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Eric Scroggs

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Construct Validity of the Behavior Assessment System for Children
and Adjustment Scales for Children and Adolescents
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BY

Eric Scroggs

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Construct Validity of the Behavior Assessment System for Children
and Adjustment Scales for Children and Adolescents

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Table of Contents

	Page
List of Tables.....	3
Acknowledgements.....	4
Abstract.....	5
Introduction.....	6
Review of Literature.....	17
Statement of Problem.....	24
Method.....	25
Participants.....	25
Instruments.....	26
Procedures.....	27
Data Analysis.....	28
Results.....	30
Discussion.....	41
References.....	48
Appendixes.....	52

List of Tables

Table 1	Specific global scale/syndrome and subtest/syndrome comparisons between the BASC-TRS and ASCA
Table 2	Specific global scale/syndrome and subtest/syndrome comparisons between the BASC-PRS and ASCA
Table 3	Specific global scale/syndrome and subtest/syndrome comparisons between the BASC-TRS and BASC-PRS
Table 4	Correlations of BASC-TRS and ASCA global scale/syndrome and subtest/syndrome comparisons
Table 5	Descriptive statistics and t-tests for ASCA and BASC-TRS global scale/syndrome and selected subtest/syndrome comparisons
Table 6	Correlations of BASC-PRS and ASCA global scale/syndrome and subtest/syndrome comparisons
Table 7	Descriptive statistics and t-tests for ASCA and BASC-PRS global scale/syndrome and selected subtest/syndrome comparisons
Table 8	Correlations of BASC-TRS and BASC-PRS global scale and subtest comparisons
Table 9	Descriptive statistics and t-tests for BASC-TRS and BASC-PRS global scale/syndrome and selected subtest/syndrome comparisons.

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Abstract

The present study examined the construct validity of the Behavior Assessment System for Children-Teacher Rating Scale (BASC-TRS) and Adjustment Scales for Children and Adolescents (ASCA) as well as the interrater agreement between the Behavior Assessment System for Children-Parent Rating Scale (BASC-PRS) and BASC-TRS, and BASC-PRS and ASCA. Participants included 149 students between 6 and 11 years of age for the BASC-TRS and ASCA comparison of teacher ratings. Of these students, 67 were included for teacher-parent comparisons between the ASCA and BASC-PRS, and between the BASC-TRS and BASC-PRS. Results of this study indicated that correlations between similar scales of the BASC-TRS and ASCA were within the moderate to high range. Correlations between the ASCA and BASC-PRS, and BASC-TRS and ASCA-PRS fell in the low to moderate range. In all comparisons between the BASC-TRS, BASC-PRS and ASCA, correlations were higher for more observable, externalizing behaviors than less observable, internalizing behaviors. Results from the present study were similar to previous studies examining the BASC and ASCA. This study provides support for the construct validity of the BASC and ASCA

Construct Validity of the Behavior Assessment System for Children and
Adjustment Scales for Children and Adolescents

Introduction

Recent research and practice in behavioral assessment of youth psychopathology has shown a growing preference for objective rather than inferential definitions of child psychopathology. Psychologists are especially encouraged by the advantages of using standardized behavior rating scales (McDermott, 1993) along with objective observation systems. In recent years, new behavior rating scales have been developed for teachers and parents to complete in order to obtain an objective classification of a child's behavior. These rating scales are not to be used alone in making classification judgments, but rather, as part of an entire assessment process that might also include interviews, observations, and standardized tests. Behavior rating scales provide samples of behavior and can be used to compare the child's behavior in certain areas with the behavior of other children of the same age. Rating scales can help provide information for making decisions about the specific interventions needed for the child (Kamphaus & Frick, 1996).

With the use of valid behavior rating scales, psychologists and other professionals can provide better treatment validity and assist in developing interventions for children with behavior problems. The information obtained from assessment data should further help educators better understand the student's specific areas of problem behavior compared to other children of the same age and help professionals develop an appropriate intervention specific for the child's specific needs. By knowing the specific problem behaviors of the child and settings in which these behaviors occur, an intervention plan can be developed to either decrease the rate of problem behavior or increase appropriate

behavior. Behavior rating scales should provide further information about the child's behavior and clues about how to help the child succeed in the educational setting. Two newly developed behavior rating scales are the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) and the Adjustment Scales for Children and Adolescents (ASCA; McDermott, Marston, & Stott, 1993).

Behavior Assessment System for Children

The BASC is a nationally normed behavior assessment system for children and adolescents. The BASC was normed on children ages 4-18 and includes specific scales for preschool (ages 4 and 5), school aged children (ages 6-11) and adolescents (ages 12-18). The BASC includes a teacher rating scale, parent rating scale, self-report of personality, structured observation, and developmental history. However, the present study is concerned only with the BASC-Teacher Rating Scale (BASC-TRS) and BASC-Parent Rating Scale (BASC-PRS) for children ages 6-11.

A major purpose for the development of the BASC was for the objective classification of children with disabilities. The BASC was designed to make differential diagnosis and educational classification of a variety of emotional behavioral disorders of children and aid in the design of treatment (Reynolds and Kamphaus, 1992). The BASC can be used as a total system or any component can be used individually to compile information about a child.

The TRS includes 148 items that measure a child's adaptive and problem behaviors in the school setting, while the PRS includes 138 items that measure a child's adaptive and problem behaviors in the home and community settings. Each item is a different behavior in which the rater indicates whether the child engages in the behavior "never," "sometimes," "often," or "almost always" (Reynolds & Kamphaus, 1992).

The TRS and PRS of the BASC both contain clinical and adaptive scales of behavior. From these scales, composites of externalizing problems, internalizing problems, school problems, adaptive skills, and a behavioral symptoms index are determined. The TRS and PRS Externalizing Problems composite scales include the Hyperactivity, Aggression, and Conduct Problem scales. These behaviors are usually characterized as being disruptive to the activities of adults and peers. The Internalizing Problems composite includes the Anxiety, Depression, and Somatization scales. Internalizing problems may not be disruptive to others and are not always easy to identify, as they are internal to the child. A child who shows internalizing problems may excessively monitor their own behavior. The TRS School Problems composite reflects academic difficulties such as attention, learning, motivation, and cognitive problems in the scales of Attention Problems and Learning Problems. A child's Adaptability, Social Skills, Leadership, and Study Skills comprise the Adaptive Skills composite. The Behavioral Symptoms Index combines the central scales of the BASC to obtain an overall reflection of problem behavior. These scales include Aggression, Hyperactivity, Anxiety, Depression, Attention Problems, and Atypicality. The BASC also consists of specific items designed to guard against false reports by the rater. The "fake bad" F index includes extreme items which could be an indicator of false reporting by the rater.

The BASC standardization data were collected at 116 testing sites throughout the United States and was representative of the 1988 U.S. Census for children ages 4-18 in the demographic areas of race/ethnicity, geographic region, socioeconomic status, and parental education. The BASC also included children with disabilities in the standardization sample. The TRS standardization sample consisted of 2,401 youths and the PRS standardization sample included 3,483 youths. About half the subjects were

male and half were female. A sufficient number of children were included for each grade level in order to provide useful norms. The TRS included 333 children ages 4-5; 1,259 children ages 6-11; and 809 adolescents ages 12-18. The PRS included 309 children ages 4-5; 2,084 children ages 6-11; and 1,090 adolescents ages 12-18.

The BASC manual presents data on three types of reliability: internal consistency, test-retest reliability, and interrater reliability. The internal consistency reliability on the TRS for ages 6-11 ranged from .62 (Conduct Problems subscale) to .95 (Aggression subscale). Internal consistency of the composites ranged from .90 (Internalizing Problems) to .97 (Adaptive Skills and Behavioral Symptoms Index). The internal consistency reliability on the PRS for ages 6-11 ranged from .51 (Atypicality subscale) to .89 (Social Skills subscale). The internal consistency estimates for the composites ranged from .87 (Internalizing Problems) to .93 (Adaptive Skills). The overall average internal consistency of .80 is very good for scales of these types.

The test-retest reliabilities on the TRS for children ages 6-11 ranged from .59 (Somatization subscale) to .95 (Leadership subscale). The composite test-retest reliabilities ranged from .81 (Internalizing Problems) to .96 (Adaptive Skills). On the PRS for ages 6-11 the test-retest reliabilities ranged from .77 (Atypicality) to .92 (Attention Problems and Conduct Problems). The composite test-retest reliabilities ranged from .90 (Adaptive Skills) to .94 (Internalizing Problems). Mean differences were not stated between the administrations of the scales. These correlations are adequate on the surface but one fact that may make these results somewhat misleading is the time intervals between the ratings were only 0-2 months (Merenda, 1996).

The median interrater reliabilities for the TRS were moderately high for the child version (.68) but somewhat lower for the preschool version (.59). The interrater

reliabilities for the child version of the TRS ranged from .44 (Depression subscale) to .93 (Learning Problems subscale). The interrater reliabilities for composites ranged from .69 (Internalizing Problems) to .89 (School Problems). The interrater reliabilities for the PRS ranged from .77 (Atypicality subscale) to .92 (Conduct problems and attention problems subscales). The interrater reliabilities for composites ranged from .90 (Adaptive Skills) to .94 (Internalizing Problems). Mean differences were not stated between the administrations of the scales.

