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**THE RELATIONSHIP BETWEEN PARENT AND TEACHER RATINGS
ON THE ADJUSTMENT SCALES FOR CHILDREN AND
ADOLESCENTS**

A Dissertation in

School Psychology

by

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ABSTRACT

Best practices in the assessment of emotional/behavioral disorders suggest that behavior ratings be obtained from adults who observe children in their natural settings of home and school, such as parents and teachers. A problem arises with the interpretation of discrepancies that typically occur between parent and teacher behavior ratings. Specifically, parent and teacher ratings correlate only moderately with one another for both externalizing (overactive) and internalizing (underactive) behaviors.

Rating scale item content and format may be a contributing factor in the low to moderate correlations between parent and teacher ratings. Traditional behavior rating scales are typically characterized by contextually removed, inferential, and ambiguously worded items whose response format involves subjective measures of the frequency or intensity of behaviors. The Adjustment Scales for Children and Adolescents (ASCA; McDermott, Marston, & Stott, 1993) teacher rating scale and accompanying parent form, the ASCA-Home version (ASCA-H; Watkins & McDermott, 2002), avoid this type of item content and response format by providing clear, observable behavioral descriptions within specific situations for which informants indicate the presence or absence of a behavior.

The present study examines the correlations between parent and teacher ratings for a sample of 374 kindergarten through grade eight students on the Overactivity and Underactivity scales of the ASCA and ASCA-H. It was hypothesized that the ASCA rating scales' unique item content and format would

result in higher correlations between parent and teacher ratings than a previous meta-analysis of behavior ratings reported (Achenbach, McConaughy, & Howell, 1987). However, the correlations obtained for the Overactivity scale ($r = .35$) and the Underactivity scale ($r = .11$) were not significantly different from meta-analytic findings of previous research on parent-teacher agreement.

Limitations of the present research as well as factors other than rating scale format that could account for low to moderate correlations between parent and teacher ratings are discussed. Finally, suggestions are made for future research of parent-teacher agreement on behavior rating scales.

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CHAPTER 1 - LITERATURE REVIEW

Introduction

In epidemiological studies conducted in the United States, research indicates that “between 3% and 18% of children have a psychiatric disorder causing significant functional impairment (the federal definition of serious emotional disturbance [Federal Register, 1993]). The median estimate of serious emotional disturbance is 12%” (p. 978; Costello, Egger, & Angold, 2005). As of the 2003-2004 school year, an estimated 489,000 children aged 3 to 21 were receiving special education services in the category of emotional disturbance, accounting for 7.4% of the special education population in the United States (NCES, 2005).

Given the federal mandate of Child Find embedded in the Individuals with Disabilities Education Act of 1997 (IDEA; Public Law 105-17) and its reauthorization, the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA; Public Law 108-446), public schools must be able to identify those children in need of special education services. Among the tools that school psychologists have at their disposal for the identification of emotional and behavioral disorders are psychoeducational assessment measures. Through psychoeducational assessment, psychologists can assist multidisciplinary evaluation teams in the identification of students with disabilities.

Best practices in the assessment of emotional/behavioral disorders (EBD) involve using multiple methods to obtain information about children’s behavior across multiple settings/situations and from multiple sources (Gresham, 1985;

McConaughy & Ritter, 2002). The assessment methods available to psychologists include systematic observations, interviews, and behavior rating scales.

McConaughy and Ritter opined that "as best practice for school-based assessment of ED/EBD, an omnibus standardized rating scale should be obtained from at least one parent and one teacher who know the child well" (p. 1310). Behavior rating scales are widely used by school psychologists in assessment practice (Shapiro & Heick, 2004), and many have adequate psychometric properties for screening purposes (Kamphaus & Frick, 1996; Merrell, 2003).

Behavior Rating Scales

Behavior rating scales typically present the rater with statements about a wide variety of behaviors. The rater then indicates how much each statement typifies the behavior they have observed in the child whom they are rating. Depending on the response format of the scale, raters may indicate to what extent the statement is true, the frequency with which the behavior is displayed, or the presence or absence of the behavior. The most common response format involves a three- to four-point Likert-type scale with descriptors for each point on the scale (e.g., *Never*, *Sometimes*, *Often*, and *Almost Always*). The most frequently used behavior rating scales in the school setting include Achenbach's Child Behavior Checklist (CBCL; Achenbach, 2001) and accompanying Teacher Report Form (TRF; Achenbach & Rescorla, 2001), the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1998), Conners' Rating Scales – Revised (Conners, 1997), and the Social Skills Rating System (SSRS; Gresham & Elliott, 1990).

Behavior rating scales offer advantages relative to interviewing and direct observational methods both in terms of efficiency and cost-effectiveness. A broader range of behaviors can be covered, including behaviors that are either rare or covert, and are thus less amenable to direct observation. In addition, rating scales use quantitative methods, allowing their psychometric properties, such as reliability and validity, to be assessed. Behaviors are typically clustered into scales and, when empirically-based, the scales represent groupings of behaviors, or syndromes, that commonly co-occur in normative samples (McConaughy & Ritter, 2002). Normative samples also allow for the comparison of the severity of problem behaviors to a standard. As McConaughy and Ritter noted, “sets of related rating scales can be used to compare similar data from multiple informants” (p. 1310); this is an advantage over scales that are completed by only one type of informant. Assessment results can also help to determine behavioral targets for change when designing interventions for students in need.

Behavior rating scales do have some limitations. For example, rating scales are not truly objective measures and to some extent reflect informants’ perceptions of problems, which can differ significantly across informants. As Edelbrock (1983) noted, informants “differ in terms of the nature and amount of their contact with the child, the settings and situations in which they observe and interact with the child, and in their perspectives, biases, and expectations regarding child behavior” (p. 296). Thus, it is recommended that behavior ratings be obtained from both parents and teachers to obtain a comprehensive picture of the child (Costenbader & Keller, 1990; McConaughy & Ritter, 2002).

Teachers as Informants

Teachers can be a valuable source of information about children's behavior. They observe students across many learning and social situations. They also have the advantage of a normative perspective. Working with many children of a particular age group, they can compare a child to his or her peers and identify abnormal behavior more easily. Teachers are able to observe children interacting in the context of their peers for extended periods of time. Teachers are also in a position to observe how children's behavior in the school environment may be impacting them educationally, which is taken into account in the identification of emotional disturbance under special education law.

Evidence suggests that mental health professionals view teachers as useful informants, particularly for hyperactive and inattentive behavior (Loeber, Green, & Lahey, 1990). Indeed, teacher ratings have been shown to predict observed externalizing behavior problems such as noncompliance and aggression (Hinshaw, Han, Erhardt, & Huber, 1992). In addition, there is evidence that teacher ratings can be predictive of later referral to mental health services and of children's own perceptions of their problems (Verhulst, Dekker, & van der Ende, 1997; Verhulst, Koot, & van der Ende, 1994).

Parents as Informants

Parents are a valuable source of information about their children. They have the advantage of a longitudinal perspective because they have known their child from birth, and have spent great amounts of time with their child. They also have observed their child in many different situations, including those not

observed in school (e.g., sleeping patterns) and may be in a position to observe more rare or severe behaviors, which children may not engage in while in school (e.g., firesetting). Like teachers, parents are generally more accurate reporters of children's hyperactivity and inattentiveness than children themselves (Loeber, Green, Lahey, & Stouthamer-Loeber, 1989). Parents are typically viewed as more accurate informants than teachers when it comes to internalizing problems (Loeber et al., 1990), and their ratings are predictive of observed internalizing behavior, such as isolation and withdrawal (Hinshaw et al., 1992).

In addition, IDEIA mandates that parents be involved in the decision-making process when identifying school-age children for special education and related services. Behavior rating scales are one way that information can be gathered from parents as part of this process.

Relationship Between Parent and Teacher Ratings

A problem arises when ratings on the behavior rating scale from one of the informants indicates no problem, while the ratings from another informant indicates significant problems. It has been suggested that in order to meet criteria for emotional disturbance, a child must exhibit behavioral difficulties across informants and situations (Gresham, 1985). Inconsistency among informants can lead to conflict between informants and, more importantly, may not identify children for further evaluation when consistency across informants is required (e.g., DSM-IV diagnosis of ADHD; APA, 1994; Wolraich et al., 2004). Low agreement between informants can also make it difficult to ascertain whether

children truly have psychological dysfunction or whether their behavior is more likely due to purely environmental factors.

Behavior that is consistent across settings (i.e., observable both at home and at school) may indicate increased severity or greater likelihood of pathology. Conversely, behavior that is only present in isolated contexts may be a factor of the environment rather than pathology in the child being assessed (Salvia & Ysseldyke, 2001). A child's behavior may also be specific to interactions with the particular observer (i.e., parent or teacher).

The relationship between parent and teacher ratings affects epidemiological estimates of behavior disorders in children. When parents and teachers report different behaviors, the result is variation in prevalence rates, depending on whether parent ratings, teacher ratings, or some combination of the two, are used in the assessment process (MacLeod, McNamee, Boyle, Offord, & Friedrich, 1999; Offord et al., 1996; Piacentini, Cohen, & Cohen, 1992; Wolraich et al., 2004). The risk factors associated with disorders (e.g., gender, family dysfunction) can also differ depending on whether parent ratings or teacher ratings are used (Offord et al.).

Parent-teacher agreement has been examined across two broad dimensions of child psychopathology: externalizing and internalizing behaviors. Externalizing behaviors, or acting-out behaviors, encompass not only ADHD-related behaviors such as hyperactivity, but also aggression, opposition, and conduct problems. These behaviors have also been termed overactive (McDermott, 1993, 1994) or undercontrolled (Achenbach et al., 1987). Internalizing behaviors are those that

are more inwardly directed, such as anxiety, depression, and related symptomatology (e.g., somatization). These behaviors have alternatively been called underactive (McDermott) or overcontrolled (Achenbach et al.). The relationship between parent and teacher ratings on these dimensions is typically reported in behavior rating scale technical manuals, in the form of correlations.

Agreement of Existing Rating Scales

Achenbach System of Empirically Based Assessment

The Achenbach System of Empirically Based Assessment (ASEBA) is a widely used, and widely researched, set of behavior rating scales. It includes a parent form, the Child Behavior Checklist (CBCL; Achenbach, 2001), as well as the Teacher Report Form (TRF; Achenbach & Rescorla, 2001). There are more than 6,000 published studies on the ASEBA, including 163 studies that examined cross-informant (e.g., parent and teacher) agreement (Achenbach, 2007). In the standardization sample for the 1991 revisions of the ASEBA forms, Achenbach (1991) found that the correlation between parent and teacher ratings was .31 for internalizing behaviors and .43 for externalizing behaviors. When examining the cross-informant agreement ($N = 1,126$) on the 2001 editions of the CBCL and TRF for the 97 problem items the two forms have in common, a correlation of .35 was found for the total problem scores, .21 for internalizing problems, and .36 for externalizing behaviors (Achenbach & Rescorla).

Behavior Assessment System for Children

The ASEBA is not alone among behavior rating scales in finding low to moderate correlations between parent and teacher ratings. The Behavior

Assessment System for Children (BASC; Reynolds & Kamphaus, 1998) also produced similar parent-teacher agreement. The BASC manual reported that among the norm sample for which both parent and teacher ratings were completed ($N = 1,423$), correlations were low to moderate and increased with age. At the preschool level (age 4-5), the median scale correlation was .24, with correlations of -.08 and .26 for the Internalizing and Externalizing Problems composites, respectively. At the child level (age 6-11), the median scale correlation was .37, with correlations of .23 and .51 for the Internalizing and Externalizing Problems composites, respectively. At the adolescent level (age 12-18), the median correlation was .35, with correlations of .32 and .51 for the Internalizing and Externalizing Problems composites, respectively. The Internalizing Problems composite consists of three BASC subscales, Anxiety, Depression, and Somatization, while the Externalizing Problems composite consists of the Hyperactivity, Aggression, and Conduct Problems subscales, based on empirical analysis of the BASC items. Reynolds and Kamphaus (1998) noted that across the three age groups, greater agreement was found for externalizing behaviors than for internalizing behaviors, which they suggested is due to the greater ease with which disruptive behaviors can be observed by others.

