite (Hyperactivity and Aggression), the Internalizing Problems Composite (Anxiety, Depression, and Somatization), and the Adaptive Skills Composite (Adaptability and Social Skills). Three additional subscales are included in the BASC preschool TRS: Atypicality, Withdrawal, and Attention Problems (Reynolds & Kamphaus, 1998).

Preschool and Kindergarten Behavior Scale (PKBS). The PKBS is a nationally normed behavioral rating scale for the use of evaluating social skills and problem behavior patterns of preschool and kindergarten-aged children. The children can be assessed in a variety of settings and by a variety of behavioral informants. The PKBS includes two separate major scales: Social Skills scale (social cooperation, social interaction, and social independence) which has thirty-four items, and a Problem Behavior scale (self-centered/explosive, attention problems/overactive, antisocial/aggressive, social withdrawal, and anxiety/somatic problems) which has forty-two items. The Social Skills scale includes items that describe positive social skill characteristics of well-adjusted children in the three to six age range. The Problem Behavior scale includes items that describe various problem behaviors commonly seen in three to six year old children who are experiencing adjustment problems (Merrell, 1994). Standard scores are used to higher and lower levels of behavior.
Procedure

The principals and preschool program directors of the Peoria, Illinois area schools were contacted to receive permission to carry out the study using their teachers and students. The principals and preschool program directors were then provided with a description of the study (see Appendix A). Both public and private schools were approached to conduct the study in order to get the largest sample of children possible. Upon receiving the names of those teachers who were willing to participate in the study, they were contacted to set up a time to meet individually or at a staff meeting to inform them of the details of the study. Participating teachers were given a description of what the study was about and how to randomly select a sample of boys and girls from their class roster (Appendix B). The teacher was to randomly count down the class roster a predetermined random number as instructed in their packets. Each teacher rated up to five males and five females. The teachers received their packets containing the BASC and PKBS rating forms to complete within two weeks. After two weeks of receiving the protocols the teachers were contacted and the completed behavior rating scales were collected by the examiner. All data were anonymously collected so no personally identifiable information was collected. As an incentive for the teachers to complete the behavior ratings scales they were given a token of the examiner's appreciation upon completion of the rating scales.

Data Analysis

After all of the BASC and PKBS forms were collected, the variables were represented by T scores that are determined by converting the raw scores of the composite scales into standard T scores. PKBS raw scores were transformed to T scores.
using means and standard deviations from the PKBS standardization sample provided by K. Merrell. Pearson product-moment correlation coefficients were calculated between the T scores obtained from the different composites and all subscales of the BASC and the PKBS. In addition, dependent t-tests were conducted to determine if significant differences between the scales were present.
Results

Composite Score Comparisons

Pearson product-movement correlation coefficients were used to examine the construct validity for the BASC-TRS and PKBS. Table 1 shows the correlations between the BASC-TRS and PKBS. Table 2 shows the descriptive statistics, dependent t-tests, and effect sizes for each paired comparison. The correlation between the BASC-TRS Externalizing composite and PKBS Externalizing composite was statistically significant ($r = .84, p < .001$). There was a significant difference between the BASC-TRS Externalizing composite ($M = 48.77, SD = 11.67$) and the PKBS Externalizing composite ($M = 47.04, SD = 10.99$), $t(144) = -3.21, p < .002$; but the effect size was small ($r^2 = .07$). The correlation between the BASC-TRS Internalizing composite and PKBS Internalizing composite was statistically significant ($r = .71, p < .001$). There was a significant difference between the BASC-TRS Internalizing composite ($M = 45.61, SD = 9.65$) and the PKBS Internalizing composite ($M = 48.01, SD = 11.82$), $t(144) = 3.45, p < .001$; but the effect size was small ($r^2 = .08$). The BASC-TRS Behavior Symptoms Index (BSI) and the PKBS Problem Behaviors Total correlation ($r = .84$) was also statistically significant ($p < .001$). There was a significant difference between the BASC-TRS BSI ($M = 47.65, SD = 10.69$) and the PKBS Problem Behaviors total ($M = 50.55, SD = 13.34$), $t(144) = 4.77, p < .001$; and the effect strength was moderate ($r^2 = .14$).