The BASC manual reports validity studies comparing the TRS and the Child Behavior Checklist Teacher Report Form (TRF; Achenbach, 1991), the Behavior Problem Checklist-Revised (Quay & Peterson, 1983), the Conners Teacher Rating Scales (Conners, 1989), Burks' Behavior Rating Scales (Burks, 1977), and the Teacher Rating Scale of the Behavior Rating Profile (BRP; Brown & Hammill, 1983). With the Teacher's Report Form (TRF), overt behavior scales correlated highly with the BASC-TRS (child version) Externalizing Problems as did the Internalizing behaviors scales of each instrument. Also, similarly named scales of each instrument correlated highly with each other. Specifically, correlations of .86 between the Aggression subscale of the TRS and the Aggressive Behavior subscale of the TRF, .84 between Atypicality of the TRS and Thought Problems of the TRF, and .81 between the Attention Problems subscales of both instruments were reported (Reynolds & Kamphaus, 1992). Correlations of .88 between the Externalizing Problems composites of the TRS and TRF and .73 between the Internalizing Problems composites of each instrument were reported. Also, a correlation of -.87 was obtained between the learning problems subscale of the TRS and the academic performance subscale of the TRF.

Correlations between the BASC-TRS (adolescent version) and the Revised

Behavior Problem Checklist (RBPC) were high for similar scales that measure observable behaviors, but showed low to moderate correlations for less observable (internalizing) behaviors. Specifically, correlations of .76 between the Aggression subscale of the TRS and the Conduct Disorder subscale of the RBPC and .78 between the Attention Problems subscale of the TRS and Attention Problems-Immaturity subscale of the RBPC were reported. For less observable (internalizing) behaviors, the highest correlation was .58 between the Withdrawal subscale of the TRS and Anxiety-Withdrawal of the RBPC (Reynolds & Kamphaus, 1992).

A comparison between the BASC-TRS (preschool version) and Conners' Teacher Rating Scales (CTRS) produced mostly low to moderate correlations suggesting that the two scales are measuring somewhat different constructs. It is interesting that the highest correlation was between scales that measure less (internalizing) observable behaviors. The Depression subscale of the TRS and Emotional-Overindulgent subscale of the CTRS produced a correlation of .69. The scales measuring more observable behaviors such as the Aggression subscale of the TRS and the Conduct Problems subscale of the CTRS produced a correlation of .63. The subscales with the same name of Hyperactivity produced a correlation of .57 while the Attention Problem subscales produced a correlation of only .38. Although correlations were in the low to moderate range, mean scores between the scales were not significantly different (Reynolds & Kamphaus, 1992).

Similar scales on the BASC-TRS (child version) and Burks' Behavior Rating Scales (BBRS) showed very high correlations, most exceeding .80. The Aggression subscale of the TRS and the Excessive Aggressiveness subscale of the BBRS produced a correlation of .92; the correlation between Anxiety of the TRS and Excessive Anxiety of the BBRS was .85; the correlation between Depression of the TRS and Excessive Self-

Blame of the BBRS was .85; the correlation between Attention Problems of the TRS and Poor Attention of the BBRS was .86; the correlation between Learning Problems of the TRS and Poor Academics of the BBRS was .93; and the correlation between Withdrawal of the TRS and Excessive Withdrawal of the BBRS was .81 (Reynolds & Kamphaus, 1992).

Correlations between the BASC-TRS (child version) and Behavior Rating Profile (BRP) were relatively low but the comparison between these two instruments maybe misleading because the sample size was small and consisted mostly of normal children with few behavior problems. The BRP yields a single score which represents a lack of behavior problems so the correlations with this scale and problem behavior scales should be negative. The TRS Behavioral Symptoms Index produced a correlation of -.60 with the BRP as did the Learning Problems subscale of the TRS. The School Problems composite of the TRS produced a correlation of -.59 with the BRP. All other correlations between the BRP and Problem Behavior scales of TRS were below -.50 and all correlations of adaptive behavior scales of the TRS and the BRP were below .41 (Reynolds & Kamphaus, 1992).

Also reported were correlations between the BASC-PRS and the Child Behavior Checklist, the Personality Inventory for Children-Revised, and the Conners' Parent Rating Scales. Correlations between the PRS (child version) and the CBCL were relatively high for externalizing behaviors and lower but still adequate among internalizing behaviors. The correlation between the Aggression subscale of the PRS and Aggressive Behavior scale of the CBCL was .82; the correlation between Attention Problems of the PRS and CBCL was .78; and the correlation between Depression of the PRS and Anxious/Depressed of the CBCL was .66. Correlations for both the PRS and

CBCL Externalizing Problems composite was .84 while the Internalizing Problems composite produced a correlation of .67. Adaptive scales of the two scales show less correspondence, but the composite correlation for adaptive skills was moderate. The Adaptive Skills composite of the PRS and Total Competence composite of the CBCL produced a correlation of .68 (Reynolds & Kamphaus, 1992).

The relationships between the BASC-PRS (preschool version) and Personality Inventory for Children-Revised (PIC-R) were mixed. Correlations between scales that measured internalizing behaviors showed the closest relationships rather than externalizing behaviors, but were still only low to moderately correlated. For example, the Hyperactivity subscales of each instrument produced a correlation of .12 as did the Somatization of the PRS and Somatic Concerns of the PIC-R. The highest correlation (.57) was found between the Withdrawal subscales of the PRS and PIC-R. A correlation of .56 was found between the Depression subscales of these instruments (Reynolds & Kamphaus, 1992).

Comparisons between the BASC-PRS (child version) and Conners' Parent Rating Scales (CPRS-93) showed support of construct validity. Comparisons between externalizing subscales on the PRS and CPRS scales of Conduct Problems showed a correlation of .71. Aggression on the PRS also produced a high correlation of .72 with the Conduct Disorders scale on the CPRS. Internalizing Behavior comparisons were high. The Withdrawal scale of the PRS correlated highly with the CPRS-93 Anxious-Shy scale (.78) while the Depression scale of the PRS correlated moderately with the CPRS-93 Anxious-Shy scale (.51) and Learning Problems (.54) scales (Reynolds & Kamphaus, 1992).

The internalizing, externalizing, and problem behavior scales of the BASC-TRS

and PRS were compared and reported in the Technical Manual (BASC; Reynolds & Kamphaus, 1992). These comparisons resulted in a correlation of .51 between the externalizing problem subscales, .23 between the internalizing problem scales, and .45 between the behavioral symptoms index scales. These results may indicate that parents and teachers have different perceptions about youth behavior. One possible reason for this difference is that teachers have an opportunity to observe other student behavior, while parents may not have the opportunity to observe other children and compare their child's behavior to the behavior of other children of the same age. Also, the school setting has a different structure than the home environment, which may account for the differences between a child's behavior at school and at home.

Adjustment Scales for Children and Adolescents

Like the BASC, the ASCA is a new behavior rating instrument. The ASCA was developed to measure overactive and underactive behavior in multiple school situations. The ASCA is a nationally normed, objective behavior assessment device that is completed by the child's classroom teacher and is designed for children ages 5 through 17 (grades K-12). The ASCA has separate female and male forms, but the only difference between the two forms is the gender reference. All items are the same. The ASCA includes 29 questions about common situations and several possible behaviors the child might display.

The ASCA contains 6 clinical core syndromes and 2 supplementary syndromes which then combine to produce the overactivity and underactivity syndromes which are composite indexes. The ASCA does not include an overall problem behavior index like the BASC-BSI. The Overactivity syndrome includes the core syndromes of Attention Deficit-Hyperactive (ADH), Solitary Aggressive-Provocative (SAP), Solitary

Aggressive-Impulsive (SAI), and Oppositional Defiant (OPD). Like the BASC Externalizing Problems composite, the overactivity composite of the ASCA is characterized by behaviors that are disruptive to adults and peers. The Underactivity composite includes the Diffident (DIF) and Avoidant (AVO) core syndromes. The supplementary syndromes include Delinquency (DEL) and Lethargic (LEH). The Underactivity composite of the ASCA is similar to the Internalizing Problems of the BASC in that the behaviors are often characterized by the child's excessive monitoring of his or her behavior. These behaviors are not usually disruptive to others and are often more difficult to identify.

The standardization sample of the ASCA included 1,400 noninstitutionalized youths who were representative of the U.S. population. The sample included 700 male and 700 female children and adolescents with an average of 108 subjects at each grade level from preschool/kindergarten to twelfth grade. The sample also included children with handicapping conditions such as learning disabled, speech impaired, mentally retarded, and emotionally disturbed. The number of subjects from various community sizes were also matched to the percentage found in the U.S. population.

Internal consistency, interrater reliability, and test-retest reliability are presented in the ASCA manual. The overall internal consistency for the core syndromes ranged from .70 for Solitary Aggressive (Provocative) to .86 for Attention-Deficit Hyperactive. For the overall adjustment scales the internal consistency estimates were .82 for Underactivity and .92 for Overactivity. The interrater reliability for the core syndromes ranged from .65 for Avoidant to .85 for Solitary Aggressive (Provocative). The correlations for the overall adjustment scales were .81 for Overactivity and .84 for Underactivity. The test-retest reliability for the core syndromes ranges from .66 for

Solitary Aggressive (Provocative) to .91 for Oppositional Defiant. The test-retest reliability for Overactivity was .75 and .79 for Underactivity. Though some reliability correlations were in the .60s and .70s, all are considered acceptable. The lower correlations are likely due to the dichotomous nature of the ASCA items which limits variability.