Social Skills Rating System

The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) is also widely employed and, in addition to measuring social skills, includes a Problem Behavior scale composed of Internalizing, Externalizing, and Hyperactivity subscales. At the elementary level (Grades 1-6), the SSRS manual reported

correlations for a subsample ($N = 673$) of the standardization sample for whom both parent and teacher ratings were completed. The Problem Behaviors Total Scale correlation was .36, while both the Internalizing and Externalizing scales' correlation was .27, and the Hyperactivity correlation was .41. At the secondary level (grades 7-12), for a subsample ($N = 160$), the Problem Behaviors Total Scale correlation was .21, the Internalizing correlation was .10, and the Externalizing correlation was .22 (no Hyperactivity scale is interpreted at this level).

Conners' Rating Scales – Revised

The Conners' Rating Scales – Revised (Conners, 1997) has been widely used in the screening and assessment of Attention-Deficit Hyperactivity Disorder (ADHD) and related behaviors. Correlations between the parent and teacher forms were reported for six factor-derived subscales that appear on both forms: Oppositional, Cognitive Problems, Hyperactivity, Anxious-Shy, Perfectionism, and Social Problems. The manual reports that in the standardization sample, correlations between these scales on the Parent Rating Scale-Revised: Long version (CPRS-R:L) and the Teacher Rating Scale – Revised: Long version (CTRS-R:L) ranged from .12 to .47 for males ($N = 501$) and .21 to .55 for females ($N = 523$). Correlations between ratings on the DSM-IV Symptoms subscales and the Conners' Global Index were .28 to .50 for males and .16 to .47 for females. For the short versions of the scales, which have 3 factor-derived subscales in common (Oppositional, Cognitive Problems, and Hyperactivity), correlations ranged from .33 to .47 for males and .18 to .52 for females. The ADHD Index correlated at .49 for both males and females on both the long and short version of

the Conners' Revised scales. Thus, across several commonly used behavior rating scales, correlations between parent and teacher ratings in the normative samples are consistently in the low to moderate range.

Meta-analysis of Behavior Rating Agreement

To further quantify parent-teacher agreement, Achenbach et al. (1987) conducted a meta-analysis that included studies using a variety of different behavior rating scales. In 41 samples comparing parent and teacher ratings, the average correlation was .27. In the 20 samples that included a comparison of undercontrolled (i.e., externalizing) and overcontrolled (i.e., internalizing) behavior ratings, the average correlations were .32 and .21, respectively. The findings of this meta-analysis (i.e., low to moderate correlations between parent and teacher ratings) have been replicated in research conducted since then, and have been described as “one of the most robust findings in clinical child research” (De Los Reyes & Kazdin, 2005, p. 483).

The low to moderate correlations between parent and teacher ratings are in contrast to the stronger correlations between raters of the same type. Achenbach et al.'s (1987) meta-analysis found that in 31 samples, the average correlation between two parents' (i.e., mothers' and fathers') ratings was 0.59. Similarly, Achenbach et al. found that pairs of teachers, pairs of mental health workers, and pairs of observers produced ratings with an average correlation of 0.60.

Differences in Levels of Behavior Reported by Parents and Teachers

There are some patterns that have emerged in the level of parent and teacher ratings of behavior relative to one another. Parents tend to report more

behaviors overall, with teachers generally reporting lower levels of both externalizing and internalizing behaviors. For example, parents have given higher ratings for ADHD and Oppositional Defiant Disorder (ODD) symptoms (Antrop, Roeyers, Oosterlaan, & Van Oost, 2002). Parents reported both more internalizing and externalizing behaviors than teachers on the ASEBA 1991 measures (Stanger & Lewis, 1993). Some evidence suggests that this may be mediated by the child's diagnosis. For example, Lee, Elliott, and Barbour (1994) found that parents reported more externalizing behaviors than teachers on ASEBA 1991 measures; however, the differences were only significant for the subgroup of students with diagnosed behavioral disorders, and were nonsignificant for students with learning disabilities or no diagnosis.

The findings that parents report higher levels of problem behavior are not universal. For example, when required to report behaviors in the school environment, parents reported lower behavior scores on measures of hyperactivity and difficulties with school than did teachers (Sayal & Taylor, 2005). This may be because they have less opportunity to observe their child in the school setting. Parents have also reported lower rates of inattention than teachers (Wolraich et al., 2004), which may reflect different behavioral expectations or fewer situations in which sustained attention is required in the parents' presence.

Internalizing Versus Externalizing Behaviors

In general, parent and teacher ratings correlate more highly for externalizing behaviors than for internalizing behaviors (Achenbach, 1991; Achenbach et al., 1987; Achenbach & Rescorla, 2001; Costenbader & Keller,

1990; Gagnon, Vitaro, & Tremblay, 1992; Gresham & Elliott, 1990; Hinshaw et al., 1992; Kolko & Kazdin, 1993; Lee et al., 1994; Reynolds & Kamphaus, 1998; Stanger & Lewis, 1993). This has been attributed to the more overt and disruptive nature of externalizing behaviors. Internalizing behaviors tend to be more covert or require inferences to be made about the observed child's feelings. This is particularly reflected in the ambiguous language that tends to be used in rating scales to create items purported to measure depression and anxiety (e.g., *Fearful, anxious; Sad; Seems lonely*).

Some studies report somewhat higher correlations between parent and teacher ratings. These were only found for specific behavior items (e.g., suicidal ideation, school suspensions, arguments with teachers), and low to moderate correlations still occurred at the scale level (see De Los Reyes & Kazdin, 2005, for a review). In only one study that compared internalizing and externalizing behaviors at the scale level did the pattern of greater agreement for externalizing behaviors not emerge. Epkins (1996) used equivalent item content across forms for a sample ($N = 135$) of elementary age children, and found that parent and teacher ratings were more highly correlated for depression ($r = .42$) and as highly correlated for anxiety ($r = .36$) than for externalizing aggressive behavior ($r = .36$). The somewhat higher correlations for the internalizing behaviors (depression, anxiety) in this study is likely due to the common item content across rating forms (Achenbach, 1991). Internal consistency was reported as being acceptable for the teacher rating form, and alpha coefficients ranged from .88 to .94 for the parent forms. However, the scales, which were drawn from existing

child self-report scales, had not been evaluated for their use with parents and teachers (e.g., construct validity, test-retest reliability). Moreover, these results have not been replicated in other samples, and so may be a unique characteristic of sampling in this study.

Overall, for both internalizing and externalizing problems, low to moderate correlations exist between parent and teacher ratings. This finding has been consistent in normative samples for several widely used behavior rating scales. It is necessary to consider the possible reasons for these modest correlations.

Contributing Factors in the Modest Correlations Between Parent and Teacher Ratings

There are four factors that may contribute to the low to moderate correlations between parent and teacher ratings. These include characteristics of the informants providing ratings, characteristics of the children being rated, characteristics of behavior rating scales, and situational specificity of behavior.

Informant Characteristics

Rating scales are not completely objective because to some extent they reflect the informant's perceptions of the child's behavior. An informant's perceptions may be influenced by their memory for the behaviors they are being asked to report, their expectations and tolerance for behavior, and what behavior they feel needs to be changed (Konold, Walthall, & Pianta, 2004). Informant ratings may also reflect the informant's mental state at the time of the rating.

Informant ratings, particularly those of mothers, may be distorted if the informant is depressed (De Los Reyes & Kazdin, 2005). The depression-distortion hypothesis has been supported in studies finding that mothers who are depressed tend to rate children's problem behaviors more severely than non-depressed mothers. These severe ratings, when compared to the ratings of others, appear to result in lower correlations with the ratings of others, particularly teachers (see De Los Reyes & Kazdin for a review). There also appears to be lower informant agreement with higher levels of anxiety or stress reported by the parent, typically the mother (Briggs-Gowan, Carter, & Schwab-Stone, 1996; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). Although there is broad support for the impact of these characteristics on informant agreement, in general the results of research on informant characteristics have been inconsistent, and there is little research on how particular characteristics of fathers or teachers may impact their ratings. Additionally, the impact of informant characteristics may be moderated by characteristics of the children being rated.

Child Characteristics

Age

Achenbach et al.'s (1987) meta-analysis revealed significant differences in informant agreement according to the age of the child being rated. There was greater agreement for children aged 6-11 years than for adolescents aged 12-19 years; however, only one study in this comparison included parents and teachers among the pairs of raters. The effect of age on parent-teacher agreement has been inconsistent. While one study found parent-teacher agreement increased from

kindergarten to second grade (Fisher & Fagot, 1996), another study found agreement decreased over this same period (Vitaro, Gagnon, & Tremblay, 1991). Other studies have found that parent-teacher agreement tends to increase across the elementary and middle school grades (Touliatos & Lindholm, 1981; Verhulst & Akkerhuis, 1989). Still other studies have found no significant differences in parent and teacher rating agreement based on child age (Jensen, Xenakis, Davis, & Degroot, 1988; Kolko & Kazdin, 1993). Differences in the sample characteristics of studies (i.e., different age ranges, sample size) may be responsible for differences in findings on the influence of age on informant agreement (De Los Reyes & Kazdin, 2005).

Gender

The effects of child gender on informant agreement has been examined. Achenbach et al. (1987) did not find significant gender differences in their meta-analysis of informant agreement, although only 5 of 52 samples in this comparison included parent and teacher ratings. Other studies have also failed to find gender differences in the agreement between parent and teacher ratings (Kolko & Kazdin, 1993; Verhulst & Akkerhuis, 1989). In contrast, Touliatos and Lindholm (1981) found that correlations between parent and teacher ratings were significantly higher for boys than for girls on measures of conduct problems and socialized delinquency. Kumpulainen et al. (1999) found greater agreement for boys on total problem scores for their overall sample; however, agreement was greater for girls than for boys among those rated in the deviant range (defined as >90th percentile of the distribution of symptom scores). This suggests that the

impact of gender may depend upon problem type and severity. While most studies find little impact of gender on parent-teacher agreement, findings are not consistent across the literature (De Los Reyes & Kazdin, 2005).

Ethnicity

In their review of the literature on informant agreement, De Los Reyes and Kazdin (2005) noted that while few studies have examined ethnicity/race, of those that have, most have found agreement to be lower for ratings of African-American children than for ratings of white children. Wolraich et al. (2004) found mixed effects of child race on parent-teacher agreement in ADHD ratings. There were no significant differences for Inattentive and Hyperactive/Impulsive ADHD symptoms; however, discrepancies were greater for African-American children than white children for Combined ADHD. These mixed findings may reflect the restriction of range in scores resulting from the fewer symptoms composing the individual subtypes of ADHD versus the Combined type.

Clinical Status and Problem Severity

In Achenbach et al.'s (1987) meta-analysis of informant agreement, although the average correlation for clinical samples ($r = .46$) was greater than the average correlation for nonclinical samples ($r = .40$), this difference was nonsignificant (with 8 of 31 samples comparing parent and teacher ratings). When examining parent and teacher ratings, Kolko and Kazdin (1993) found that correlations were higher for nonpatients than patients; however, the differences were not significant.

Diagnostic categories may also impact parent-teacher rating agreement. Lee et al. (1994) found greater agreement among parent and teacher ratings for children with no diagnosis than for children with diagnosed behavior disorders or learning disabilities. Studies have also reported somewhat greater agreement when fewer behavior problems exist (Victor, Halverson, & Wampler, 1988) or when a child's strengths rather than problem behaviors are being assessed (Friedman, Leone, & Friedman, 1999). However, correlations between parent and teacher ratings remained moderate in size.

Rating Scale Characteristics

There may be a number of characteristics common to most behavior rating scales that predispose them to produce modest correlations between parent and teacher ratings.

Ambiguous Language

Many behavior rating scales include statements about indistinct behaviors (e.g., *Seems lonely* or *Is disruptive*). These general statements lead to ambiguity with regard to the behavior being described, and may be interpreted differently by different informants (Kline, 2000; Schwarz, 1999). As Podsakoff, Mackenzie, Lee, and Podsakoff (2003) stated, ambiguous items "often require respondents to develop their own idiosyncratic meanings for them" (p. 883).