The correlation between the BASC-TRS Social Skills scale and the PKBS Social Skills total ($r = .66$) was statistically significant ($p < .001$). There was a significant difference between the BASC-TRS Social Skills scale ($M = 47.35, SD = 9.46$) and the PKBS Social Skills total ($M = 44.46, SD = 13.18$), $t(144) = -3.52, p < .001$; but the effect size was
small ($\hat{t}^2 = .08$).

**Subscale Comparisons**

Along with comparisons between the global scales of the BASC-TRS and PKBS, specific subscale comparisons were also made. The correlation between the BASC-TRS Hyperactivity subscale and PKBS Attention Problems/Overactive subscale ($r = .87$) was statistically significant ($p < .001$). There was no significant difference between the BASC-TRS Hyperactivity subscale ($M = 47.69$, $SD = 11.68$) and the PKBS Attention Problems/Overactive subscale ($M = 47.99$, $SD = 11.76$), $t(144) = .60$, $p > .05$. The correlation between the BASC-TRS Attention Problems subscale and the PKBS Attention Problems/Overactive subscale was also statistically significant ($r = .75$, $p < .001$). There was a significant difference between the BASC-TRS Attention Problems subscale ($M = 50.35$, $SD = 11.91$) and the PKBS Attention Problems/Overactive subscale ($M = 47.99$, $SD = 11.76$), $t(144) = -3.39$, $p < .001$; but the effect size was small ($\hat{t}^2 = .07$). The correlation between the BASC-TRS Aggression subscale and the PKBS Antisocial/Aggressive subscale of ($r = .89$) was statistically significant ($p < .001$). There was a significant difference between the BASC-TRS Aggression subscale ($M = 49.31$, $SD = 11.52$) and the PKBS Antisocial/Aggressive subscale ($M = 47.04$, $SD = 11.20$), $t(144) = -5.15$, $p < .001$; and the effect strength was moderate ($\hat{t}^2 = .16$). The correlation between the BASC-TRS Withdrawal subscale and the PKBS Social Withdrawal subscale was also statistically significant ($r = .59$, $p < .001$), and there was no significant difference between the BASC-TRS Withdrawal subscale ($M = 50.77$, $SD = 13.09$) and the PKBS Social Withdrawal subscale ($M = 50.72$, $SD = 12.56$), $t(144) = -.06$, $p > .05$. The correlation between the BASC-TRS Anxiety subscale and the PKBS Anxiety/Somatic
Problems subscale was statistically significant ($r = .65, p < .001$). There was a significant difference between the BASC-TRS Anxiety subscale ($M = 47.75, SD = 8.91$) and the PKBS Anxiety/Somatic Problems subscale ($M = 45.86, SD = 10.36$), $t(144) = -2.81, p < .006$; but the effect size was small ($\eta^2 = .05$).
Discussion

Objective behavior rating scales have become more widely used because they yield more reliable and valid data than unstructured interviews or projective techniques. Both the BASC and PKBS are behavior rating scales designed to assess a variety of social behaviors and problem behaviors. This study was conducted due to the need for empirical evidence of the validity of these objective behavior rating scales. Specifically, this study examined the construct validity between the preschool version of the BASC and the PKBS teacher report behavior rating scales.