Convergent and divergent validity between the ASCA and two other behavior rating scales, the Conners Teacher Rating Scale and the Child Behavior Checklist, were presented in the ASCA manual. For the CTRS, the highest correlations were observed for all ASCA overactivity syndromes and the CTRS Hyperactive and Conduct Problem Factors. Very low or negative correlations were found between syndromes that could be described as overactive/externalizing and those that could be described as underactive/internalizing. Similar results were found between the ASCA and the CBCL, which was completed by the parents of the children. Externalizing behaviors scales had correlations ranging from .42 to .75 while correlations between internalizing behaviors ranged from .44 to .50.

The relationship between behavior problems and cognitive ability along with learning style was also presented in the ASCA manual. All correlations between the Differential Ability Scales indices and the ASCA core syndromes as well as adjustment scales were low or near zero. This suggests that psychopathology may not relate to cognitive ability (McDermott & Weiss, 1994). Along these same lines, problem behavior was shown to adversely affect positive learning styles as seen in correlations between the ASCA and Learning Behaviors Scale-Revised. The learning characteristics of Competence Motivation, Attitude, Planning, and Persistence were all negatively related to the syndromes and adjustment scales of the ASCA.

Review of the Literature

Behavior Assessment System for Children

Kamphaus, Huberty, DiStefano, and Petoskey (1997) examined 1,227 BASC teacher ratings on six to eleven year-old-children. Cluster analysis on the Teacher Rating Scale identified the following seven different classifications from the normative sample: well-adapted, average, learning disorder, disruptive behavior disorder, physical complaints and worry, severe psychopathology, and mildly disruptive. Each of these classifications has distinct patterns throughout the scales and composites of the BASC-TRS, meaning that a prediction in behavioral classification of a child could be made by examining the pattern of scores of the scales and composites of the BASC-TRS. This seven cluster solution for the BASC-TRS resembles solutions found for other behavior rating scales such as the Teacher Report Form (Achenbach, 1991). One difference between these two solutions was that Achenbach (1991) did not find a cluster for children who were free from problem behaviors while McDermott and Weiss (1995) found a solution which included children free of problem behaviors (Type 1: Adjustment). A solution free from problem behaviors may not have been found because the Teacher Report Form only lists problem behaviors.

Because the BASC is a relatively new behavior measurement instrument, few independent validity studies have been conducted. One study by Lett and Kamphaus (1997) investigated the differential validity of the BASC Teacher Rating Scale and BASC Student Observation System in discriminating between children with ADHD and nondisabled children. Thirty-seven students who had previously been diagnosed with Attention Deficit Hyperactivity Disorder and 18 students with no classification were included in the study. Students with ADHD were also divided into an "ADHD only"

group and a group in which the students had a comorbid diagnosis of ADHD and some other behavioral disorder. The results of the study indicated that the BASC-TRS correctly classified 73% of the children identified as ADHD or nondisabled and was correct 62% of the time when classifying children with multiple diagnoses. The preliminary implications of this study are that the BASC-TRS may be a beneficial tool in providing information in the identification of children with ADHD. One problem with this study is that Lett and Kamphaus (1997) did not report the kappa coefficients, positive predictive power or negative predictive power. Kessel and Zimmerman (1993) explain that in order to determine the most accurate predictive power for an instrument, sensitivity, specificity and Kappa, along with other analyses should be calculated.

Doyle, Ostrander, Skare, Crosby, and August (1997) examined the convergent and criterion-related validity of the BASC Parent Rating Scale with the Child Behavior Checklist (Achenbach, 1991). This study included 156 children from grades one through four who were experiencing behavior problems across more than one setting. The problem behaviors exhibited by the children included DSM-III-R classifications: attention deficit hyperactivity disorder, oppositional defiant disorder, conduct disorder, separation anxiety, avoidant disorder, overanxious disorder, major depressive disorder, and dysthymia. Overall, the convergent validity was comparable between the reasonably new BASC and the established CBCL. Scales with similar names produced a correlation of .70 for Aggression, .54 between the Anxiety scales, .49 between the Depression scales, .40 between the Somatic Complaint scales, and .50 between the Withdrawal scales. Another moderately high correlation (.69) was between Conduct Problems of the BASC and Delinquent Behavior of the CBCL. Also, the criterion-related validity between the two was comparable. The BASC-PRS was accurate in classifying children

with no diagnosis, attention deficit hyperactivity disorder only, and ADHD with a comorbid externalizing disorder.

Vaughn, Riccio, Hynd, and Hall (1997) compared the discriminant validity of the BASC Teacher Rating Scale and Parent Rating Scale with the CBCL Teacher Rating and Parent Rating Scale (Achenbach, 1991) in the diagnosis of ADHD. Participants of the study were 73 children who had been referred for a variety of cognitive, academic, and/or behavioral concerns. Only children who were diagnosed with ADHD using the DSM-IV criteria were used in the study. The results indicated that all of the instruments were significantly correlated in diagnosing children with ADHD, but the BASC Teacher Rating Scale was more accurate in identifying children who did not meet the criteria for ADHD. These results indicated that the BASC-TRS may be more effective in the identification of ADHD children while reducing the potential for misidentifying children who do not have ADHD.

Convergent validity of the BASC Teacher Rating Scale, BASC Parent Rating Scale, Social Skills Rating System (SSRS) Parent Rating Scale, and SSRS Teacher Rating Scale were examined in a study by Flanagan, Alfonso, Primavera, Povall, and Higgins (1996). Participants in the study were 53 minority kindergarten students from a large urban area. Each child was rated on the BASC-TRS and PRS and the SSRS-TRS and PRS. With the SSRS Social Skills scale used as reference, the Social Skills subscale of the BASC-PRS demonstrated significant convergent validity. However, with the SSRS Social Skills scale used as a reference, the Social Skills subscale of the BASC-TRS did not demonstrate significant convergent validity. Also, the convergent validity of the BASC-TRS Adaptive Skills Composite and the SSRS-TRS Social Skills scale was moderate as were the correlations of the same scales of the BASC-PRS and SSRS-PRS.

Similar results were found when comparing the BASC-TRS and PRS Hyperactivity, Aggression, and Externalizing scales to the SSRS Problem Behaviors scale. Flanagan et al. (1995) noted that teachers and parents typically do not agree when asked about a child's behavior. For the BASC and SSRS, the parents rated the children as having significantly more problem behavior than the teachers, however the difference was not clinically significant. Effect sizes were not reported in the study. These results may be due to the fact that parents and teachers observe the child in different settings. For example, teachers observe students in a structured setting while parents often observe children in less structured settings resulting in an observation of more behavior problems. These results are consistent with a study comparing the SSRS TRS and PRS in which the correlations were low to moderate (Ruffalo & Elliott, 1997).

Adjustment Scales for Children and Adolescents

Like the BASC, the ASCA is also relatively new with little independent research investigating the instrument's validity. One study by McDermott, Watkins, Schel, Webber, Keenan, Holland, and Leigh (1995) demonstrated discriminant validity of the ASCA in making classifications of children with disabilities. Participants included 150 nondisabled students and 150 students who were receiving special education services for social or emotional disturbances. All participants were age 5 through 17; the age range for the ASCA. All students in the disturbed and nondisturbed groups were matched on age, gender, race, and grade level. Results of the study indicated that the Overactivity syndromes of Attention-Deficit Hyperactive, Solitary Aggressive (Provocative), Solitary Aggressive (Impulsive), and Oppositional Defiant T scores were significantly higher for the socially/emotionally disturbed group than T scores for the nondisturbed group. The largest significant difference between the nondisabled and SED groups occurred for the

Oppositional Defiant syndrome. Also reported was the classification accuracy for nondisabled and SED children for developmental level, gender, and race. The ASCA was accurate significantly in classifying children from each of these groups above chance. All accuracy levels were near 80%. In addition, the ASCA was also significantly accurate in differentiating SED children from children with other disorders ranging from 76.9% for differentiating from learning disabled students to 86.2% for gifted/talented children. This evidence supports the suggestion that the ASCA can accurately classify children with emotional disturbances from other classifications.

McDermott (1995) attempted to determine whether children with different demographic characteristics such as age, race, gender, national region or social class are able to account for variation in children's cognitive ability, academic achievement, and social adjustment. The representative standardization sample of 1,200 students who were given the ASCA and DAS (Elliot, 1990) were used for the study. Each participant met the criteria for verbal, nonverbal, and spatial ability along with reading and numerical achievement. When controlling for ability, only 5.5% of the variability in adjustment was related to demographic factors such as gender and age. All other differences, such as class and race were most likely due to chance and not due to any adjustment differences in these demographic variables.

Another study by McDermott (1996) further examined the issue of age and gender differences in adjustment. This study looked at the identification of different syndromes of the ASCA for male and female students as well as prevalence of these syndromes across developmental levels. The ASCA standardization sample was used for the study. Results showed that prevalence of ADH, SAP, and OPD decreased significantly with age in the core syndromes. Prevalence of ADH, SAP, SAI, OPD, and AVO was significantly

higher for males than females. These results suggested a relatively higher prevalence of overactive behaviors in males than females.

McDermott and Weiss (1995) examined the behavior styles of 1,400 healthy, marginal, at risk, and maladjusted children. Participants were children between the ages of 5 and 17 years of age. Cluster analysis was used to look for distinct behavioral pathologies as produced by scores on the ASCA. As a result, a 22-cluster solution produced the best fit. The profiles presented include the average of the scores on the six core syndromes of the ASCA. These 22 profiles fell into the categories defined as adjusted, adequately adjusted, marginally adjusted, at risk, and maladjusted. Like previous studies (McDermott, 1995; McDermott, 1996) Attention-Deficit Hyperactivity profile as well as other aggressive disorders were more prevalent in males. These results lend support for the use of the ASCA in making differential diagnoses for identifying children with specific behavior profiles. Each behavioral profile was described by trends in intellectual functioning, academic achievement, concomitant risk and protective factors, and comorbidity. The foregoing suggests that results from the ASCA can help in further understanding the child's behavior so that an appropriate intervention can be developed to successfully treat the problem behaviors.