Kline (2000) and Podsakoff et al. (2003) noted that ambiguous items can lead to response sets by raters, such as acquiescence; that is, a tendency to agree (or disagree) with the item statement regardless of content. Other response sets that reflect rater effects include central tendency and leniency biases, which can

increase when items are ambiguous (Podsakoff et al.). Therefore, it is recommended that items describe specific rather than general behaviors.

Inferences

Some rating scale items also require the informant to make inferences about the child's motivations or feelings, rather than describing observable behaviors. Hoyt and Kerns (1999) noted that observable behaviors “are likely to be conducive to strongly shared meaning systems, whereas those that require rater inferences (e.g., global trait ratings) may be associated with substantial divergence in meaning systems” (p. 406). This was supported by Hoyt and Kerns’ findings that when ratings were tied to observable behaviors, the impact of rater bias was greatly reduced when compared with those requiring inferences to be made. This is likely why lower agreement is generally found for internalizing behaviors; they are often described in less observable terms than externalizing behaviors.

Response Format

Another possible impediment to parent-teacher agreement is the response scale used by many behavior rating scales that require the respondent to rate the frequency or severity of behavior. Because parents and teachers may have different definitions of the frequency that connotes such categories as *sometimes*, *often*, or *pretty much* (Hopkins, 1998; Kline, 2000; Reid & Maag, 1994) and because of the inferences required by multiple response points (Clark & Watson, 1995; DeVellis, 2003; Merrell, 2000, 2003), lower agreement may be found even

if the same frequency of behavior is observed by parents and teachers (Burns et al., 2000).

Ross and Ross (1982) found that even among mothers, the numerical frequency values of behaviors assigned to response categories varied widely. They asked a group of mothers ($N = 40$) to indicate what numerical frequency of a behavior would cause them to rate their child in one of four response categories (*Not at all*, *Just a little*, *Pretty much*, and *Very much*) on three items drawn from the Conners' Parent Questionnaire. Even for the *Not at all* category, frequencies ranged from 0-15 occurrences of the behavior, while the other categories showed much greater variability: *Just a little* ranged from 1-120, *Pretty much* ranged from 2-200, and *Very much* ranged from 5-300. The frequencies assigned to the categories varied not only among the respondents, but also among the different items being rated. This is consistent with Burns and his colleagues' (2000) and Schwarz's (1999) contention that the actual frequency connoted by different response categories is domain-specific.

The frequency of behavior reported by respondents can also be impacted by the relative scale used for response categories. Schwarz (1999) noted that respondents tend to view middle values on a response scale as an average frequency of behavior, and use this as a frame of reference when making ratings. Schwarz found that when the response scale was varied from low-frequency alternatives (e.g., *Never* to *More than twice a month*) to high-frequency alternatives (e.g., *Twice a month or less* to *Several times a day*), respondents tended to report higher average frequencies of behavior on the high-frequency

scales. The less well-defined the behavior, the greater impact the response categories had on the frequency reported, indicating the importance of avoiding ambiguous items.

Gagnon et al. (1992) found that when response options were collapsed such that only the presence or absence of behaviors were coded (i.e., dichotomously), parent and teacher ratings showed a similar ranking order of prevalence of externalizing behaviors (Spearman's $Rho = .77-.81$). Rankings of the prevalence of internalizing behaviors were lower ($Rho = .26-.43$), which may be due to their less observable nature.

The response format may also lend itself to response sets by informants, such as a tendency to choose extreme points on the rating scale or conversely, a tendency to avoid extremes and choose only middle response categories (Anastasi & Urbina, 1997; Kline, 2000). A dichotomous response format, on the other hand, avoids these response sets, is easy to understand, and is more efficient (Kline, 2000; Reise, Waller, & Comrey, 2000).

Situational Specificity

While some explanations of differences across parent and teacher ratings implicate informant characteristics or method effects due to rating scale characteristics, many researchers identify situational specificity (Achenbach et al., 1987; DuPaul & Barkley, 1992; Hoffenaar & Hoeksma, 2002; Matthys, Maassen, Cuperus, & von Engeland, 2001; McDermott, Steinberg, & Angelo, 2005; Youngstrom et al., 2000) as the primary reason. Situational specificity refers to the belief that children's behavior may be truly different depending on the

situation within which it is expressed. In other words, discrepancies in ratings across informants reflect real differences in children's behavior across different situations or contexts.

One form of evidence supporting the situational specificity explanation is the greater agreement among raters who observe the child in similar contexts. For example, Achenbach et al.'s (1987) meta-analysis, while finding an average correlation of only .27 between parents and teachers, found an average correlation of .60 between pairs of raters who observe the child in similar, but not identical, contexts (e.g., mother-father or teacher-teacher pairs). This finding has been replicated in a meta-analysis of the relationship between mothers' and fathers' ratings (Duhig, Renk, Epstein, & Phares, 2000). When ratings are made by informants in identical environments (e.g., teacher pairs in the same classroom), there is even higher agreement than among informants in merely similar environments, such as different classrooms (Schaefer, Watkins, & Canivez, 2000).

Also supporting the situational specificity hypothesis are differences in ratings within the same informant when rating behaviors occurring across different situations. Matthys et al. (2001) found that situation-specific factors accounted for a significant amount of variance in teachers' problem behavior ratings above and beyond a general problem behavior factor. McDermott et al. (2005) found that situational factors (Peer Contexts, Academic Contexts, and Teacher Contexts) accounted for a significant portion of the variance in teachers' ratings of children's problem behaviors, identified increased risk for emotional

disturbance and learning disabilities, and increased the classification accuracy of ratings when combined with phenotypic dimensions (i.e., Impulsive Aggression, Oppositional Defiance, and Diffidence).

Evidence suggests that even children themselves endorse different levels of problem behavior depending on the situation. Hoffenaar and Hoeksma (2002) examined child self-reports of oppositional behavior across situations involving interactions with parents, authority figures, and peers. Correlations between situational factors were moderate, indicating only a moderate amount of consistency in the children's oppositional behavior across situations. The three situational factors together accounted for a substantial portion of the variance in oppositional behavior.

The importance of identifying behavior within the context of the situation is apparent. Barkley and Edelbrock (1987) noted that situational differences play an important role in the functional analysis of behavior and provide a means for targeting specific situations for intervention. They further suggested that "Assessment of the situational specificity of a child's problem behaviors can also be useful when selecting treatment approaches and when prioritizing treatment goals" (p. 172).

In summary, parent and teacher behavioral ratings only correlate at around .27 on average, with a mean correlation of .21 for overcontrolled (underactive) behaviors and .32 for undercontrolled (overactive) behaviors (Achenbach et al., 1987). This small to moderate correlation may be due to typical behavior rating scales' use of vague descriptors, reliance on inferences about children's internal

thoughts, estimation of the frequency or severity of behavior, or a lack of context for behaviors. If these problems with rating scales are addressed, it may lead to higher correlations between parent and teacher ratings, and concomitant improvements in diagnostic accuracy.

Adjustment Scales for Children and Adolescents

One scale does address these common flaws of rating scales. The Adjustment Scales for Children and Adolescents (ASCA; McDermott, Marston, & Stott, 1993) is a behavior rating scale for teacher informants whose format avoids the type of content and response format described above. Behavioral descriptions are written in clear, observable terms to reduce the amount of inference required by teacher informants. In addition, rather than requiring teachers to estimate the frequency or intensity of behavioral symptoms, they simply indicate the presence or absence of a variety of behaviors within specific situations. Severity of psychopathology is then inferred from the pervasiveness of problem behaviors across different situations (McDermott, 1994).

The ASCA was standardized on a large ($N = 1,400$), nationally representative norm sample and contains 97 descriptions of problem behaviors presented in the context of 29 different situations. Considerable evidence for the reliability (internal consistency, interrater reliability, test-retest reliability) of ASCA scores has been found, both through standardization and independent samples (Canivez, 2004; Canivez, Perry, & Weller, 2001; Canivez & Watkins, 2002; Canivez, Watkins, & Schaefer, 2002; McDermott, 1993, 1994; Watkins & Canivez, 1997). Strong evidence for the validity of ASCA scores has also been

found, including factorial validity (Canivez, 2004, 2006; Canivez & Bohan, 2006; McDermott, 1993, 1994), convergent and divergent validity (Canivez & Bordenkircher, 2002; Canivez & Rains, 2002; McDermott 1993, 1994; McDermott & Schaefer, 1996; McDermott & Spencer, 1997), and diagnostic accuracy (McDermott et al., 1995).

Based on factorial validity studies (McDermott, 1993, 1994), the ASCA yields six core syndrome scales: Attention-Deficit Hyperactivity, Oppositional Defiant, Solitary Aggressive-Provocative, Solitary Aggressive-Impulsive, Diffident, and Avoidant. Also based on empirical evidence, the ASCA yields two global scales, labeled Overactivity (sum of the Attention-Deficit Hyperactive, Oppositional Defiant, Solitary Aggressive-Impulsive, and Solitary Aggressive-Provocative syndromes) and Underactivity (sum of Diffident and Avoidant syndromes). These global scales have been compared to the externalizing and internalizing dimensions of behavior found in child psychopathology literature (McDermott).

One of the few drawbacks of the ASCA described in an independent review by Schowengerdt (2001) was that it was a teacher-report scale only and did not have corresponding forms to obtain ratings from multiple informants (e.g., parents). Since that time, a parent form of the ASCA has been in development.

Adjustment Scales for Children and Adolescents – Home (ASCA-H)

The ASCA-H (Watkins & McDermott, 2002) is a parent-report rating scale that is presently in development and is designed to be a companion form to the ASCA. Like the ASCA, the ASCA-H employs behavioral descriptions and a

simple present versus absent response format. The ASCA-H consists of items similar in content to those of the ASCA, with situations described in terms that apply to parents. Because the ASCA and ASCA-H assess similar situations across parents and teachers, they better take into account situational specificity than traditional rating scales, and may therefore lead to greater agreement about the existence of problem behaviors.

Preliminary research has been conducted on the psychometric properties of the ASCA-H. Coffey (2006) examined the structural validity of the ASCA-H scores in a sample of parents of 426 students age 5 to 14 enrolled in elementary and middle schools from a large suburban mid-Atlantic school district. Exploratory factor analysis indicated that a four-factor model best represented the data. Based on their item content and similarity to ASCA factors, the ASCA-H factors were labeled Aggressive-Oppositional, Attention-Seeking-Impulsive, Detached, and Diffident. Higher-order factor analysis indicated two overarching dimensions, similar to the Overactivity and Underactivity global scales of the ASCA.

Purpose of the Present Study

There have been no studies on the relationship of scores produced by the teacher version of the ASCA and scores produced by the parent version (ASCA-H). The present study seeks to examine this relationship through the use of a paired sample of teachers and parents completing the respective forms of the ASCA for the same child.

Hypotheses

It was hypothesized that ASCA's and ASCA-H's use of contextually-specific, behavioral terms, and dichotomous item ratings would result in parent-teacher rating correlations greater than those found using more traditional behavior rating scales. It was hypothesized, therefore, that the correlations would be significantly greater than those reported in the meta-analysis by Achenbach et al. (1987), whose findings have been robust (De Los Reyes & Kazdin, 2005). That is, it was hypothesized that correlations would be $>.21$ for underactive (internalizing) behaviors and $>.32$ for overactive (externalizing) behaviors.

CHAPTER 2 - METHOD

Setting

The school district from which the present sample was drawn is a moderately sized district (enrollment approximately 7,200 for the 2006-2007 school year) located in the mid-Atlantic United States, encompassing a 150 square-mile attendance area. The district's community population is approximately 79,600 (based on 2000 Census), with 87% residing in urbanized areas and 13% in rural areas (NCES, n.d.). The population's median income in 1999 was \$34,864 with 24.1% having incomes below the poverty level (NCES). Low-income families constitute 14.6% of the district enrollment, defined as qualifying for reduced-cost or free lunch.