Results of the present study examining the validity of the BASC and PKBS are similar to what was hypothesized. As expected, correlations between similar scales of BASC-TRS and PKBS were mostly in the moderate to high range. The present study found moderate to high correlations (.45 to .89) between like scales as was found by Merrell (1995) in comparing the PKBS to four established rating scales, MESSY, CTRS, SSBS, and SSRS. These results provide support that the two rating scales are measuring similar constructs. The correlations for the externalizing dimensions were somewhat higher than correlations for the social skills or internalizing scales, but differences were not significant. This evidence suggests that the externalizing, internalizing, and social skills scales are measuring the constructs they are intended to measure. The correlations between the internalizing scales were slightly lower which may be because internalizing dimensions have less observable behaviors, therefore, it maybe more difficult for an observer to rate these behaviors. This may cause lower agreement between the different behavior rating scales.

These results are also similar to those of Doyle et al. (1997) in examining the
convergent validity of the BASC-PRS and the CBCL/4-18. The BASC Depression and Anxiety subscales were moderately correlated with the CBCL Anxiety/Depression scale. Doyle et al. explained that there may have only been a moderate correlation between the scales because the BASC Depression and Anxiety subscales were two different scales, whereas, the CBCL has anxiety and depression grouped into one scale. Like Doyle et al. (1997), the present study found the Anxiety subscale of the BASC to correlate moderately ($r = .65$) with the PKBS Anxiety/Somatic subscale; however, the PKBS does not have a depression subscale to compare with the BASC Depression subscale. Flanagan et al. (1996) established convergent validity for the BASC and SSRS. Moderate correlations were found between the BASC Hyperactivity, Aggression, Depression, Atypicality, Adaptibility, and Social Skills scales for both the parent and teacher forms with the SSRS Social Skills Scale and the Problem Behaviors Scale. In the present study correlations were more strong between the BASC Hyperactivity subscale and the PKBS Attention Problems/Overactive subscale ($r = .87$). Likewise, the BASC Aggression subscale and the PKBS Antisocial/Aggressive subscale had a strong correlation as well ($r = .89$). However, much like Flanagan et al. (1996) the BASC Social Skills subscale and the PKBS Social Skills Total were moderate ($r = .66$).

Convergent validity coefficients between the BASC and PKBS were moderate to strong, and within an expected range. The 71% shared variance between the BASC Externalizing and PKBS Externalizing scales suggested that the externalizing scales of both the BASC and PKBS are measuring similar constructs. However, the 50% shared variance for the BASC Internalizing and PKBS Internalizing scales showed moderate overlap. Likewise, the 56% shared variance for the BASC Adaptive Skills Composite
and the PKBS Social Skills Total was moderate. Like the externalizing scales, the 71% shared variance for the BASC BSI and the PKBS Problem Behaviors Total suggested similar dimensions.

There was a moderate correlation between the BASC Internalizing scales and the PKBS Externalizing scales of .47. Similarly, the BASC intercorrelation between the Externalizing and Internalizing scales was in the moderate range ($r = .54$) (Reynolds & Kamphaus, 1992). Likewise, the PKBS intercorrelation between the Externalizing and Internalizing scales was in the moderate range as well ($r = .66$) (Merrell, 1994). However, the correlation between the BASC Externalizing scale and PKBS Internalizing scales was much lower ($r = .19$). Negative correlations were found among the BASC Internalizing, Externalizing, and BSI and the PKBS Social Skills Total scales. Likewise, negative correlations were found between the BASC Adaptive and the PKBS Internalizing, Externalizing, and Problem Behavior Total scales.

Upon examination of the subscales of the BASC and PKBS the shared variance ranged from moderate to high. The BASC Hyperactivity subscale and the PKBS Attention Problems/Overactive subscale had 76% shared variance. However, the BASC Attention Problems and the PKBS Attention Problems/Overactive had a more moderate shared variance of 56%. This suggests that the PKBS Attention Problems/Overactive subscale measures a construct more similar to the BASC Hyperactivity subscale. The BASC Attention Problems subscale may be measuring a more specific construct than the PKBS Attention Problems/Overactive. The items that measure attention for the BASC Attention Problems subscale focuses on the amount of time the child is able to concentrate and pay attention over a period of time. However, the items measuring
attention problems and overactiveness for the PKBS appears to focus more on the amount of overactiveness of the child rather than the amount of time the child is able to concentrate on one thing over a period of time.