McDermott (1993) also examined the prevalence of different youth psychopathologies across multiple settings. This confirmatory analysis was one of the first studies on the ASCA and was intended to confirm the division of the 6 specific core syndromes and 2 supplemental syndromes. Confirmatory analysis on the 156 items of the ASCA support the core syndromes of Attention-Deficit Hyperactive (ADH), Solitary Aggressive (Provocative) (SAP), Solitary Aggressive (Impulsive) (SAI), Diffident (DIF), Oppositional Defiant (OPD), and Avoidant (AVO), along with the supplementary

syndromes of Lethargic/Hypoactive (LEH) and Delinquent (DEL). Factor analysis also confirmed the Overactivity and Underactivity scales of behavior pathology.

Limited literature exists comparing the BASC and ASCA. One study (Keusch, 1998) examined the convergent validity between the BASC-TRS and ASCA. Fifty-two children who were referred for special education evaluation, but not yet evaluated, were participants in this study. The students' regular education teachers completed both the BASC-TRS and ASCA rating scales at referral. Correlations between the two scales provided convergent validity evidence for several subscale/core syndrome comparisons. Specifically, a correlation of .75 was found between the ASCA ADH syndrome and the BASC Hyperactivity scale; .72 between ASCA SA(P) and BASC Hyperactivity; .62 between ASCA ADH and BASC Aggression; .71 between ASCA SA(P) and BASC Aggression; .66 between ASCA SA(P) and BASC Conduct Problems; .67 between ASCA SA(I) and BASC and Conduct Problems; .61 between ASCA ADH and BASC Attention Problems; and .60 between ASCA ADH and BASC Atypicality. A high correlation of .79 was produced in the composite/global scale comparison of the BASC-TRS Externalizing behaviors and the ASCA Overactivity global scale as well as a .78 between the BASC Behavior Symptoms Index and the ASCA Overactivity global scale.

In the second study, Ingles (1998) also examined the convergent and divergent validity of the BASC-TRS and ASCA. Participants included 124 randomly selected children between the ages of 6 and 11 who were rated by 104 teachers who volunteered to complete the rating scales. Forty-seven percent of the participants were male and 53% were female. The results of this study indicated convergent validity evidence for the overall Adjustment and Composite levels. The ASCA Overactivity and BASC Externalizing Problems scale were significantly correlated ($r = .77$ as was the ASCA

Underactivity and BASC Internalizing Problems ($r = .45$). The highest correlations were between scales that assess more observable behaviors such as BASC Hyperactivity and ASCA ADH ($r = .78$) and BASC Aggression and ASCA SAI (.64). Scales that examined internalized behaviors such as the ASCA Diffident syndrome and the BASC Withdrawal scale, had a lower correlation ($r = .38$). This study showed overall support for convergent validity between the BASC-TRS and the ASCA.

Statement of the Problem

Determining the construct validity between these two relatively new rating scales is an important step in the overall validation of any psychological instrument. Myers & Hansen (1997) indicate that construct validity is the degree to which an operational definition accurately represents the construct it is intended to measure. Construct validity must be used in this study because neither of these measures have been fully validated so a criterion cannot be established. Valid behavior rating scales are important in the assessment of children with behavior problems because objective measures of behavior are needed for the proper classification and placement of children into special treatment programs. The proper evaluation of student behavior should lead to the treatment of the problem behavior. Without valid measures of rating behavior, the overall system for assessing children would not be as complete and effective.

It is also predicted that the BASC teacher rating scale and the ASCA will be significantly correlated because the internalizing/externalizing scales of the BASC and the underactivity/overactivity scales of the ASCA seem to be similar. The ASCA manual also suggests that the underactivity and overactivity composites are similar to the internalizing and externalizing composites of the BASC. For this reason, the correlations

should be moderate to high between these two rating scales. The present study examined the correlations between the BASC-TRS and PRS, and similar results from previous studies of parent and teacher ratings are expected.

Because the behavior ratings for the child are made for different settings, it was predicted that the correlation between the BASC teacher and BASC parent rating scales as well as the correlation between the BASC parent rating scale and the ASCA would be lower than teacher rating scale comparisons. This is similar to those mentioned in the BASC manual. In many cases, a child's behavior may be different in different settings because of the differences in structure or how the child reacts to attention.

Method

Participants

The participants of the study were 149 children 6 to 11 years-old from school districts in small to mid-sized Midwestern cities and small to large Southwestern cities. The mean age of the sample was 9.27 years. Seventy-eight of the participants of the study were male and 71 were female. The grade breakdown was as follows: 4 kindergarten, 14 first-grade, 21 second-grade, 14 third-grade, 40 fourth-grade, 21 fifth-grade, and 35 sixth-grade. Ninety-eight (66%) of the participants were Caucasian, 15 (10%) were Black/African American, 30 (20%) were Hispanic/Latino, 2 (1%) were Asian American, and 4 (3%) were Native American. One hundred and two (68%) of the participants of the study were presumed normal and did not receive special education services under any disability category, 25 (17%) were classified as Learning Disabled, 10 (7%) Social/Emotionally Disabled, 3 (2%) Autistic, 2 (1%) Other Health Impaired, 2 (1%) Mentally Retarded, 4 (3%) Speech/Language Impaired, and 1 (1%) Hearing

Impaired.

The participants were selected by their classroom teacher, by having each teacher select one male and one female by counting down 5 males and 5 females on the class roster. Sixty-four teachers participated in the study. Each parent was asked to complete the BASC-PRS and each teacher completed both the BASC-TRS and the ASCA. All 149 children selected in the study had teacher rating of the BASC-TRS and ASCA completed on their behavior, while only 67 of those children also had parent rating of the BASC-PRS also completed.

Instruments

Adjustment Scales for Children and Adolescents. The ASCA is a nationally normed, objective behavior rating scale for students ages 5 to 17 and is completed by the child's classroom teacher. The ASCA contains 156 behavioral descriptions with reference to 29 specific social, recreational, or learning situations. Each situation contains several behavioral descriptions and the teacher chooses the description that best fits the behavior the child would exhibit in the situation. Raw scores for six core syndromes, two supplementary syndromes, and two adjustments scales are converted to percentiles and T scores (McDermott, 1994).

Behavior Assessment System for Children-Teacher Rating Scale. The BASC is a nationally normed assessment system that includes a teacher rating scale, a parent rating scale, a self-report of personality, a structured developmental history, and a student observation system. The BASC-TRS is a comprehensive measure of a child's adaptive and problem behaviors in the school setting and contains 109, 148, or 138 items depending on the child's age. The BASC-TRS is appropriate for use with children ages 4 to 18. The teacher rates the student's behavior on a four-point scale ranging from

“never” to “almost always”. The BASC-TRS consists of 14 scales, 5 composites, and one index score. Percentiles and T scores are obtained from the scales, composites, and index (Reynolds & Kamphaus, 1992).

Behavior Assessment System for Children-Parent Rating Scale. The BASC-PRS is a measure of behavior in community and home settings. Like the BASC-TRS the BASC-PRS includes different forms for children aged 4 to 18. The BASC-PRS contains 138 items with a four-point scale ranging from “never” to “almost always”. The scales, composites, and index are all the same as the BASC-TRS. Percentiles and T scores are also obtained from the BASC-PRS (Reynolds & Kamphaus, 1992). The instructions for the PRS are easy to understand and the protocols are attractive and efficiently arranged (Sandoval & Echandia, 1994).

Raw scores for each subscale and composite of the BASC-TRS and BASC-PRS were converted to T scores with a mean of 50 and a standard deviation of 10, and the percentiles corresponding to each T score vary by scale. Similarly, the raw scores for each syndrome and global syndrome of the ASCA were converted to standardized T scores with a mean of 50 and a standard deviation of 10, but unlike the BASC, all percentiles are the same for the T score by scale.

Procedure

Principals from each school were contacted in order to receive permission to carry out the study in this schools. Teachers who were willing to participate were told that ratings of randomly selected students would be used for the study. Teachers also received instructions for selecting 2 children from their class and given a written description about the study to send home to the selected student’s parents. Appendix A shows the instructions provided to the teachers. Participants whose parents did not

participate in the study were still rated by their teachers on the BASC-TRS and ASCA. Once participants were selected, the BASC and ASCA forms were given to the teachers and parents to complete. Half of the teachers received ratings with the BASC-TRS on top of the ASCA and half received the ASCA on top of the BASC-TRS to provide counterbalancing of scale order. Parents were contacted by the teachers and given the BASC-PRS scales and instructions for completing the scales. Appendix B shows the instructions provided to the parents. The completed rating scales were personally collected from the teachers personally by this researcher. Parent scales were either given to the teacher for the researcher to collect, collected personally by the researcher, or returned by mail to the researcher at the parents' convenience.

Data Analysis

Construct validity for the BASC-TRS composite/subscale and ASCA adjustment scale/syndrome comparisons was examined using Pearson product-movement correlation coefficients. Pearson product-movement correlation coefficients were also used to examine the construct validity for the ASCA adjustment scale/syndromes and the BASC-PRS composite/subscale, as well as for the BASC-TRS and the BASC-PRS composite/subscale. Two-tailed dependent t -tests were used to determine the significance of differences between the ASCA core syndromes and BASC subscales along with the significance of differences between the ASCA adjustment scales and the BASC composites. The effect sizes (η^2) were used to determine the meaningfulness of mean differences between ratings (Kiehl, 1996). Table 1 shows the specific comparisons made between the BASC-TRS and ASCA. Table 2 shows the specific BASC-PRS and ASCA comparisons. Comparisons that were made between the BASC-TRS and BASC-PRS are displayed in Table 3.