In the district, enrollment in kindergarten through eighth grade accounts for approximately 4,500 students across 10 elementary schools (grades K-5) and 2 middle schools (grades 6-8). Students are 51% male and 49% female. The reported ethnicity of students in grades K to 8 in the district is 88.2% White, 6.2% Asian, 2.6% Hispanic, 2.6% Black, and 0.4% Native American. Students who receive special education services represent 12.8% of the K through 8 population, with students categorized under Emotional Disturbance representing 0.7% of the total K through 8 student population, and 5.3% of the population of students receiving special education services at these grade levels.

The district's academic achievement report for the 2005-2006 school year indicated that the percentages of students scoring proficient or advanced on the state academic assessments in reading, math, and writing were above the state

average in all areas and at all grade levels. For reading, the percentage of students who were proficient or advanced in grades 3 through 8 ranged from 76% to 89%. For math, the percentage of students scoring proficient or advanced in grades 3 through 8 ranged from 77% to 93%. For writing, 67% of students in grade 5 and 81% in grade 8 scored proficient or advanced. All schools in the district met Adequate Yearly Progress as described by No Child Left Behind (NCLB) for the 2005-2006 school year.

There are a total of 326 teachers in the district serving grades K through 8. At the elementary level (grades K-5), there are 196 teachers, and at the middle school level (grades 6-8), there are 130 teachers. Of the 326 teachers for grades K to 8, 79.1% are female, 20.9% male; 99.4% are White, 0.6% are African-American. The number of years of teaching experience ranges from 0 to 37 years, averaging 14.7 years. The average student to classroom teacher ratio is 23:1 at the elementary level and 24:1 at the secondary level.

Participants

Meta-analysis Sample

Achenbach et al.'s (1987) meta-analysis of studies comparing parent and teacher ratings of internalizing and externalizing behaviors consisted of 20 samples across 12 studies, for a total of 7,231 children rated. Among the children rated, 91.5% ($n = 6,617$) were from nonclinic settings (i.e., general population, regular classes, no counseling condition) and 8.5% ($n = 614$) were drawn from clinic settings (i.e., outpatient, counseling condition). Over 95% of the sample was within the K-8 grade or age range; the remaining subsample ($n = 350$) ranged

from age 3-17 ($M = 9.9$), but the study (Goyette, Conners, & Ulrich, 1978) did not report the breakdown of the sample by age, nor the standard deviation of age.

Information about the proportions of males versus females in the meta-analytic sample was not reported; however, Achenbach et al. noted that correlations between informants were not significantly different for boys versus girls.

The studies that were included in the meta-analysis did not provide any information about teacher characteristics (e.g., gender, age, years of teaching experience). In general, teachers were merely described as the children's "classroom teachers." In six of the studies, ratings were obtained from both mothers and fathers. When ratings were obtained from only one parent, it was predominantly the mother. Some studies provided information about the characteristics of parent respondents in the form of socioeconomic status and the settings from which the samples were drawn.

The majority of samples in the meta-analysis were drawn from the United States. One large sample was drawn from New Zealand ($n = 926$). This sample was from a comparable setting to the present sample, with similar proportions of the populations in rural versus urban settings. The New Zealand sample reported overrepresentation in the higher socioeconomic levels. The remainder of the samples described predominantly White, middle-class participants. Average parent education was reported as the equivalent of four years of college for fathers and some college for mothers in two samples ($n = 53$, $n = 71$), while another study reported 20-30% of parents having completed college ($n = 570$).

Present Sample

To approximate the student demographics of the samples included in Achenbach et al.'s (1987) meta-analysis, in which more than 95% of the sample was in the range of kindergarten through eighth grade, parents and teachers of students in these grades were selected to participate in the present study.

Students

The present sample consisted of 374 students in kindergarten through eighth grade, with parent and teacher ratings obtained for each. The sample was 51.1% female ($n = 191$) and 48.9% male ($n = 183$). The students ranged in age from 5 to 14 years old, with an average age of 8.7 years ($SD = 2.3$). The composition of the sample by age is reported in Table 1. Students were enrolled in kindergarten through eighth grade, with the modal grade being third grade ($n = 64$). The proportions of students in each grade, by gender, are reported in Table 2.

Student ethnicity in the present sample was predominantly White (81.3%) and slightly lower than the proportion of White students in the district. The other percentages of ethnic groups in the sample were comparable to the district population (see Table 3).

In the present sample, 49 students were reported by their parents as receiving special education services, or 13.3% of students for whom this information was reported ($N = 368$). This is comparable to the district-wide special education enrollment in grades K through 8, which is 12.8%. It is somewhat higher than the 8.5% percent of students in Achenbach et al.'s (1987) meta-analysis sample who were reported as being in clinical conditions (e.g.,

receiving outpatient services or in a counseling condition). However, special education status was not reported in the meta-analysis sample, and may not be equivalent to those students receiving clinical services. The effect of clinical status may be negligible, as Achenbach et al. and others (e.g., Kolko & Kazdin, 1993) have reported nonsignificant differences in the correlations for clinical and nonclinical samples. Thus, the results of correlations in the present sample should generalize to both clinical and nonclinical populations.

Table 1

Distribution of Students by Age

Age in Years	<i>n</i>	Percent of <i>N</i>
5	29	7.8
6	40	10.7
7	52	13.9
8	68	18.2
9	49	13.1
10	54	14.4
11	23	6.1
12	32	8.6
13	25	6.7
14	2	0.5

Note. *N* = 373.

Table 2

Distribution of Students by Grade and Gender

Grade	Male	Female	Grade Level Total	Percent of <i>N</i>
Kindergarten	20	22	42	11.2
Grade 1	19	27	46	12.3
Grade 2	28	26	54	14.4
Grade 3	34	30	64	17.1
Grade 4	24	31	55	14.7
Grade 5	24	23	47	12.6
Grade 6	9	10	19	5.1
Grade 7	19	16	35	9.4
Grade 8	6	6	12	3.2

Table 3

Ethnicity of Students in Sample and District

Ethnicity	<i>n</i> in Sample	Percent in Sample	Percent in District
White	304	81.3	88.2
Black	8	2.1	2.6
Asian	21	5.6	6.2
Hispanic	10	2.7	2.6
Native American	3	0.8	0.4
Other	19	5.1	
No ethnicity reported	9	2.4	

Parents

For the 374 students selected for the sample, 83.4% ($n = 312$) of the parent forms were completed by the mother of the student, 15.5% ($n = 58$) were completed by the father of the student, and 1.1% ($n = 4$) were completed by other family members (e.g., grandparent, uncle, step-parent). The modal level of education for both mothers (or female guardians) and fathers (or male guardians) was completion of a bachelor's degree. The distribution of parent education in the sample is reported in Table 4.

Table 4

Parent Highest Level of Education Attained

Level of Education	<i>n</i> Mother	<i>n</i> Father	Total <i>n</i> at Education Level	Percent of <i>N</i>
Less than High School	3	4	7	0.9
High School	21	25	46	6.2
Some College	26	13	39	5.2
Associate's/ Technical Degree	20	13	33	4.4
Four-Year College	163	124	287	38.4
Master's Degree	89	78	167	22.3
Post-Graduate Professional Degree	41	97	138	18.5
Not reported	11	20	31	4.1

Note. $N = 748$.

Teachers

The teacher ratings were provided by 63 teachers, 52 from elementary schools (grades K-5) and 11 from middle schools (grades 6-8). Participating teachers were 90.5% female and 9.5% male. The sample of participating teachers was composed of proportionately more female teachers than the district population of teachers for grades K-8, which is 79.1% female and 20.9% male. The average age of teachers, for whom it was reported ($n = 61$), was 39.7 years old ($SD = 11.9$), with a range from 22 to 61 years old. Teaching experience ranged from 1 to 39 years, with an average of 14.1 years ($SD = 10.2$). This is comparable to the teaching experience of teachers in the district, which averages 14.7 years. However, nearly one-fourth of the teachers in the sample had less than 5 years of teaching experience. The distribution of teaching experience is displayed in Table 5. The educational level of teachers consisted of a master's degree in education for 44.4% and a bachelor's degree for the remaining 55.6% of the sample, with many teachers reporting additional college credits as continuing education.

Table 5

Teaching Experience of Teacher Sample

Years Teaching Experience	<i>n</i>	Percent
1-4	15	23.8
5-9	10	15.9
10-14	10	15.9
15-19	10	15.9
20-24	7	11.1
25-29	5	7.9
30+	6	9.5

Instruments

Adjustment Scales for Children and Adolescents (ASCA)

The ASCA (McDermott et al., 1993) was standardized on a nationally representative sample of 1,400 students aged 5-17, spanning kindergarten through grade 12 (McDermott, 1993, 1994). The sample was stratified based on the 1988-1990 U. S. Census and U.S. Department of Education special education registry for age, gender, race/ethnicity, parent education, family structure, national region, community size, and handicapping condition. The ASCA normative sample addressed the limitations of previous behavior rating scale normative samples that had been limited in geographical representativeness and were not drawn from the general population (McDermott, 1994).

The ASCA consists of 97 problem behavior descriptions and 26 positive behavior descriptions presented within the context of 29 specific situations

common to the school environment. The behavioral descriptions were developed from similar item content on the British and Canadian Bristol Social Adjustment Guides (Stott, 1966; Stott, Marston, & Neill, 1975), and the Learning Behaviors Scale and Study of Children's Learning Behaviors (Stott, McDermott, Green, & Francis, 1988). The behavior descriptions utilized in the ASCA items were drawn from the language of teachers, as determined through interviews conducted by the ASCA's authors. The wording was designed to reduce clinical jargon to eliminate teachers' need to make inferences regarding meaning (McDermott, 1994).

Situations presented on the ASCA include interactions with teachers, peers, smaller/weaker children, recreation, learning, and confrontation. Each situation lists three to eight behavioral descriptions and the rater can mark as many or as few as apply to the student being rated. The scored behaviors are marked either as present (score of 1) or absent (score of 0), leading to 97 dichotomous items. The 26 positive behaviors, although not scored, were included given the preference teachers indicated for being able to acknowledge healthy behavior when rating children (McDermott, 1994). Teachers are asked to report on children's behavior over the past month or two, and the manual recommends a minimum of 40 to 50 school days of observation before the ASCA is completed (McDermott).

Principle factor analysis of the ASCA items among the standardization sample supported six core syndrome scales: Attention-Deficit Hyperactivity, Oppositional Defiant, Solitary Aggressive-Provocative, Solitary Aggressive-Impulsive, Diffident, and Avoidant. This factor structure was found to be

consistent across demographic categories, including age, gender, and race/ethnicity (McDermott, 1993, 1994). Two additional factors, Lethargic and Delinquent, were only applicable to certain age and gender subgroups, and are thus termed supplementary syndromes. The core syndrome factor structure was confirmed in another sample ($N = 1,034$) not included in standardization (McDermott, 1994), and was also replicated in an independent sample (Canivez, 2004).

Second-order principal factor analysis found two general factors that explained 40% of the common variance in the core syndromes (McDermott, 1993, 1994). The second-order factors were labeled Overactivity (consisting of the Attention-Deficit Hyperactive, Oppositional Defiant, Solitary Aggressive-Impulsive, and Solitary Aggressive-Provocative syndromes) and Underactivity (consisting of the Diffident and Avoidant syndromes). This second-order factor structure of the core syndromes was replicated in independent samples (Canivez, 2004, 2006; Canivez & Bohan, 2006). These global adjustment scales were found to be relatively independent of one another ($r = .08$ for raw scores, $r = .04$ for T scores; Canivez, 2004), and reflective of low to moderate intercorrelations ($-.10$ to $.60$; $Mdn = .20$) between the core syndromes (McDermott, 1993, 1994; Canivez, 2004). The Overactivity and Underactivity scales have been described as similar to the externalizing and internalizing dimensions common in the behavioral literature (McDermott, 1993, 1994; Canivez, 2004; Canivez et al., 2001).