The BASC Aggression and the PKBS Antisocial/Aggressive subscales had a large amount of shared variance (79%). The BASC Withdrawal and PKBS Social Withdrawal subscales had 35% shared variance, which is moderate. Likewise, the BASC Anxiety and PKBS Anxiety/Somatic Problems subscales had 42% shared variance, which is moderate. The BASC Withdrawal and PKBS Social Withdrawal subscales appear to measure similar constructs by their names, however, the moderate results may be due to the item content of each of the scales. Similarly, the BASC Anxiety and PKBS Anxiety/Somatic subscale appear to measure similar constructs by their names, but exhibit moderate results possibly due to item content. Although there were some differences among the ratings between the BASC and PKBS, the results of this study support that the BASC and PKBS are measuring similar dimensions.

There is evidence of divergent construct validity between the BASC and PKBS. Similarly, in a study by Merrell (1995) discriminant validity was established between the PKBS and the SSRS, MESSY, CTRS-39, and SSBS. Modest relationships were found between internalizing and externalizing scores of the PKBS and the other measures. Low correlations were seen among some of the BASC and PKBS subscales. The BASC Hyperactivity subscale correlated low with the PKBS Social Independence subscale ($r = .00$), Anxiety/Somatic subscale ($r = .07$), and the Social Withdrawal subscale ($r = .21$). In addition, the BASC Somatic subscale correlated low with the PKBS Social Cooperation subscale ($r = .07$), Social Interaction subscale ($r = .07$), and the Self-Centered/Explosive
BASC and PKBS

subscale ($r = .23$). The BASC Aggression subscale correlated low with the PKBS Social Interaction subscale ($r = .01$), Social Independence subscale ($r = .04$), and the Anxiety/Somatic subscale ($r = .19$). Likewise, the BASC Anxious subscale correlated low with the PKBS Attention Problems/Overactive ($r = .19$) and the Antisocial/Aggressive ($r = .20$) subscales. Lastly, the BASC Withdrawal subscale correlated low with the PKBS Self-Centered/Explosive subscale ($r = .03$).

Limitations were apparent in the present study and limit generalizability. The teachers were not randomly selected to participate in the study and there was no way to insure that the teachers randomly selected the students from their class roster as they were instructed. The ethnic background of the participants in the present study was primarily Caucasian. Research with children of other racial/ethnic backgrounds is needed to insure that the rating scales are assessing children consistently for all cultural backgrounds. In addition, the study lacks a wide variety of students with disabilities. The majority of the students randomly selected were considered to be “normal.” For future studies, students of various disabilities should be rated to investigate validity of these scales with children with disabilities. Only 4% of the participants in this study were disabled while 24% were considered “at-risk”.

In conclusion, the results of the present study provided additional evidence for the construct validity of the BASC-TRS and PKBS. Results from this study were generally as hypothesized. Like studies completed by Merrell (1995) and Flanagan et al. (1996), further research of both the BASC and PKBS is needed to provide evidence of validity. A larger sample size, wider range of socioeconomic status, and a better sampling of children with disabilities would help provide stronger evidence of validity for these
scales. Replication is needed to verify these results as this is the only study to date comparing the BASC and PKBS, but the results of this study are encouraging for both the BASC and PKBS rating scales. Both the BASC and PKBS are objective and standardized rating scales that provide similar information. The results of this study support the BASC and PKBS rating scales are both able to assess children’s emotional and behavioral health and provide similar results. Further research of the BASC and PKBS will aide the rating scales in becoming and more effective tool for assessing children’s emotional and behavioral need.
References


Table 1

Pearson Product Moment Correlations for the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Rating Scales (PKBS)