Table 1

Specific Global Scale/Syndrome and Subtest/Syndrome Comparisons Between the BASC-TRS and ASCA

BASC-TRS	ASCA
BASC-TRS Externalizing	ASCA Overactivity
BASC-TRS Internalizing	ASCA Underactivity
BASC-TRS Hyperactivity	ASCA Attention-Deficit Hyperactive
BASC-TRS Aggression	ASCA Solitary Aggressive (Provocative)
BASC-TRS Conduct Problems	ASCA Oppositional Defiant
BASC-TRS Withdrawal	ASCA Avoidant

Note. BASC-TRS = Behavior Assessment System for Children-Teacher Rating Scale; ASCA = Adjustment Scales for Children and Adolescents.

Table 2

Specific Global Scale/Syndrome and Subtest/Syndrome Comparisons Between the BASC-PRS and ASCA

BASC-PRS	ASCA
BASC-PRS Externalizing	ASCA Overactivity
BASC-PRS Internalizing	ASCA Underactivity
BASC-PRS Hyperactivity	ASCA Attention-Deficit Hyperactive
BASC-PRS Aggression	ASCA Solitary Aggressive (Provocative)
BASC-PRS Conduct Problems	ASCA Oppositional Defiant
BASC-PRS Withdrawal	ASCA Avoidant

Note. BASC-PRS = Behavior Assessment System for Children-Parent Rating Scale; ASCA = Adjustment Scales for Children and Adolescents.

Table 3

Specific Global Scale/Syndrome and Subtest/Syndrome Comparisons Between the
BASC-TRS and BASC-PRS

BASC-TRS	BASC-PRS
BASC-TRS Externalizing	BASC-PRS Externalizing
BASC-TRS Internalizing	BASC-PRS Internalizing
BASC-TRS Behavioral Symptoms Index	BASC-PRS Behavioral Symptoms Index
BASC-TRS Adaptive Skills	BASC-PRS Adaptive Skills
BASC-TRS Hyperactivity	BASC-PRS Hyperactivity
BASC-TRS Aggression	BASC-PRS Aggression
BASC-TRS Conduct Problems	BASC-PRS Conduct Problems
BASC-TRS Withdrawal	BASC-PRS Withdrawal

Note. BASC-TRS = Behavior Assessment System for Children-Teacher Rating Scale;
BASC-PRS = Behavior Assessment System for Children-Parent Rating Scale.

Results

Comparison of BASC-TRS and ASCA

Pearson product-movement correlation coefficients were used to examine the construct validity for the BASC-TRS and ASCA. Table 4 shows the correlations between the BASC-TRS and ASCA. Table 5 shows the descriptive statistics, dependent t-tests, and effect sizes for each paired comparison.

Table 4

Correlations of BASC-TRS and ASCA global scale/syndrome and subtest/syndrome comparisons.

<i>BASC Scales/Composites</i>	<i>Adjustment Scales for Children and Adolescents</i>									
	<i>OVR</i>	<i>UNR</i>	<i>ADH</i>	<i>SAP</i>	<i>SAI</i>	<i>OPD</i>	<i>DIF</i>	<i>AVO</i>	<i>DEL</i>	<i>LEH</i>
<u>Externalizing Problems</u>										
Hyperactivity	.82***	-.20**	.77***	.59***	.68***	.60***	-.25***	-.06	.36***	.27***
Aggression	.75***	-.23***	.61***	.59***	.69***	.68***	-.25***	-.12	.41***	.21***
Conduct Problems	.64***	.02	.52***	.54***	.66***	.52***	-.02	.11	.59***	.30***
<u>Internalizing Problems</u>										
Anxiety	.35***	.26***	.36***	.21*	.18**	.29***	.29***	.13	.17	.43***
Depression	.59***	.01	.47***	.47***	.54***	.67***	.01	-.00	.28**	.40***
Somatization	.13	.06	.10	.02	.07	.17*	.11	.00	.23*	.20*
<u>School Problems</u>										
Attention Problems	.74***	.25**	.73***	.52***	.48***	.45***	.22**	.33***	.39**	.61***
Learning Problems	.55***	.37***	.56***	.42***	.37***	.30***	.33***	.37***	.29*	.58***
<u>Other Problems</u>										
Atypicality	.49***	.19*	.48***	.40***	.42***	.37***	.15	.18*	.18	.47***
Withdrawal	.08	.62***	.07	.09	.06	.14	.64***	.41***	.08	.54***
<u>Adaptive Skills</u>										
Adaptability	-.59***	-.23**	-.48***	-.44***	-.41***	-.57***	-.21**	-.23**	-.41***	-.53***
Social Skills	-.44***	-.42***	-.38***	-.34***	-.30***	-.31***	-.40***	-.43***	-.23*	-.50***
Leadership	-.40***	-.51***	-.36***	-.35***	-.24**	-.22**	-.50***	-.44***	-.34**	-.52***
Study Skills	-.59***	-.34***	-.55***	-.42***	-.38***	-.36***	-.33***	-.36***	-.35**	-.55***
<u>Composite Indexes</u>										
Externalizing Problems	.79***	-.14	.67***	.62***	.73***	.65***	-.18*	-.02	.50***	.28***
Internalizing Problems	.46***	.14	.40***	.31***	.35***	.49***	.17*	.05	.29**	.44***
School Problems	.67***	.33***	.68***	.49***	.44***	.38***	.29***	.37***	.35***	.62***
Adaptive Skills	-.58***	-.43***	-.50***	-.44***	-.38***	-.41***	-.41***	-.42***	-.39***	-.60***
BSI	.78***	.05	.70***	.58***	.63***	.64***	.02	.09	.37***	.48***

Note. *OVR* = Overactivity, *UNR* = Underactivity, *ADH* = Attention-Deficit Hyperactive, *SAP* = Solitary Aggressive (Provocative), *SAI* = Solitary Aggressive (Impulsive), *OPD* = Oppositional Defiant, *DIF* = Diffident, *AVO* = Avoidant, *DEL* = Delinquent, *LEH* = Lethargic (Hypoactive), *BASC* = Behavior Assessment System for Children. *n* = 149 except for the ASCA Delinquency scale *n* = 78 as the ASCA Delinquency scale is not scored for females under 12.

* *p* < .05 ** *p* < .01 *** *p* < .001

Table 5

Descriptive statistics and t-tests for ASCA and BASC-TRS global scale/syndrome and selected subtest/syndrome comparisons.

Scale/Syndrome	<i>M</i>	<i>SD</i>	<i>t</i>	η^2
ASCA Overactivity BASC-TRS Externalizing	55.28 55.36	11.27 12.81	-.14	.00
ASCA Underactivity BASC-TRS Internalizing	50.68 52.51	11.34 11.11	-1.52	.02
ASCA Attention Deficit-Hyperactive BASC-TRS Hyperactivity	54.82 54.12	12.41 11.09	1.04	.01
ASCA Solitary Aggressive (Provocative) BASC-TRS Aggression	53.68 55.04	11.99 13.30	-1.43	.01
ASCA Oppositional Defiant BASC-TRS Conduct Problems	53.52 55.55	12.56 14.00	-1.89	.02
ASCA Avoidant BASC-TRS Withdrawal	50.52 56.52	10.01 13.76	-5.50*	.17

Note. ASCA = Adjustment Scales for Children and Adolescents, BASC = Behavior Assessment System for Children. * $p < .05$ (Bonferroni adjusted $\alpha = .008$)

The correlation between the BASC-TRS Externalizing composite and the ASCA Overactivity Adjustment scale was statistically significant ($r = .79, p < .001$). There was no significant difference between the BASC-TRS Externalizing composite ($M = 55.36, SD = 12.81$) and ASCA Overactivity Adjustment scale ($M = 55.28, SD = 11.27$), $t(147) = -0.14$ and the effect size was small ($\eta^2 = .00$). The correlation between the BASC-TRS Internalizing composite and ASCA Underactivity Adjustment scale was not significant ($r = .14, p > .05$). There was no significant difference between the BASC-TRS Internalizing composite ($M = 52.51, SD = 11.11$) and ASCA Underactivity Adjustment scale ($M = 50.68, SD = 11.34$), $t(147) = -1.52$ and the effect size was small ($\eta^2 = .02$).