Raw scores on the ASCA are transformed to T scores through area conversion so that scores can be more easily compared across the syndromes and

scales. The ASCA manual suggests that *T* scores less than 60 (below 85th percentile) be interpreted as *Adjusted*, scores between 60-66 (85th-94th percentile) as *At-Risk*, and scores ≥ 67 (95th percentile and above) as *Maladjusted* (McDermott, 1994). Two additional approaches to interpretation are also described in the manual. The Syndromic Profile interpretation compares an individual's scores to one of the 22 profiles of core syndrome scores identified through cluster analysis in the standardization sample. The Discriminant Classification interpretation is based on the classification accuracy of the ASCA's core syndromes. Following the procedures in the manual, "the core syndromes are applied in discriminant function equations to classify a youth as more closely resembling the population of socially/emotionally normal or disturbed youngsters" (McDermott, p. 29). Both linear and quadratic approaches to discriminant analysis are provided in the manual.

Reliability estimates of ASCA scores were reported in the manual. Within the standardization sample, internal consistency reliability as measured by alpha coefficients for the core syndromes ranged from .70 to .86 (*Mdn* = .79) and were .92 and .82 for the Overactivity and Underactivity scales, respectively (McDermott, 1994). Internal consistency estimates were similar in an independent sample (.66 to .88 for the core syndromes; .92 and .81 for the Overactivity and Underactivity scales, respectively; Canivez, 2004).

Test-retest reliability of the core syndromes was reported in the manual for a subsample ($N = 40$) of adolescent females over a 30-day period. All reliability coefficients were significant, ranging from .66 to .91 (*Mdn* = .75), and test and

retest means did not differ significantly (McDermott, 1994). Test-retest reliability of the ASCA was also examined by Canivez et al. (2001) and ranged from .51 to .78 (*Mdn* = .69) for raw scores and .48 to .68 (*Mdn* = .61) for *T* scores for the core and supplementary syndromes, and global adjustment scales. It was noted that lower correlations resulted for scales with fewer items and that the dichotomous nature of items restricts item variability, contributing to attenuated correlations. The stability of the Syndromic Profiles and Discriminant Classifications was also examined by Canivez and his colleagues. While the stability (as measured by kappa coefficients and *z* tests) of both approaches was statistically significant, clinical significance ranged from poor to fair for the 22 profiles, while the clinical significance of the discriminant classifications was poor. It was noted that not all syndromic profiles were represented, which can lower kappa estimates.

Interrater reliability was reported in the manual for a subsample ($N = 22$) of special education students, who were each observed by two teachers (e.g., special education teacher and aide) within the same classroom setting. Correlations between the observers' ratings ranged from .65 to .85 (*Mdn* = .77). All correlations were statistically significant and mean differences were nonsignificant (McDermott, 1994). Interrater agreement in an independent sample ($N = 71$ children) was determined for the core syndromes and global adjustment scales (Watkins & Canivez, 1997) and for the syndromic profile classifications (Canivez & Watkins, 2002). All interrater reliability coefficients were statistically significant, with a mean coefficient for the core syndromes and global scales of .72 and .78, for *T* scores and raw scores, respectively. In a comparison of mean

scores for the raters, only scores for the Diffident syndrome and Underactivity scale were significantly different; however, the effect sizes of the differences were small and accounted for less than 2.5 *T* score points and less than .5 raw score points. For the syndromic profile classifications, kappa (κ) coefficients ranged from .39 for the 22 profile classifications to .68 for two broad classifications (i.e., Adjusted vs. Not Adjusted). Clinical significance ranged from fair for the 22 profile classifications to good for the two-category classification. Interrater agreement for the discriminant classifications of the ASCA was also found to be fair in terms of clinical significance ($\kappa = .51$) in a sample of 119 children that included the 71 children from the above studies (Canivez et al., 2002).

The interrater agreement of observers of children in different classroom settings (e.g., regular education classroom and special education classroom) was examined for a sample of 182 special education students and compared with that of observers in the same classroom for a sample of 71 special education students (Schaefer et al., 2000). For the same-classroom observers, all agreement coefficients were statistically significant, ranging from .60 to .85 (*Mdn* = .72). For the different-classroom observers, all agreement coefficients were significant (.31-.57; *Mdn* = .45), with the exception of the Solitary Aggressive-Impulsive syndrome, which correlated at .16. All correlation coefficients for the same-classroom observers were significantly higher than the correlation coefficients for the different-classroom observers. Schaefer and her colleagues concluded that, “given the high level of agreement found for observations in the same setting, the lower levels of agreement from different settings appear to reflect behavior

variability related to the distinct settings and contexts in which the students receive instruction” (p. 130).

Considerable evidence for the validity of ASCA scores has been found. In addition to the factorial validity studies described in the manual, convergent and divergent validity studies were reported. Convergent and divergent validity was found between the ASCA and the Conners’ Teacher Rating Scale (CTRS; Trites, Blouin, & Laprade, 1982) in a sample of 274 students, with ASCA’s overactive syndromes correlating significantly (r ’s = .56 to .75) with the CTRS Hyperactivity and Conduct Problems factors, while ASCA’s underactive syndromes had small to near-zero correlations (r ’s = .08 to .21) with these CTRS factors (McDermott, 1994). Convergent and divergent validity between the ASCA and Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) was also reported for a sample of 48 students. ASCA’s Overactivity scale and its component syndromes correlated significantly (r ’s = .42 to .75) with the CBCL’s Aggressive, Hyperactive, and Delinquent factors while ASCA’s Underactivity scale and component syndromes correlated significantly (r ’s = .44 to .50) with the CBCL’s Social Withdrawal, Uncommunicative, Obsessive-Compulsive, and Internalizing factors (McDermott).

A sample of 1,200 students from the ASCA standardization sample was also administered the Differential Ability Scales (DAS; Elliot, 1990), with small to near-zero correlations (mainly negative) found between ability/achievement scores on the DAS and the adjustment scales on the ASCA. The final validity study reported in the ASCA manual compared the ASCA with the Learning

Behaviors Scale-Revised (LBS-R; McDermott, Green, Francis, & Stott, 1993) in a sample of 1,551 students, and found mainly negative, moderate to high correlations (r 's = $-.04$ to $-.76$). In a canonical redundancy analysis, the ASCA core syndromes accounted for just over half of the variability in learning behaviors, whereas learning behaviors accounted for less than one-third of score variability among ASCA's core syndromes (McDermott, 1994).

Additional studies have examined the convergent and divergent validity of the ASCA with other measures. More evidence of divergent validity was found in the form of low to near-zero correlations (r 's = $-.18$ to $.07$; $Mdn = -.10$) between the ASCA and two ability measures, the Kaufman Brief Intelligence Test (K-BIT; Kaufman & Kaufman, 1990) and the Wechsler Intelligence Scale for Children-Third Edition (WISC-III; Wechsler, 1991) in a sample of 207 students being evaluated for special education services (Canivez, Neitzel, & Martin, 2005). Canivez et al. also found low to near-zero correlations between the ASCA and standardized achievement measures (r 's = $-.11$ to $.10$; $Mdn = -.02$). Canivez and colleagues (Canivez & Bordenkircher, 2002; Canivez & Rains, 2002) compared the scores from the ASCA with those of the Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1994), and found convergent evidence among the ASCA Overactivity scale and PKBS Externalizing Problems scale. Divergent evidence was found between the ASCA Underactivity scale and the PKBS Externalizing Problems scale.

The classification accuracy of the ASCA has also been examined. McDermott et al. (1995) examined the accuracy of the ASCA for identifying

students with emotional disturbance. Sensitivity, specificity, and overall accuracy estimates were approximately 80%; similar accuracy was found across groups of children and adolescents, males and females, and white and African-American students. The ASCA was also able, with a similar level of accuracy, to differentiate typical students from those with emotional disturbance, and to differentiate students with emotional disturbance from other disability categories, including those with learning disabilities, speech/language impairments, mental retardation, and gifted (McDermott et al.).

Canivez and Sprouls (2005) investigated group differences on the ASCA for children meeting ADHD diagnostic criteria ($n = 53$) and a matched control group ($n = 53$). The ADHD group had significantly higher scores for the Attention-Deficit Hyperactive, Solitary Aggressive-Provocative, Solitary Aggressive-Impulsive, Oppositional Defiant, and Avoidant syndromes, while the groups did not differ significantly on the Diffident syndrome. The mean score on the Attention-Deficit Hyperactivity syndrome for the ADHD group was in the maladjusted range, while mean scores for the Solitary Aggressive-Provocative, Solitary Aggressive-Impulsive, and Oppositional Defiant syndromes were in the at-risk range. Large effect sizes were reported between the groups for these five syndromes; the effect size for the Avoidant syndrome was moderate. The ASCA demonstrated an overall correct classification of 96% ($\kappa = .92$).

The classification accuracy of the ASCA based on the different types of situations in which problem behavior is rated was examined by McDermott et al. (2005). Through exploratory factor analysis on the correlation matrix for 24

ASCA situations, then confirmatory factor analysis, McDermott et al. identified three factors, which they termed *sitatypes*, and labeled as problems in Peer Contexts, Academic Contexts, and Teacher Contexts. More than one-third of the variance in the factors was specific and reliable. Odds ratios derived from logistic regression models (incorporating demographic characteristics, syndrome scale scores, and sitotype factors) found that the sitotype dimension of Peer Context problem behavior conferred an 80% increased risk for emotional disturbance classification, and 132% increased risk for a learning disability (which was not predicted by syndrome dimensions). The sitotypes also accounted for a significant amount of the variance in future academic performance. Discriminant function analyses found that sitotype dimensions, when combined with the syndrome dimensions, produced greater classification accuracy for emotional disturbance and learning disabilities than either type of dimension alone.

Adjustment Scales for Children and Adolescents – Home (ASCA-H)

The ASCA-H (Watkins & McDermott, 2002), presently in development, is designed to be a companion form to the teacher-completed ASCA and is completed by the child's parent or other primary caregiver. Like the ASCA, it is designed for use with children and adolescents aged 5 to 17. The ASCA-H consists of items similar in content to those of the ASCA, with situations described in terms that apply to parents.

The ASCA-H includes 204 behavioral descriptions that are presented in the context of 33 specific situations in which parents typically observe their child's behavior. Examples of situations include greeting the parent, getting along

with agetates, coping with homework, and informal play. Each situation is accompanied by a group of between three to nine behavioral descriptions, and parents are directed to fill in the circle beside any description that applies to their child's behavior over the past month or two, marking as many descriptions as apply. The situations are grouped under 8 headings: Relationship with Parent, Relationship with Other Adults, Relationship with Children, Coping with Responsibilities, Daily Living, Spare Time Activities, School, and Troublesome and Illicit Activities. Of the 204 items, 29 items represent positive behaviors, to allow parents to report on positive behavior variants.

Preliminary research was conducted on an earlier version of the ASCA-H (containing 180 context-specific items) to examine its psychometric properties. Coffey (2006) examined the structural validity of the ASCA-H for a sample of 426 children from a large suburban school district in the mid-Atlantic region of the United States. Because of the early stage of development of the ASCA-H, Coffey's sample does not constitute a standardization sample; it was geographically limited and not nationally representative. The children being rated ranged from 5 to 15 years old ($M = 9.33$; $SD = 2.57$) and were drawn from 4 elementary schools, one middle school, and one special education school. Exploratory factor analysis of the parent responses on the ASCA-H (not including the positive behaviors) indicated a four-factor model best fit the data. Of the 149 factor analyzed items, 87 items loaded saliently ($>.30$) on the four factors, which explained 18.42% of the variance.

The first factor, labeled Aggressive-Oppositional, had an internal consistency of .92 and contained content similar to the ASCA's Solitary Aggressive-Provocative, Solitary Aggressive-Impulsive, and Oppositional Defiant syndromes. The second factor, labeled Attention-Seeking Impulsive, had an internal consistency of .85 and was similar in content to the ASCA's Attention-Deficit Hyperactive syndrome. The third factor, labeled Detached, had an internal consistency of .70 and included content similar to both the Avoidant and Delinquent syndromes of the ASCA. The fourth factor, labeled Diffident, was similar in content to the ASCA syndrome of the same name, and had only minimally acceptable internal consistency (.65).