<table>
<thead>
<tr>
<th>Preschool and Kindergarten Behavior Rating Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASC</td>
</tr>
<tr>
<td>HYPER</td>
</tr>
<tr>
<td>AGG</td>
</tr>
<tr>
<td>EXT</td>
</tr>
<tr>
<td>ANX</td>
</tr>
<tr>
<td>DEP</td>
</tr>
<tr>
<td>SOM</td>
</tr>
<tr>
<td>INT</td>
</tr>
<tr>
<td>ATYP</td>
</tr>
<tr>
<td>WITHD</td>
</tr>
<tr>
<td>ATPROB</td>
</tr>
<tr>
<td>BSI</td>
</tr>
<tr>
<td>ADAPT</td>
</tr>
<tr>
<td>SOCSKIL</td>
</tr>
<tr>
<td>ADSK</td>
</tr>
</tbody>
</table>


• *p < .05, **p < .01, ***p < .001.
Table 2

Descriptive Statistics and Dependent t-tests for the Specific Comparisons Between the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scales (PKBS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>( t^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKBS Externalizing</td>
<td>47.04</td>
<td>10.99</td>
<td>-3.21</td>
<td>.07</td>
</tr>
<tr>
<td>BASC Externalizing</td>
<td>48.77</td>
<td>11.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Internalizing</td>
<td>48.01</td>
<td>11.82</td>
<td>3.45***</td>
<td>.08</td>
</tr>
<tr>
<td>BASC Internalizing</td>
<td>45.61</td>
<td>9.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Problem Behaviors</td>
<td>50.55</td>
<td>13.34</td>
<td>4.77****</td>
<td>.14</td>
</tr>
<tr>
<td>BASC Behavior Symptoms Index</td>
<td>47.65</td>
<td>10.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Social Skills</td>
<td>44.46</td>
<td>13.18</td>
<td>-6.44****</td>
<td>.22</td>
</tr>
<tr>
<td>BASC Adaptive Skills</td>
<td>49.17</td>
<td>10.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Social Skills</td>
<td>44.46</td>
<td>13.18</td>
<td>-3.52***</td>
<td>.08</td>
</tr>
<tr>
<td>BASC Social Skills</td>
<td>47.35</td>
<td>9.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Attention Problems</td>
<td>47.99</td>
<td>11.76</td>
<td>.60</td>
<td>.00</td>
</tr>
<tr>
<td>BASC Hyperactivity</td>
<td>47.69</td>
<td>11.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS AttnProb/Overactive</td>
<td>47.99</td>
<td>11.76</td>
<td>-3.39***</td>
<td>.07</td>
</tr>
<tr>
<td>BASC Attention Problems</td>
<td>50.35</td>
<td>11.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Antisocial/Aggressive</td>
<td>47.04</td>
<td>11.20</td>
<td>-5.15****</td>
<td>.16</td>
</tr>
<tr>
<td>BASC Aggressive</td>
<td>49.31</td>
<td>11.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Social Withdrawal</td>
<td>50.72</td>
<td>12.56</td>
<td>-.06</td>
<td>.00</td>
</tr>
<tr>
<td>BASC Withdrawal</td>
<td>50.77</td>
<td>13.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKBS Anxiety/Somatic Problems</td>
<td>45.86</td>
<td>10.36</td>
<td>-2.81**</td>
<td>.05</td>
</tr>
<tr>
<td>BASC Anxiety</td>
<td>47.75</td>
<td>8.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: PKBS = Preschool and Kindergarten Behavior Scales, BASC = Behavior Assessment Scale for Children.