Along with comparisons between the global scales of the BASC-TRS and ASCA, specific subscale and core syndrome comparisons were also made. The correlation between the BASC-TRS Hyperactivity subscale and ASCA Attention-Deficit Hyperactivity core syndrome was statistically significant ($r = .77, p < .001$). There was no significant difference between the BASC-TRS Hyperactivity subscale ($M = 54.12, SD = 11.09$) and ASCA Attention-Deficit Hyperactivity core syndrome ($M = 54.82, SD = 12.41$), $t(147) = 1.04$ and the effect size was small ($\eta^2 = .01$). The correlation between the BASC-TRS Aggression subscale and ASCA Solitary Aggressive (Provocative) core syndrome was statistically significant ($r = .59, p < .001$). There was no significant difference between the BASC-TRS Aggression subscale ($M = 55.04, SD = 13.30$) and ASCA Solitary Aggressive (Provocative) core syndrome ($M = 53.68, SD = 11.99$), $t(147) = -1.43$ and the effect size was small ($\eta^2 = .01$). When comparing the BASC-TRS Conduct Problems subscale with the ASCA Oppositional Defiant core syndrome, the correlation was statistically significant ($r = .52, p < .001$). There was no significant

difference between the BASC-TRS Conduct Problems subscale ($\underline{M} = 55.55$, $\underline{SD} = 14.00$) and ASCA Oppositional Defiant core syndrome ($\underline{M} = 53.52$, $\underline{SD} = 12.56$), $t(147) = -1.89$ and the effect size was small ($\eta^2 = .02$). The correlation between the BASC-TRS Withdrawal subscale and ASCA Avoidant core syndrome was statistically significant ($r = .41$, $p < .001$). There was a significant difference between the BASC-TRS Withdrawal subscale ($\underline{M} = 56.52$, $\underline{SD} = 13.76$) and ASCA Avoidant core syndrome ($\underline{M} = 50.52$, $\underline{SD} = 10.01$), $t(147) = -5.50$ ($p < .05$) and the effect size was moderate ($\eta^2 = .17$).

Comparison of BASC-PRS and ASCA

Pearson product-movement correlation coefficients were used to examine the degree and direction of rater agreement for the BASC-PRS and ASCA. Table 6 shows the correlations between the BASC-PRS and ASCA. Table 7 shows the descriptive statistics, dependant t -tests, and effect sizes for each comparison.

The correlation between the BASC-PRS Externalizing composite and the ASCA Overactivity Adjustment scale was statistically significant ($r = .57$, $p < .001$). There was no significant difference between the BASC-PRS Externalizing composite ($\underline{M} = 54.56$, $\underline{SD} = 14.94$) and ASCA Overactivity Adjustment scale ($\underline{M} = 55.59$, $\underline{SD} = 10.68$), $t(65) = 0.67$ and the effect size was small ($\eta^2 = .01$). The correlation between the BASC-PRS Internalizing composite and ASCA Underactivity Adjustment scale of .16 was not statistically significant ($p > .05$). There was no significant difference between the BASC-PRS Internalizing composite ($\underline{M} = 50.64$, $\underline{SD} = 11.26$) and ASCA Underactivity Adjustment scale ($\underline{M} = 49.39$, $\underline{SD} = 10.42$), $t(65) = -0.72$ and the effect size was small ($\eta^2 = .01$).

Table 6

Correlations of BASC-PRS and ASCA global scale/syndrome and subtest/syndrome comparisons.

<i>BASC Scales/Composites</i>	<i>Adjustment Scales for Children and Adolescents</i>									
	OVR	UNR	ADH	SAP	SAI	OPD	DIF	AVO	DEL	LEH
<u>Externalizing Problems</u>										
Hyperactivity	.47***	-.04	.36**	.24	.43***	.38**	-.01	.01	.17	.32**
Aggression	.56***	-.14	.49***	.31**	.31**	.39***	-.11	.00	.39**	.22
Conduct Problems	.49***	-.12	.34**	.29*	.36**	.36**	-.09	.07	.38*	.24*
<u>Internalizing Problems</u>										
Anxiety	-.12	.18	-.12	-.07	-.19	.07	.37**	.10	.11	.14
Depression	.31**	.16	.20	.10	.26*	.32**	.30*	.17	.35*	.29*
Somatization	.04	.05	.04	-.11	-.04	-.13	.27	.07	.31	.07
<u>Additional Scales</u>										
Atypicality	.26*	.14	.26*	-.05	.09	.11	.31*	.23	.19	.35**
Withdrawal	-.26*	.50***	-.27*	-.19	-.21	-.12	.70***	.09	.10	.09
Attention Problems	.57***	.30*	.50***	.27*	.28*	.33**	.29*	.37**	.40*	.54***
<u>Adaptive Skills</u>										
Adaptability	-.10	.11	.00	.05	-.04	-.04	-.01	.16	-.08	-.03
Social Skills	-.30	-.18	-.21	-.13	-.15	-.24	-.15	-.09	-.20	-.25*
Leadership	-.17	-.34**	-.08	-.05	-.11	-.17	-.39***	-.17	-.17	-.35**
<u>Composite Indexes</u>										
Externalizing Problems	.57***	-.11	.45***	.32**	.42***	.42***	-.09	.04	.35*	.30*
Internalizing Problems	.12	.16	.07	-.03	.03	.12	.40***	.14	.33*	.22
Adaptive Skills	.49***	.13	.41***	.19	.29*	.37**	.25*	.20	.34	.43***
BSI	-.22	-.15	-.11	-.05	-.12	-.17	-.21	-.03	-.17	-.24

Note. OVR = Overactivity, UNR = Underactivity, ADH = Attention-Deficit Hyperactive, SAP = Solitary Aggressive (Provocative), SAI = Solitary Aggressive (Impulsive), OPD = Oppositional Defiant, DIF = Diffident, AVO = Avoidant, DEL = Delinquent, LEH = Lethargic (Hypoactive), BASC = Behavior Assessment System for Children. $n = 67$ except for the ASCA Delinquency scale $n = 39$ as the ASCA Delinquency scale is not scored for females under 12.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 7

Descriptive statistics and t-tests for ASCA and BASC-PRS global scale/syndrome and selected subtest/syndrome comparisons.

Scale/Syndrome	<i>M</i>	<i>SD</i>	<i>t</i>	η^2
ASCA Overactivity BASC-PRS Externalizing	55.59 54.56	10.68 14.94	.67	.01
ASCA Underactivity BASC-PRS Internalizing	49.39 50.64	10.42 11.26	-.72	.01
ASCA Attention Deficit-Hyperactive BASC-PRS Hyperactivity	55.62 52.55	12.42 14.89	1.60	.04
ASCA Solitary Aggressive (Provocative) BASC-PRS Aggression	53.59 52.15	11.98 12.96	.80	.01
ASCA Oppositional Defiant BASC-PRS Conduct Problems	52.91 56.92	12.07 15.85	-2.03	.06
ASCA-Avoidant BASC-PRS Withdrawal	51.11 49.21	9.95 11.42	1.06	.02

Note. ASCA = Adjustment Scales for Children and Adolescents, BASC = Behavior Assessment System for Children. * $p < .05$ (Bonferroni adjusted $\alpha = .008$)

Correlations, dependent t -tests, and effect sizes for specific BASC-PRS subscales and ASCA core syndromes were also determined. The correlation between the BASC-PRS Hyperactivity subscale and the ASCA Attention-Deficit Hyperactivity core syndrome was statistically significant ($r = .36, p < .01$). There was no significant difference between the BASC-PRS Hyperactivity subscale ($M = 52.55, SD = 14.89$) and the ASCA Attention-Deficit Hyperactivity core syndrome ($M = 55.62, SD = 12.42$), $t(65) = 1.60$ and the effect strength was small ($\eta^2 = .04$). When comparing the BASC-PRS Aggression subscale and ASCA Solitary Aggressive (Provocative) core syndrome, the correlation was statistically significant ($r = .31, p < .01$). A significant difference was not found between the BASC-PRS Aggression subscale ($M = 52.15, SD = 12.96$) and ASCA Solitary Aggressive (Provocative) core syndrome ($M = 53.59, SD = 11.98$), $t(65) = 0.80$ and the effect size was small ($\eta^2 = .01$). The correlation between the BASC-PRS Conduct Problems subscale and ASCA Oppositional Defiant core syndrome of .36 was also statistically significant ($p < .01$). There was no significant difference between the BASC-PRS Conduct Problems subscale ($M = 56.92, SD = 15.85$) and ASCA Oppositional Defiant core syndrome ($M = 52.91, SD = 12.07$), $t(65) = -2.03$ and the effect size was small ($\eta^2 = .06$). The correlation between the BASC-PRS Withdrawal subscale and ASCA Avoidant core syndrome was not significant ($r = .09, p > .05$). There was no significant difference between the BASC-PRS Withdrawal subscale ($M = 49.21, SD = 11.42$) and ASCA Avoidant core syndrome ($M = 51.11, SD = 9.95$), $t(65) = 1.06$ and the effect strength was small ($\eta^2 = .02$).

Comparison of BASC-TRS and BASC-PRS

Pearson product-movement correlation coefficients were used to examine the

degree and direction of rater agreement for the BASC-TRS and BASC-PRS. Table 8 shows the correlations between the BASC-TRS and BASC-PRS. Table 9 shows the descriptive statistics, dependent *t*-tests, and effect sizes for the BASC-TRS and BASC-PRS.

Comparisons between the BASC-TRS and BASC-PRS composites were first examined. The correlation between the BASC-TRS Externalizing composite and BASC-PRS Externalizing composite of .62 was statistically significant ($p < .001$). There was no significant difference between the BASC-TRS Externalizing composite ($M = 55.59$, $SD = 11.67$) and BASC-PRS Externalizing composite ($M = 54.56$, $SD = 14.94$), $t(65) = 0.70$ and the effect size was small ($\eta^2 = .01$). The correlation between the BASC-TRS Internalizing composite and BASC-PRS Internalizing composite was also statistically significant ($r = .44$, $p < .001$). There was no significant difference between the BASC-TRS Internalizing composite ($M = 52.41$, $SD = 11.84$) and BASC-PRS Internalizing composite ($M = 50.64$, $SD = 11.26$), $t(65) = 1.18$ and the effect size was small ($\eta^2 = .02$). The correlation between the BASC-TRS Behavioral Symptoms Index and BASC-PRS Behavioral Symptoms Index of .51 was statistically significant ($p < .001$). There was no significant difference between the Behavioral Symptoms Index composites of the BASC-TRS ($M = 55.45$, $SD = 11.89$) and BASC-PRS ($M = 54.11$, $SD = 13.56$), $t(65) = 0.86$ and the effect size was small ($\eta^2 = .01$). A statistically significant correlation ($p < .001$) of .48 was found between the BASC-TRS Adaptive Skills composite and BASC-PRS Adaptive Skills composite. No significant difference was found between the Adaptive Skills composites of the BASC-TRS ($M = 45.98$, $SD = 9.35$) and BASC-PRS ($M = 43.05$, $SD = 11.48$), $t(65) = 2.23$ and the effect size was small to moderate ($\eta^2 = .10$).