Higher-order factor analysis revealed two overarching dimensions in the ASCA-H data, which explained 48.75% of the variance in the first-order factors. The first higher-order factor consisted of the first three first-order factors and was considered similar to the ASCA Overactivity global scale. The second higher-order factor was less well represented and consisted solely of the fourth first-order factor. It was considered somewhat similar to the ASCA Underactivity scale. It was noted, however, that items similar in content to the Avoidant syndrome loaded on the same factor with Delinquent items, whereas the ASCA structure indicated these types of items fell on separate first-order and second-order factors (McDermott, 1993, 1994; Canivez, 2004). Coffey (2006) further noted that the ASCA-H did not demonstrate a differentiation in the subtypes of aggression or oppositional defiant behavior as did the ASCA. Coffey's study is the only to examine the structural validity of the ASCA-H in a sample in the United States.

Demographic Questionnaires

Parent Questionnaire

A brief demographic questionnaire was included with the study materials sent to parents. This questionnaire obtained information about the child's gender, age, grade, ethnicity, and special education status. It also obtained information about the informant's gender, relationship to the child (i.e., mother, father, other), and highest level of education completed as a proxy for socioeconomic status (see Appendix A).

Teacher Questionnaire

A brief demographic questionnaire was also included with the study materials given to teachers. This questionnaire obtained information about the teacher's gender, grades taught, and years of experience (see Appendix A).

Procedure

Scale Construction

Hinshaw et al. (1992) noted that, "Ideally, identical constituent behaviors should be used to appraise internalizing and externalizing behavior for each source, so informant type will not be confounded with specific item content" (p. 145). The method of matching common items across forms has been used by previous behavior rating scales. The manuals for Achenbach's (1991; Achenbach & Rescorla, 2001) ASEBA parent and teacher scales (CBCL and TRF) present information on cross-informant syndromes, and include analyses of internalizing and externalizing scales using the subset of items common to the two instruments. They found higher correlations when the comparisons were made on the same sets

of items across forms than when different item sets were compared, lending support to Hinshaw et al.'s supposition.

The ASCA-H items were first matched to the ASCA items, so that similar item content could be used for both the parent and teacher rating scales. This item-matching was performed by the researcher and two additional raters, and interrater agreement for the matching of items was calculated. For the 76 ASCA core syndrome items (which contribute to the ASCA Overactivity and Underactivity global scales), all three raters agreed on whether or not there was a matching item from the ASCA-H for 100% of the core syndrome items. However, for 8 of the 76 core syndrome items, multiple ASCA-H items were assigned by one rater and not the other two raters. While the same item appeared as a match in all three raters' assignments for each of these 8 items, if the multiple items assigned by one rater in these cases are considered disagreements, the final interrater agreement was 89.5%. The multiple item matches leading to these disagreements were likely due to a flaw in the rater directions, which suggested the possibility of there being more than one ASCA-H item that could match any one ASCA item, and vice versa (see Appendix B). Following discussion among the raters, consensus was reached and for each of the eight items, the ASCA-H item found in all three raters' assignments was the item chosen.

The Overactivity and Underactivity global scale scores for the ASCA-H were calculated by summing the item scores for the syndrome scales that comprise the global scales, as for the ASCA. That is, the Overactivity scale for the ASCA-H contains items similar in nature to the ASCA Attention-Deficit

Hyperactive, Solitary Aggressive-Provocative, Solitary Aggressive-Impulsive, and Oppositional Defiant syndromes. The Underactivity scale for the ASCA-H contains items similar in nature to the ASCA Diffident and Avoidant syndromes.

After item-matching, the ASCA-H Overactivity scale consisted of 45 items. Examples of items on the Overactivity scale include: *Answers before he has had time to think; Does things in front of you he knows are wrong; Has stolen from other children; and Takes correction badly (sulks, mutters under his breath, etc.)*. The item-matched ASCA-H Underactivity scale consisted of 18 items. Examples of items on the Underactivity scale include: *Never seeks help even if needed; Waits for you to greet him first; Freezes up and has trouble answering; and Needs encouragement to join in [games]*. All of the ASCA and ASCA-H item matches for the ASCA core syndrome items are reported in Appendix C.

Data Collection

After obtaining approval from the University Institutional Review Board (Appendix D) and school district administration, the researcher made a presentation about the study to teachers during faculty or building council meetings at the twelve participating schools. Following the presentations, classroom teachers of students from kindergarten to grade eight were recruited first via mail and then follow-up e-mail.

Research study recruitment materials (cover letter, informed consent form) were sent to 210 teachers who were identified as being regular classroom teachers in grades K-8 (see Appendix E for copy of consent form). Specialist teachers (e.g., special education teachers, Title I teachers, Instructional Support teachers,

art teachers, music teachers, physical education teachers, and librarians) who would overlap student class lists with regular classroom teachers were excluded from recruitment. The sample of teachers selected for recruitment included 135 teachers from 10 elementary schools and 75 teachers from 2 middle schools. As an incentive, teachers were offered a movie theater gift certificate for their participation.

Of the 210 teachers targeted for recruitment, 63 teachers returned signed consent forms, indicating they would participate in the research study. This represents a 30% participation rate among recruited teachers. At least one teacher participated from 9 of the 10 elementary schools, and from both middle schools.

Informed consent forms (see Appendix E) and ASCA-H forms as well as a brief demographic survey were then sent to the parents of all students in the 63 participating teachers' classes. If teachers taught more than one class of students (i.e., middle school teachers with different classes during multiple periods of the school day), one class per teacher was randomly selected to have materials sent to parents. All parents were sent a \$2 pre-incentive with the study materials, and participating parents were entered in a drawing to win one of four \$25 Target gift cards.

A total of 1,337 parent forms were sent. Four envelopes were returned as being undeliverable. Out of the 1,333 remaining forms sent, 646 were completed and returned by parents. This represents a 48.5% response rate among the parent sample. Seven parent forms were eliminated from the sample because it was apparent that they had been completed for the incorrect child (i.e., a sibling). This

left a total of 639 children from whom the sample of children for the completion of teacher forms was selected.

Teachers were asked to complete the ASCA for each child whose parent gave consent to participate, up to a maximum of six students per teacher. This was so that individual rater effects did not have undue influence on the aggregate of data. If more than six completed ASCA-H forms were returned in a teacher's class, the teacher was asked to complete ASCA forms for six randomly selected students. When possible, the random selection was stratified by gender and three boys and three girls were randomly selected from the class. Some classes had fewer than 6 parents return forms; therefore, 59 teachers completed 6 ASCA forms while 4 teachers completed 5 ASCA forms. Thus, a total of 374 children were selected to have their teacher complete an ASCA rating form about their behavior in school, accounting for 58.5% of the total sample of students for whom parent forms were returned. The recruitment and data collection began in November 2007 and continued through March 2008.

Data Analyses

Statistical Power

Cohen's (1988) formula for determining sample size needed when comparing correlations with unrelated samples of unequal size was used to determine the sample size needed to obtain adequate (.80) power in the present study (p. 137). For an alpha level of .01, medium effect size of .30, and power of .80, the sample size for this study should be at a minimum 117 students in order to

obtain adequate power. Thus, the present sample size of 374 is more than sufficient to obtain adequate power.

Scale Reliability

The importance of calculating reliability coefficients within informants when comparing between-informant ratings was delineated by Fisher and Fagot (1996), who noted that, “Although high levels of within-informant reliability alone would not be expected to produce convergence [between raters], such reliability suggests a relatively small amount of random variance in the data” (p. 521).

The internal consistency reliability (coefficient alpha) for the ASCA and ASCA-H Underactivity and Overactivity scales in the present sample was calculated. As per guidelines suggested in the literature (Cicchetti, 1994), internal consistency reliability coefficients below .70 are considered *unacceptable*, between .70-.79 *fair*, .80-.89 *good*, and .90 and above *excellent* for clinical purposes (p. 286). These guidelines are useful to apply to the ASCA, which is a published, standardized scale appropriate for clinical use. However, the ASCA-H is still in early stages of research and development. For research scales, it has been suggested that internal consistency below .60 is *unacceptable*, between .60-.65 *undesirable*, .65-.70 *minimally acceptable*, .70-.80 *respectable*, and .80-.90 *very good* (DeVellis, 2003, p. 96).

Correlations Between Parent and Teacher Ratings

Achenbach et al. (1987), in their meta-analysis of correlations between informant ratings, used the Pearson *r* as their index of effect size. They noted that

the relationships between informant ratings are most often reported using this metric. They did not make corrections for attenuation or restriction of range, and excluded any r 's in studies that had made corrections because they wished to examine correlations that were actually obtained rather than what could potentially be obtained if constructs were measured without any error (Achenbach et al.). This approach is supported by Onwuegbuzie and Daniel (2002), who noted that many meta-analyses mistakenly apply corrections for attenuation although "aggregating findings that have been disattenuated using different measures of reliability seriously affects the validity of the resultant effect size estimates" (p. 80).

The present study examined the relationship between teacher ASCA ratings and parent ASCA-H ratings via Pearson correlations between the Overactivity (externalizing behavior) scales of the two measures and the Underactivity (internalizing behavior) scales of the two measures. Although correlation coefficients corrected for attenuation are reported, they are reported only as an index of how unreliability may have impacted the unadjusted correlations (Onwuegbuzie & Daniel, 2002). The comparison of correlations from the present sample with the correlations from Achenbach et al.'s (1987) meta-analysis used the unadjusted correlations.

To further investigate the relationship between parent and teacher ratings, correlations for the matched items on the Overactivity and Underactivity scales of the ASCA and ASCA-H were also examined. Phi correlations among the dichotomous matched items were calculated, as well as diagnostic utility statistics

(sensitivity, specificity, positive predictive power, and negative predictive power) to describe the proportions of agreement among raters about the presence or absence of behaviors described by the items.

Comparison of Correlations to Meta-Analysis Results

The uncorrected scale-level correlations (Overactivity and Underactivity) between the ASCA and ASCA-H in the present sample were compared to those found in the Achenbach et al. (1987) meta-analysis (termed Undercontrolled and Overcontrolled) to determine whether they were significantly different from the meta-analytic findings. A test of independent correlations was conducted, after a Fisher's z transformation, to determine the significance of the difference between correlations (Cohen, Cohen, West, & Aiken, 2003). A one-tailed alpha of .01 (one-tailed because it was hypothesized that the present sample would have correlations greater than the Achenbach et al. sample) was chosen following Bonferroni adjustment (Tabachnick & Fidell, 2001) to control for experimentwise error.

The effect size (q) of the difference between the correlations was also calculated, with q defined as the difference between the transformed correlations: $q = z_1 - z_2$ (Cohen, 1988, p. 110). In this case, because it was expected that the value for the present sample would be larger than the value from the meta-analysis, the present sample's transformed correlation was z_1 . Cohen defined $q = .10$ as a small effect size, $q = .30$ as a medium effect size, and $q = .50$ as a large effect size.

CHAPTER 3 - RESULTS

Scale Reliability and Descriptive Statistics

The internal consistency reliabilities (Cronbach's alpha) of the Overactivity and Underactivity scales of both the ASCA and ASCA-H were calculated. The internal consistency of the teacher scales on the ASCA was .92 on the Overactivity scale, considered *excellent*, and .81 on the Underactivity scale, considered *good* (Cicchetti, 1994). These internal consistency coefficients are similar to those reported in the standardization sample of the ASCA (McDermott, 1994). The internal consistency of the parent scales on the ASCA-H was .77 for the Overactivity scale, considered *respectable*, and .54 for the Underactivity scale, considered *unacceptable* based on guidelines for scales in the research and development stages (DeVellis, 2003).

For the teacher Overactivity scale on the ASCA, the reliability was calculated on 52 out of the 53 items, because one item had zero variance (i.e., had not been endorsed in the sample). The unendorsed item was *Sneaks books from library*. The reliability coefficient would increase only slightly (by .02) if one of the 52 items (*Tends to have untalkative moods*) was deleted from the scale. The mean score for the teacher Overactivity scale was 4.18 ($SD = 6.17$), and scores ranged from 0 to 34 out of a possible total of 53.