\( df = 144, \ ^* p < .05, \ ^{**} p < .01, \ ^{***} p < .001, \ ^{****} p < .0001. \)
Appendix A

Date
Address

Dear (school principal or preschool program director),

Thank you for agreeing to assist in collecting data for my graduate thesis. The following information will tell you what I am presently involved in and how I need your assistance. I am attending Eastern Illinois University as a graduate student in the School Psychology program. Currently, I am interning as a School Psychologist with the Tazewell-Mason Counties Special Education Association (TMCSEA). In addition to the internship I must also complete a thesis. The thesis topic that I have chosen to study examines the validity of two relatively new behavior rating scales which purport to measure similar constructs. The two scales are the Behavior Assessment System for Children (BASC) and the Preschool and Kindergarten Behavior Scale (PKBS). The purpose of the BASC is to assess children for the differential diagnosis of educational treatment of emotional and behavioral disorders. The BASC is an objective measure that utilizes a multimethod, multidimensional method approach to evaluating the behavior and self-perceptions of children aged two and half to eighteen years old. The purpose of the PKBS is to evaluate the social skills and problem behavior patterns of preschool and kindergarten-aged children ranging from three to six years old. The PKBS was designed to be used as a screening tool to indicate those preschool and kindergarten-aged children who are at-risk of having serious behavioral, social, and emotional problems.

These two scales purport to measure similar constructs, therefore, the construct validity between the two scales should be high. This study will examine how well these two scales correlate when completed for the same child. The results of this study will be valuable to school psychologists in aiding them to utilize the best tools to assess the behavior of children.

The children that are observed in this study will remain anonymous. Children between the ages of three and five are to be used for this study. The scales should take approximately fifteen to twenty minutes per child to complete (this includes completing both the BASC and PKBS behavior rating scales for each child). I am asking that the teachers complete both scales for at least two boys and two girls in their classrooms. It would be appreciated if they were able to complete the rating scales for more students. The students will be chosen randomly from their class roster. More information on this procedure will follow.

Your teacher’s help will not only be appreciated, but also rewarded. Each teacher who completes the scales for two boys and two girls in his/her classroom will receive a token of my appreciation. While participating in this study your are also helping educators by contributing to research that will be beneficial to everyone. If your teachers decide to participate it will always be their option to withdraw from the study. If they would like a copy of the results one will be provided to them upon request. If your teachers are willing to assist with this study I may be contacted by phone at (309)263-8847 or by e-mail at lindserly@aol.com.

Thank you for your consideration,
Lindsay A. Barton
Intern School Psychologist
TMCSEA
Appendix B

Lindsay Barton - Data Collection for Thesis

The Construct Validity of the Behavior Assessment System for Children (BASC) and Preschool and Kindergarten Behavior Scales (PKBS)

- Each form has a number in the upper left hand corner (e.g. 3-1 = The 3 is the child and the 1 is the packet where the forms are held).
- Make sure that both forms (BASC & PKBS) have the same first number for one individual child and that the second number is corresponding to the packet number.

I. Demographic Information
   * child must be between the ages of 3 and 5
   * child’s name will remain anonymous
   * fill out all demographic information on the child on the ratings scales EXCEPT NAME
   * in the “other” blank on the BASC put the child’s ethnic background
   * if the child has any handicaps/disability please write them in disability space on the PKBS

II. Class Roster
   * when choosing the student to fill out the behavior rating scales use your class roster.
   * when choosing your student count down the roster by 5's, and then the 5th student you count will be the one that you fill out the behavior rating scales
   * begin with the male student and only count the male students in your class roster by 5’s and then do the same for the female students.
   * e.g. Joe
       Kipp
       Mark
       Kevin
       Jason - rate this child
       Dan
       Mike
       Dave
       Keith - rate this child
       etc.

III. How many students to rate:
   * I am only asking that you rate 2 male students and 2 female students, however, it would be greatly appreciated if you were able to complete more ratings scales.

IV. Time
   * it should take approximately 20 minutes to fill out both ratings scales on one child
   * in 2 weeks I will return to pick up the rating scales, however, if you find that you need more time, OR that you have time to fill out more rating scales I can give you more time

V. Questions
   * (309)263-8847 (usually after 3:30pm - I would give you a work phone number, but I am in a different place every day)
   * lindsaylv@aol.com (I check this once a day)