Table 8

Correlations of BASC-PRS and BASC-PRS global scale and subtest comparisons.

	BASC-PRS Scales/Composites															
	PRSHYP	PRSAAGG	PRSCON	PRSANX	PRSDPEP	PRSSOM	PRSATY	PRSWIT	PRSAATT	PRSAADP	PRSSOC	PRSLEA	PRSEXT	PRSPINT	PRPSADS	PRPSBSI
Externalizing Problems																
Hyperactivity	.45***	.50***	.51***	-.25*	.22	-.04	.14	-.37**	.39***	-.14	-.25*	-.06	.55***	.00	-.17	.36**
Aggression	.42***	.54***	.63***	-.18	.30*	-.10	.07	-.31**	.40***	-.25*	-.33**	-.19	.60***	.05	-.29*	.38**
Conduct Problems	.40***	.53***	.65***	-.13	.34**	.02	.20	-.25*	.55***	-.12	-.34**	-.29*	.60***	.13	-.28*	.45***
Internalizing Problems																
Anxiety	.34**	.24	.14	.08	.41***	.21	.27*	.23	.51***	-.20	-.33**	-.35**	.27*	.33**	-.33**	.43***
Depression	.47***	.28*	.34**	.03	.44***	.04	.23	.07	.47***	-.21	-.41***	-.35**	.41***	.23	-.37**	.45***
Somatization	.41***	.27*	.17	.20	.55***	.50***	.48***	.19	.35**	-.09	-.16	-.15	.32**	.55***	-.15	.53***
School Problems																
Attention Problems	.41***	.34**	.43***	-.15	.27*	.11	.48***	-.11	.72***	-.08	-.39***	-.47***	.45***	.11	-.35**	.49***
Learning Problems	.39***	.25*	.26*	.04	.29*	.08	.37**	-.00	.61***	-.02	-.31**	-.42***	.35**	.19	-.29*	.46***
Other Problems																
Atypicality	.35**	.19	.23	-.10	.30*	.12	.25	-.11	.47***	-.01	-.23	-.18	.29*	.16	-.16	.35**
Withdrawal	.20	-.04	-.01	.13	.26*	.11	.30*	.51***	.45***	-.13	-.39***	-.50***	.05	.20	-.38***	.29*
Adaptive Skills																
Adaptability	-.29*	-.33**	-.54***	.18	-.36**	.00	-.15	.05	-.57***	.36**	.51***	.53***	-.44***	-.11	.53***	-.38**
Social Skills	-.15	-.21	-.28*	.13	-.11	-.05	.33**	.07	-.44***	.06	.31*	.41***	-.24*	-.02	.29*	-.27*
Leadership	-.32**	-.28*	-.30*	-.02	-.28*	-.19	-.49***	-.18	-.60***	.07	.41***	.60***	-.34**	-.22	.41***	-.47***
Study Skills	-.36**	-.35**	-.46***	.16	-.28*	-.07	-.40***	.06	-.68***	.14	.46	.57***	-.44***	-.10	.44***	-.46***
Composite Indexes																
Externalizing Problems	.45***	.56***	.64***	-.20	.31*	-.05	.14	-.33**	.47***	-.19	-.33**	-.20	.62***	.06	-.27	.42***
Internalizing Problems	.50***	.33**	.27*	.12	.56***	.29*	.39***	.20	.55***	-.20	-.38**	-.36**	.42***	.44***	-.35**	.57***
School Problems	.42***	.31*	.35**	-.05	.30*	.10	.44***	-.05	.69***	-.05	-.36**	-.46***	.41***	.17	-.33**	.50***
Adaptive Skills	-.33**	-.34**	-.47***	.13	-.31*	-.08	-.40***	.00	-.66***	.19	.49***	.61***	-.43***	-.13	.48***	-.46***
BSI	.50***	.43***	.47***	-.11	.41***	.07	.29*	-.12	.61***	-.19	-.40***	-.33**	.53***	.19	-.35**	.51***

Note. HYP = Hyperactivity, AGG = Aggression, CON = Conduct Problems, ANX = Anxiety, DEP = Depression, SOM = Somatization, ATY = Atypicality, WIT = Withdrawal, ATT = Attention Problems, ADP = Adaptability, SOC = Social Skills, LEA = Leadership, EXT = Externalizing Problems, INT = Internalizing Problems, BSI = Behavior Symptoms Index, ADS = Adaptive Skills, TRS = Teacher Rating Scale, PRS = Parent Rating Scale, BASC = Behavior Assessment System for Children.

p < .05 ** p < .01 *** p < .

Table 9

Descriptive statistics and t-tests for BASC-TRS and BASC-PRS global scale/syndrome and selected subtest/syndrome comparisons.

Scale/Syndrome	<i>M</i>	<i>SD</i>	<i>t</i>	η^2
BASC-TRS Externalizing	55.59	11.67	.70	.01
BASC-PRS Externalizing	54.56	14.94		
BASC-TRS Internalizing	52.41	11.84	1.18	.02
BASC-PRS Internalizing	50.64	11.26		
BASC-TRS Behavior Symptoms Index	55.45	11.89	.86	.01
BASC-PRS Behavior Symptoms Index	54.11	13.56		
BASC-TRS Adaptive Skills	45.98	9.35	2.23	.10
BASC-PRS Adaptive Skills	43.05	11.48		
BASC-TRS Hyperactivity	55.45	10.55	1.71	.04
BASC-PRS Hyperactivity	52.55	14.89		
BASC-TRS Aggression	55.59	13.08	2.17	.09
BASC-PRS Aggression	52.15	12.96		
BASC-TRS Conduct Problems	54.27	10.89	-1.78	.05
BASC-PRS Conduct Problems	56.92	15.85		
BASC-TRS Withdrawal	54.80	13.54	3.64*	.17
BASC-PRS Withdrawal	49.21	11.42		

Note. ASCA = Adjustment Scales for Children and Adolescents, BASC = Behavior Assessment System for Children. * $p < .05$ (Bonferroni adjusted $\alpha = .006$).

Correlations, dependent *t*-tests, and effect sizes were also calculated for specific BASC-TRS and BASC-PRS subscale comparisons. All identical Externalizing subscales were significantly correlated for the BASC-TRS and BASC-PRS (see Table 5). Specifically, the correlation between the BASC-TRS and PRS Hyperactivity subscales of .45 was statistically significant ($p < .001$). There was no significant difference between the BASC-TRS ($M = 55.45$, $SD = 10.55$) and BASC-PRS ($M = 52.55$, $SD = 14.89$), $t(65) = 1.71$ Hyperactivity subscales and the effect size was small ($\eta^2 = .04$). The correlation between the BASC-TRS and PRS Aggression subscales was statistically significant ($r = .54$, $p < .001$). There was no significant difference between the Aggression subscales of the BASC-TRS ($M = 55.50$, $SD = 13.08$) and BASC-PRS ($M = 52.15$, $SD = 12.96$), $t(65) = 2.17$ and the effect size was small ($\eta^2 = .09$). A statistically significant correlation ($r = .65$, $p < .001$) was found between the Conduct Problems subscales of the BASC-TRS and BASC-PRS. A significant difference was not found between Conduct Problems of the BASC-TRS ($M = 54.27$, $SD = 10.89$) and BASC-PRS ($M = 56.92$, $SD = 15.85$), $t(65) = -1.78$ and the effect size was small ($\eta^2 = .05$). The correlation between the BASC-TRS and PRS Withdrawal subscales was statistically significant ($r = .51$, $p < .001$). There was no significant difference between the Withdrawal subscales of the BASC-TRS ($M = 54.80$, $SD = 13.54$) and BASC-PRS ($M = 49.21$, $SD = 11.42$), $t(65) = 3.64$ and the effect size was moderate ($\eta^2 = .17$).

Discussion

The purpose of this study was to examine the relationships among two relatively new behavior rating scales completed by teachers and parents: the Behavior Assessment System for Children-Teacher Rating Scale, the Behavior Assessment System for

Children-Parent Rating Scale, and the Adjustment Scales for Children and Adolescents. Establishment of construct validity is important in the overall validation of any psychological measurement. This study provided additional support for the construct validity of both the BASC and ASCA. Also examined was the relationship between ratings of parents and teachers. Previous research has supported the notion that teacher and parent ratings are often different (Flanagan et. al, 1995; Ruffalo & Elliott, 1997).

Results of the present study examining the validity of the Behavior Assessment System for Children (BASC) and Adjustment Scales for Children and Adolescents (ASCA) are similar to those hypothesized. As expected, correlations between similar scales of the BASC-TRS and ASCA was mostly within the moderate to high range. The correlations between more observable behaviors (Externalizing/Overactivity) were higher than those of internal, less observable behaviors (Internalizing/Underactivity). Specifically, the shared variance between the BASC-TRS Externalizing composite and the ASCA Overactivity adjustment scale was 62%. Only 2% shared variance was found between the BASC-TRS Internalizing Problems composite and the ASCA Underactivity adjustment scale, which is considered low and indicated these scales may measure different dimensions.