The mean score for the parent Overactivity scale was 5.09 ($SD = 3.99$). The minimum score on the parent Overactivity scale was 0 and the maximum was 19 out of a possible total of 45. Two items on the parent Overactivity scale (*Has deliberately destroyed others' belongings* and *His/her actions are constantly*

interrupted by involuntary movements) had zero variance because they were not endorsed in the sample, and were removed from the scale before calculation of Cronbach's alpha. The reliability would not increase if any one item were deleted from the scale.

Parents reported, on average, more overactive behaviors than teachers. The mean of the parent Overactivity scale was higher than the mean of the teacher Overactivity scale, even though the parent scale consists of eight fewer items than the teacher scale. When the non-overlapping items are removed from the teacher Overactivity scale so that a direct comparison of scales can be made, the mean ($M = 3.12$, $SD = 4.92$) of the teacher scale is significantly lower than the mean score of the parent Overactivity scale ($p < .001$, $t = 7.36$, $df = 373$).

For the teacher Underactivity scale on the ASCA, the reliability was calculated on all 23 items, as no items had zero variance. There would be no increase in the reliability coefficient with the deletion of any items from the scale. The mean score for the teacher Underactivity scale was 2.52 ($SD = 3.00$), and ranged from 0 to 18 out of a possible total of 23.

The mean score for the parent Underactivity scale was .75 ($SD = 1.18$). Scores on the parent Underactivity scale ranged from 0 to 7, out of a possible total of 18. On the parent Underactivity scale, three items, if deleted, would increase Cronbach's alpha by .05, to .59, still not approaching the minimum of .65 considered acceptable for research scales (DeVellis, 2003). These items included: *Never any trouble because he/she's so timid*, *Does not stand up for him/herself*, and *Too timid to join in* (informal or unorganized play). The alpha estimate would

increase by .04 if one item (*Does not stand up for him/herself*) were deleted. This item had small correlations with the other items, many of which were also negative in direction. It was the most endorsed item on the parent Underactivity scale ($n = 68$).

Parents reported fewer underactive behaviors versus teachers. The standard deviation of the Underactivity scale scores for the teacher sample ($SD = 3.00$) was large enough that the difference in means does not represent a large practical difference. It was possible that the five items included in the teacher Underactivity scale, but not the parent Underactivity scale (i.e., items regarding paying attention in class, sitting at one's desk, and working independently), were endorsed often, resulting in the higher mean. Examination of the item frequencies, however, reveals that the non-matching Underactivity items were endorsed by teachers for between only 4.5 to 11.5 percent of students. Elimination of these five items would have only slightly decreased the mean and standard deviation of the teacher Underactivity scale ($M = 2.14, SD = 2.43$). This would still indicate a higher number of underactive behaviors, on average, being reported by teachers. The mean of the parent scale, when compared with the mean of the teacher Underactivity scale restricted to the same item content, is still significantly lower ($p < .001, t = -10.40, df = 373$).

Correlations Between Parent and Teacher Ratings

Pearson's r was used as the index of the relationship between parent and teacher ratings on the Overactivity and Underactivity scales of the respective forms of the ASCA. The correlations between parent and teacher ratings on the

scales are reported in Table 6. Only the correlation for the Overactivity scales was statistically significant. It was, however, only moderate in magnitude.

Table 6

Scale-Level Correlations Between Parent and Teacher Ratings

Scale	Uncorrected r	p	t	df	r Corrected for Attenuation
Overactivity	.35*	<.001	7.21	372	.42*
Underactivity	.11	.03	2.13	372	.17

* Denotes significant correlation at the .01 level (2-tailed).

Comparison of Correlations to Meta-Analysis Results

Test of Independent Correlations

The correlations from the present sample were compared to the correlations from Achenbach et al.'s (1987) meta-analysis. A test of independent correlations (Cohen et al., 2003) was performed to determine the significance (one-tailed, $\alpha = .01$) of the difference between correlations. For the Overactivity scales, while the present sample correlation had a slightly higher value ($r = .35$) than the meta-analysis ($r = .32$), it was not significantly different from the meta-analysis correlation ($p_{1-tailed} = .26$, $z = 0.64$, $n_1 = 374$, $n_2 = 7,231$). For the Underactivity scales, the meta-analysis correlation ($r = .21$) was greater than present sample correlation ($r = .11$); however, the difference was not statistically significant ($p_{1-tailed} = .03$, $z = -1.93$, $n_1 = 374$, $n_2 = 7,231$).

Effect Size

As a measure of practical significance, the effect size (q) of the difference ($z_1 - z_2$) between the correlations was determined (Cohen, 1988, p.110). For the Overactivity scales, $q = .03$. This indicates a negligible difference between

correlations in the present sample and meta-analysis sample. The q for Underactivity scale was $-.10$, constituting a small effect in favor of the meta-analysis correlation.

Relationship Between Parent and Teacher Item-Level Ratings

To further explore where the agreements and disagreements between parent and teacher ratings occurred, correlations at the item level were examined for the matched ASCA and ASCA-H items (Tables 7 and 8). For the Overactivity scale, the majority of items had very small correlations ($M = .10$, $SD = .11$), with nearly half of the items having r 's less than $|.10|$. The items that demonstrated the highest correlation between parent and teacher ratings were behaviors that were rare and not endorsed often in the sample. For example, the item *Has stolen from other children* ($r = .50$) was endorsed by a parent for only four students, and endorsed by a teacher for only one student. In the case of the one student for whom this behavior was endorsed by a teacher, the parent also endorsed the item. Likewise the item *Makes sudden inappropriate noises* ($r = .41$) was endorsed by few; parents endorsed this item for only 9 students, teachers for only 10. The item was endorsed by both parent and teacher in four of the cases.

For the Underactivity scale, correlations between parent and teacher ratings were small ($<|.10|$) in magnitude for 13 of 18 items ($M = .03$, $SD = .09$). The items for which correlations were greatest in magnitude for the Underactivity scale (*So shy it's difficult to get him/her to speak*, *Does not stand up for self*) were closer in value to the meta-analysis correlation for underactive behaviors ($r = .21$), but still only represented low agreement between the raters. The item about

standing up for self was endorsed by parents for 44 students and by teachers for 45 students; however, the parent and teacher ratings for this item only agreed about the presence of the behavior in 14 cases. The item about difficulty getting the child to speak was endorsed by a parent for only one student (also endorsed by that student's teacher), and was endorsed by a teacher for 24 students. Therefore, although this behavior was not frequently reported by teachers, it was more likely to be reported by a student's teacher than his or her parent, as was the case with the remaining items on the Underactivity scale.

The relationship between the matched item ratings by parents and teachers can also be described through the use of diagnostic utility statistics. Typically, diagnostic utility statistics are used to describe how well a particular measure predicts the presence or absence of a disorder. In this case, they can be used to see how parent ratings relate to teacher ratings. The utility of parent ratings in predicting teacher ratings was used rather than the reverse given that the ASCA teacher rating scale is the more established measure, has been standardized, and shows good diagnostic classification ability as an overall measure in its own right (McDermott, 1994; McDermott et al., 1995). This approach does not presume that teacher ratings are inherently more accurate than parent ratings.

Four diagnostic utility statistics are reported for the matched items on the Overactivity scale (Table 7) and Underactivity scale (Table 8): sensitivity (SEN), specificity (SPE), positive predictive power (PPP), and negative predictive power (NPP). All diagnostic utility statistics were calculated using a computer software program designed for this purpose (Watkins, 2002). As used here, sensitivity

(SEN) represents the proportion of students with a positive teacher rating (i.e., endorsement) for an item who have a positive parent rating for the item.

Mathematically, this is the number of students with both a positive parent and teacher item rating divided by the total number of students with a positive teacher item rating. Specificity (SPE) represents the proportion of students with a negative teacher rating (i.e., not endorsed) for an item who have a negative parent rating for the item. That is, the number of students with both a negative (indicating absence) parent and teacher item rating divided by the total number of students with a negative teacher item rating. Positive predictive power (PPP) indicates the probability that, given a student has received a positive item rating from the parent, there will be a positive item rating from the teacher. Negative predictive power (NPP) indicates the probability that, given a student has received a negative item rating from the parent, there will be a negative item rating from the teacher.

For the Overactivity scale, sensitivity (SEN) ranged from .00 for 10 items to 1.00 for one item (*Has stolen from other children*). The average sensitivity of Overactivity items was .22 ($SD = .21$), indicating that for only about 22% of students with a positive teacher item rating was there also a positive parent item rating. Specificity (SPE) of the Overactivity items ranged from .64 to 1.00 ($M = .90$, $SD = .11$). On average, about 90% of the students who had a negative teacher item rating also had a negative parent item rating. The average positive predictive power (PPP) of the Overactivity items was .15 ($SD = .13$) and ranged from .00 for 10 items to .50 for one item (*Quarrels, provokes others his/her age*). That is, at

best, a positive item rating on the parent Overactivity scale indicated a 50-50 chance of a positive teacher item rating. The average negative predictive power (NPP) of the Overactivity items was .94 ($SD = .05$), and ranged from .83 to 1.00 for one item (*Has stolen from other children*), for which the one teacher who endorsed this item for their child was corroborated by the child's parent.

For the Underactivity scale, sensitivity (SEN) ranged from .00 (for 10 items) to .31, with an average of .06 ($SD = .09$). Specificity (SPE) of the Underactivity items ranged from .83 to 1.00 ($M = .96$, $SD = .04$). The average positive predictive power (PPP) of the Underactivity items was .18 ($SD = .27$), and ranged from .00 (for 10 items) to 1.00 for one item (*So shy it's difficult to get him/her to speak*). The average negative predictive power (NPP) of the Underactivity items was .89 ($SD = .09$), and ranged from .61 to .97.

Overall, examination of the diagnostic utility statistics for the parent item ratings indicate that parents and teachers are much more likely to agree about the absence (i.e., negative item rating) of behaviors than about the presence of behaviors.

Table 7

*Correlations and Diagnostic Utility Statistics of Matched Items for
Overactivity Scale*

Item	Description ^a	<i>r</i>	SEN	SPE	PPP	NPP
O-1	Responds with an angry look or turns away when greeted	-.01	.00	.99	.00	.99
O-2	Greets you loudly	.04	.19	.86	.10	.93
O-3	Answers questions before s/he has had time to think	.13	.38	.78	.23	.88
O-4	Answers questions except when in a bad mood	.05	.32	.77	.08	.95
O-5	Seeks help when not needed	.05	.24	.84	.13	.92
O-6	Much too talkative with you	.02	.15	.87	.12	.90
O-7	Tends to have untalkative moods	.10	.26	.86	.19	.90
O-8	Uses various ways to get your attention	.05	.56	.51	.19	.85
O-9	Seems to seek disapproval	.04	.08	.97	.08	.97
O-10	Doesn't hesitate to lie	.13	.20	.98	.10	.99
O-11	General manner of unfriendly moods with you	.12	.21	.91	.21	.91
O-12	Misbehaves when you are attending to other things	.19	.38	.82	.33	.85
O-13	Does things in front of you s/he knows are wrong	.13	.24	.90	.20	.92
O-14	Improves for the moment when corrected but does not last	.17	.30	.86	.35	.83
O-15	Takes correction badly	.05	.27	.79	.16	.88

table continues

Table 7 (continued)

Item	Description ^a	<i>r</i>	SEN	SPE	PPP	NPP
O-16	Answers back aggressively, threatens when corrected	.03	.10	.95	.05	.97
O-17	Uses bad language that offends others	-.01	.00	.99	.00	.98
O-18	Clowns around, plays silly tricks with others his/her age	.17	.56	.68	.22	.90
O-19	Unkind to weaker children his/her age	-.01	.00	.99	.00	.97
O-20	Quarrels, provokes others his/her age	.17	.06	.99	.50	.96
O-21	Tries to dominate others his/her age	.16	.30	.88	.22	.92
O-22	Takes others' things without permission	-.03	.00	.98	.00	.97
O-23	Snatches objects away from children	.22	.30	.97	.20	.98
O-24	Has deliberately destroyed others' belongings	^b	.00	1.00	.00	.99
O-25	Has stolen from other children	.50	1.00	.99	.25	1.00
O-26	Often loses his/her belongings	.23	.55	.74	.29	.89
O-27	Destroys his/her belongings purposely	.14	.09	.99	.25	.97
O-28	Charges in to new task without taking time to think	.04	.24	.81	.14	.89
O-29	Helps with jobs unless in a bad mood	.00	.36	.64	.07	.93
O-30	Asks to be given jobs but often doesn't finish them	.06	.29	.82	.07	.96

table continues

Table 7 (continued)

Item	Description ^a	<i>r</i>	SEN	SPE	PPP	NPP
O-31	Tries to push ahead of others in line	.07	.06	.98	.20	.91
O-32	Inclined to cheat at games	.03	.08	.95	.06	.97
O-33	Poor loser at games	.19	.40	.86	.20	.94
O-34	Rather loud but not disruptive during unorganized play	.12	.40	.76	.20	.89
O-35	Wants to dominate and have his/her way during play	.31	.54	.86	.29	.95
O-36	Starts fights and rough play	.12	.11	.99	.17	.98
O-37	Overly rough with smaller/weaker children during play	-.01	.00	.99	.00	.99
O-38	Fools around when working with his/her hands	.12	.15	.93	.33	.83
O-39	Has ruined his/her work on purpose	.06	.09	.97	.08	.97
O-40	Makes sexually offensive gestures or remarks	-.01	.00	.99	.00	.99
O-41	Makes sudden inappropriate noises	.41	.40	.99	.44	.98
O-42	His/her actions are interrupted by involuntary movements	^b	.00	1.00	.00	.99
O-43	Has made unprovoked attacks on other children	-.01	.00	.99	.00	.99
O-44	Without warning or apparent reason may throw objects	.12	.25	.97	.08	.99

table continues

Table 7 (continued)

Item	Description ^a	<i>r</i>	SEN	SPE	PPP	NPP
O-45	Rushes about shouting madly	-.01	.00	.95	.00	.99

Note. Statistics reported for utility of parent ratings in predicting teacher ratings.