These findings are similar to previous results comparing the BASC-TRS and ASCA (Keusch, 1998; Ingles, 1998), with the exception that the Ingles (1998) study produced higher correlations between the BASC-TRS Internalizing Problems composite and ASCA Underactivity adjustment scale ($r = .45$). As in previous studies, this study produced high correlations, ranging from .52 to .79, between more observable behaviors, while moderate correlations was found between ratings of internalizing behaviors (.14 to

.41). Results of the relationship among BASC-TRS and ASCA scales provides some support that the two rating scales are measuring similar constructs, especially for externalizing dimensions. Though the format of the BASC and ASCA are different, similar results are produced when making ratings about students' externalizing behavior in the school setting. This evidence strengthens the support that these scales measure the constructs they are intended to measure. One explanation for the lower agreement among scales measuring internalizing behaviors could be that the BASC and ASCA are measuring different internalizing constructs. Though the names of the scales appear to examine similar behaviors (e.g. Withdrawal/Avoidant; Internalizing/Underactivity), they may actually be measuring different constructs. The ASCA is intended to measure only observable dimensions rather than those internal to the child. Another explanation for the low correlations between internalizing scales is that less observable behaviors may be more difficult to rate, thus resulting in lower agreement between different raters and scales.

Examination of the correlations between the BASC-PRS and ASCA were low to moderate, but within a range that was expected. The relationship between similarly named scales of the BASC-PRS and ASCA were all within the moderate range as was the 32% shared variance between the BASC-PRS Externalizing Problems composite and ASCA Overactivity adjustment scale. However, the 3% shared variance between the BASC-PRS Internalizing Problems composite and ASCA Underactivity adjustment scale was low. These results are consistent with the results of previous studies comparing parent and teacher ratings of students' behavior (Flanagan et al, 1996) in that parent and teacher ratings were significantly different. Flanagan et al (1996) compared ratings on

the SSRS and BASC parent and teacher rating scales and found that the ratings between teachers and parents were significantly different, but this difference was not considered clinically meaningful.

The shared variance between the Externalizing Problems (38%), Internalizing Problems (19%), Adaptive Skills (23%), and Behavior Symptoms Index (26%) composites of the BASC-TRS and BASC-PRS were all within the moderate range as was the shared variance for the Hyperactivity (20%), Aggression (29%), Conduct Problems (42%), and Withdrawal (26%) subscales. These results are what would be expected when comparing the TRS and PRS of the BASC, though comparisons between the Externalizing Problems, Internalizing Problems, and Behavior Problems Index composites in the present study were all slightly higher than the results presented in the BASC Technical Manual (BASC; Reynolds & Kamphaus, 1992). The composite correlations presented in the BASC Technical Manual ranged from .51 for Externalizing Problems to .23 for Internalizing Problems. Subscale correlations ranged from .24 for Withdrawal to .49 for Conduct Problems. One possible reason for the difference in results between the present study and the one described in the BASC Technical Manual is the demographics of the present study did not match the sample of the BASC standardization sample, specifically in race/ethnicity, which could result in different ratings of student's behavior.

Upon further examination of the results of the present study, it was revealed that correlations between the BASC-PRS and ASCA fell within a similar range as the correlations between the BASC-PRS and BASC-TRS, though correlations were higher in the later comparison. These results were expected when making comparisons between

teacher and parent rating scales. In this study, comparisons between teacher and parent ratings (e.g. BASC-TRS and BASC-PRS; ASCA and BASC-PRS) were lower than comparisons between two teacher scales (e.g. BASC-TRS and ASCA). The reason for these findings may be because of the different environments in which children were rated. Teachers rated children's behaviors within a structured classroom environment in which all children are expected to follow the same rules. Parents are more likely to see children in many different contexts and the child's behavior may be different across the different settings, resulting in inconsistent behavior ratings by the parents (Flanagan et. al, 1995).

Another possible reason for the difference in ratings between parents and teachers is the fact that teachers have the opportunity to compare a student's behavior to a variety of other students' behavior and have an understanding of typical behavior for that aged student. Parents often don't have an opportunity to compare their child's behavior to that of other children of the same age and may not have an understanding of what is normal behavior for the student. The same behavior exhibited from a child may be rated differently by the parent and teacher of the child.

Differences in ratings of the BASC TRS with the BASC-PRS and ASCA may be due to the different format of the BASC scales and the ASCA. The BASC scales rate behaviors on a "never," "sometimes," "often," and "almost always" basis, while on the ASCA, the rater simply chooses the listed behaviors that the child exhibits. A format like the BASC results in more subjective ratings because the meaning of "never," "sometimes," "often," and "almost always" may be unclear. The rating of the ASCA is less subjective because the ratings are simply made on whether or not the child displays

the behavior.

Limitations existed in the present study. First, teachers were not randomly selected to participate in the study. Also, though the students who were rated were randomly selected, parents had the choice of whether to participate in the study. Only those teachers and parents who were willing to participate in the study were used. Teachers and parents who are willing to participate in a study may provide different ratings than those who are unwilling to participate in a study and complete rating scales. Second, the sample size of the ratings including the BASC-PRS was relatively low because of the low participation rate of the parents. Low participation by the parents produces correlations that are not as strong for comparisons between the BASC-PRS and ASCA, and BASC-PRS and BASC-TRS. One contributing factor to the low response rate by parents is the fact that the schools included in the study were in areas of low socioeconomic status, which often results in low parental participation in the education process as a whole (Bracey, 1996). Low parental involvement in the education process as a whole is likely to lead to a low participation rate in an educational study.

In conclusion, the results of the present study provide additional evidence for the construct validity of the BASC and ASCA. Results from this study were generally as hypothesized and similar to the results of previous comparisons involving the BASC and ASCA and other similar behavior rating scales. Additional research is needed to further replicate the construct validity of the BASC-PRS in particular, along with the BASC-TRS and ASCA. A larger sample size and wider range of socioeconomic status would provide stronger evidence for the validity of these scales. With this recent addition of technically adequate measures of behavior in the area of psychological measurement,

further research can be provided in identifying specific populations of students with disabilities (e.g. Emotionally Disturbed) with the BASC and ASCA. A better understanding of these scales is information that would be beneficial in the identification and planning of interventions for children exhibiting serious behavior and emotional problems in the schools.

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Appendixes

Appendix A

Instructions and consent for completing the BASC-TRS and ASCA

I am a graduate student at Eastern Illinois University conducting a study examining the validity of the Behavior Assessment System for Children-Teacher Rating Scale (BASC-TRS) and Adjustment Scales for Children and Adolescents (ASCA) behavior rating scales which are completed by teachers. This study will look at how well behavior rating scales work for assessing social and problematic behaviors that children may exhibit in the school environment. All results from this study will remain anonymous and no personally identifiable information will be collected. I have given you sets of two behavior rating scales, the BASC-TRS and ASCA, to be completed on selected children. Participation in this study is strictly voluntary. You may choose to stop your participation at any time. If you choose not to complete the scales, please return the blank scales to me. The following instructions are for randomly choosing the children from your class to rate and instructions for completing the scales.

- I ask that you select the same number of male and female students from your class. To select the students, count down the fifth male and fifth female on your class roster. If you choose to complete more than one male and female, count down every fifth male and fifth female for every extra student that you wish to rate.
- For every child you wish to rate, there is a BASC-TRS and ASCA rating scale. Note that the ASCA has a male and female form, but the BASC-TRS only has one form. Please complete the scales in the order that I have given them and complete all items on each scale.
- Also, provide the following information on each scale: the child's age, grade, race, gender, special education classification (if applicable), and the amount of time during the day spent in special education. **Do not include the child's name, your name, or the name of the parents on the form!**
- I will collect the scales in person when they have been completed.

The results of each child's ratings will remain anonymous. If you are interested, I will inform you of the results of this study. I would like for you to sign this form to give consent for your participation in this study. If you have any questions or concerns related to the rating scale, please feel free to contact me. Thank you for your participation in this study. Your participation will help psychologists provide better and more meaningful assessments in the future.

Signature

Eric Scroggs
12121 Star Road
Surprise, AZ 85858
(654) 555-1212

If interested in the results of the study, leave your name and address

Appendix B

Instructions and consent for completing the BASC-PRS

I am a graduate student at Eastern Illinois University conducting a study examining the results of the Behavior Assessment System for Children-Parent Rating Scale (BASC-PRS). This study will look at how well behavior rating scales work for assessing social and problematic behaviors may exhibit in the home environment. All results from this study will remain anonymous and no personally identifiable information will be collected. I have given you a BASC-PRS which is to be completed on your child. Participation in this study is strictly voluntary. You may choose to stop your participation at any time. If you choose not to complete the scale, please return the blank scale to me. Please provide the following information on each scale: the child's name, grade, race, gender, special education classification (if applicable), and amount of time during the day spent in special education. **Do not include the child's name or your name!** Complete all items on the scale and send the BASC-PRS to me or your child's teacher.

The results of each child's ratings will remain anonymous. If you are interested, I will inform you of the results of this study. I would like for you to sign this form to give consent for your participation in this study. If you have any questions or concerns related to the rating scale, please feel free to contact me. Thank you for your participation in this study. Your participation will help psychologists provide better and more meaningful assessments in the future.

Signature

Eric Scroggs
12121 Star Road
Surprise, AZ 85858
(654) 555-1212

If interested in the results of the study, leave your name and address