SEN = Sensitivity, SPE = Specificity, PPP = Positive Predictive Power, NPP = Negative Predictive Power

^a Item descriptions are abbreviated with context integrated into wording

^b Correlation cannot be computed because the item was not endorsed in the parent sample

Table 8

Correlations and Diagnostic Utility Statistics of Matched Items for Underactivity Scale

Item	Description ^a	<i>r</i>	SEN	SPE	PPP	NPP
U-1	Waits for you to greet him/her first	.09	.09	.95	.56	.61
U-2	Seems too unconcerned about others to greet	-.05	.00	.94	.00	.96
U-3	Not shy but rarely answers questions	-.06	.00	.98	.00	.82
U-4	Freezes up and has trouble answering questions	.07	.09	.97	.15	.94
U-5	Too timid to ask for help	-.03	.00	.99	.00	.94
U-6	Never seeks help even if needed	-.04	.00	.98	.00	.91
U-7	Distant, seldom says anything	-.03	.00	.98	.00	.95

table continues

Table 8 (continued)

Item	Description ^a	<i>r</i>	SEN	SPE	PPP	NPP
U-8	So shy it's difficult to get him/her to speak	.20	.04	1.00	1.00	.94
U-9	Wants your interest but holds back	.03	.11	.91	.24	.80
U-10	Unconcerned whether s/he gets your attention	-.10	.00	.95	.00	.78
U-11	Distant, makes no effort to relate to you	-.03	.00	.99	.00	.93
U-12	Rarely smiles with you	.13	.07	.99	.33	.96
U-13	Shy but not unfriendly with you	.11	.09	.97	.41	.80
U-14	Never any trouble because s/he's so timid	-.01	.00	.99	.00	.97
U-15	Does not stand for self	.22	.31	.91	.32	.91
U-16	Too withdrawn to offer help with jobs/chores	-.03	.00	.98	.00	.94
U-17	Needs encouragement to join in games	.08	.24	.83	.26	.82
U-18	Too timid to join in unorganized play	-.03	.00	.98	.00	.95

Note. Statistics reported for utility of parent ratings in predicting teacher ratings.

SEN = Sensitivity, SPE = Specificity, PPP = Positive Predictive Power, NPP = Negative Predictive Power

^a Item descriptions are abbreviated with context integrated into wording

CHAPTER 4 - DISCUSSION

Relationship of Parent and Teacher Ratings

The present study examined the correlations between parent and teacher ratings of overactive and underactive behaviors on the ASCA and ASCA-H for a group of 374 children ages 5 to 14. A moderate correlation ($r = .35$) between ratings was found for overactive behaviors and a small correlation ($r = .11$) was found for underactive behaviors. At the item level, correlations were generally small, with the exceptions being mainly for items that were rarely endorsed by either parent or teacher. Sensitivity and positive predictive power values were generally low, while specificity and negative predictive power values were generally high. That is, parents and teachers were more likely to agree about the absence of a particular behavior than its presence.

Comparison of Results to Existing Literature

The correlation between parent and teacher ratings in the present sample for overactive (i.e., externalizing) behaviors is similar to Achenbach et al.'s (1987) meta-analysis and only small-to-moderate in magnitude. In the present sample, the correlation for underactive (i.e., internalizing) behaviors ($r = .11$) was smaller than the correlation found in the meta-analysis ($r = .21$), although it was not a statistically significant difference. The resulting lower correlation in the present sample may have been impacted by the low internal consistency in the parent Underactivity scale, and the nature of dichotomous items comprising the ASCA and ASCA-H scales.

Consistent with previous research, the present study found that the correlation between parent and teacher ratings was greater for overactive (i.e., externalizing) behaviors than for underactive (i.e., internalizing) behaviors. It has been suggested that this is due to the more covert nature of internalizing behaviors (Hoyt & Kerns, 1999). In the present study, however, this may be due in part to the type of behaviors measured. The ASCA and ASCA-H, in avoiding inferences required when raters are asked to report on symptoms of internalizing disorders such as depression or anxiety, instead include observable behaviors related to avoidance or shyness (e.g., *Waits for you to greet him first, Never any trouble because he's so timid*) that could be indicators of internalizing problems.

In previous research, in general, parents have tended to report higher levels of both internalizing and externalizing behaviors than levels reported by teachers (Antrop et al., 2002; De Los Reyes & Kazdin, 2005; Stanger & Lewis, 1993). This finding was not corroborated in the present sample for internalizing behaviors, in which parents tended to report somewhat fewer internalizing behaviors than teachers. This difference may be due to the observable behaviors described by the ASCA and ASCA-H items, rather than inferential items related to internal states of anxiety and depression often included on other rating scales. Parents may tend to report more behaviors when required to make inferences about children's internalizing problems than when reporting about observable behaviors.

Internal consistency reliabilities were higher for the published teacher ASCA scales, and lower for the unpublished parent ASCA-H scales, which are

still in the research and development stages. The ASCA-H scales, which were formed by item-matching with the core syndrome items of the ASCA, had adequate internal consistency reliability for the Overactivity scale, but internal consistency was low for the ASCA-H Underactivity scale. This is consistent with Coffey's (2006) factor analysis of the ASCA-H, which found that underactive behavior items on the ASCA-H similar to the Diffident core syndrome on the ASCA loaded on a single factor with poor internal consistency.

Limitations

The sample in the present study was drawn from a limited geographical region, and therefore, the results cannot be generalized to the U.S. population. Generalization was also threatened by parental education levels; 40.8 percent of parents reportedly held post-graduate degrees, likely due to the close proximity of the school district to a large university. This is a much higher level of education than for those studies included in Achenbach et al.'s (1987) meta-analysis that reported parent education. Although it has not been studied in previous research, parents' education level may impact the agreement of their ratings with teacher ratings.

Another limitation of the present study may have been the method used for constructing the ASCA-H scales. Only one ASCA-H item was permitted to be matched with any one ASCA item. This led to a fewer number of items being included in the ASCA-H scales than in the ASCA scales, which could have impacted the reliability of the ASCA-H scales. Future research may examine constructing scales that remove the restriction of one match per item. For

example, the items on the ASCA-H regarding how a child greets his/her parent were matched with ASCA items regarding how a child greets his/her teacher. Allowing multiple item matches, the ASCA-H items regarding how a child greets and gets along with other adults could have also been included in the ASCA-H scales. In fact, the item related to being too shy to greet other adults loaded on the Diffident scale of Coffey's (2006) factor analysis of the ASCA-H. In examining whether the addition of these item matches to the parent scales increased scale reliabilities or correlations with teacher ratings, supplemental analyses were performed on the resultant expanded parent Overactivity and Underactivity scales, and are reported in Appendix F. With the addition of three items for each scale, the reliability of the parent Overactivity scale increased slightly and remained in the *acceptable* range for research purposes, while the reliability of the parent Underactivity scale increased from *unacceptable* to *undesirable*, yet still below the standard .65 considered *minimally acceptable* (DeVellis, 2003). Therefore, it appears that allowing multiple item matches and adding the other adult items to the parent scales would not be enough to result in acceptable internal consistency for the parent Underactivity scale. Correlations between the teacher scales and the expanded parent scales did not change with the additional items.

Another possible limitation related to scale construction could be the fact that the ASCA-H scales did not have items representing all of the items of the ASCA Overactivity and Underactivity scales. This resulted in eight fewer items on the ASCA-H Overactivity scale than the corresponding ASCA scale and five fewer items on the ASCA-H Underactivity scale than the corresponding ASCA

scale. Removal of the eight non-matched items from the ASCA Overactivity scale and five non-matched items from the ASCA Underactivity scale would not significantly alter the correlations between the ASCA and ASCA-H scales ($r = .34$ and $r = .13$ for the Overactivity and Underactivity scales, respectively). It would, however, somewhat lower internal consistency reliability estimates for the ASCA scales, resulting in alphas of .91 and .75 for the Overactivity and Underactivity scales, respectively. Therefore, it does not appear that this action would be warranted, at least given the present data.

Factors Affecting the Correlations Between Parent and Teacher Ratings

Item Characteristics

The ASCA and ASCA-H items are dichotomous. Dichotomous data attenuates correlation coefficients, due to the restricted range of measurement that often results in non-normal distributions (DeVellis, 2003; Gorsuch, 1997). Dichotomous data tend to be skewed, and this effect is even greater when the behaviors being measured are abnormal (Floyd & Widaman, 1995), as with the problem behaviors described by the ASCA and ASCA-H items. Indeed, 80% of items on the ASCA Overactivity and Underactivity scales and 71% of items on the ASCA-H scales had skewness greater than $|2.0|$, the threshold above which variables are considered severely non-normal and attenuation bias tends to be more problematic (Fabrigar, MacCallum, Wegener, & Strahan, 1999). The degree of attenuation appears to be greater for larger correlations (Bollen & Barb, 1981). With smaller correlation sizes, as in the present study, the effects of attenuation are less dramatic (Bollen & Barb). However, alpha, the measure of internal

consistency reliability used in the present study, because it relies on averaging inter-item correlations, is necessarily decreased because of the dichotomous nature of the items. In the present study, the Overactivity and Underactivity scale scores, which are derived by summing scores of dichotomous items, are to some extent restricted relative to scales employing the same number of items but with more response categories.

On the other hand, the ASCA and ASCA-H items' dichotomy of behaviors as present versus absent allows the reduction of subjective interpretations required by multiple categories of frequency (Burns et al., 2000; Clark & Watson, 1995; DeVellis, 2003; Merrell, 2000, 2003; Schwarz, 1999). Careful item refinement in the development of the ASCA (McDermott, 1993, 1994) led to teacher Overactivity and Underactivity scales with high internal consistency reliability. Further refinement of the scales of the ASCA-H may lead to acceptable internal consistency reliability that was not obtained with the Underactivity scale in the present sample.

Rater Perspectives

The different type of rating scale format used on the ASCA and ASCA-H did not lead to increased correlations between parent and teacher ratings relative to more traditional rating scales, and therefore scale format may not play as strong a role as rater effects. The nature of behavior ratings is necessarily subjective, and rating scales completed by parents and teachers reflect the perceptions of those raters about the child as well as characteristics of the raters themselves, that is, rater biases (De Los Reyes & Kazdin, 2005; Konold et al., 2004).

Researchers have attempted to model the effects of rater biases on behavior ratings. Smith (2007) recommended the use of structural equation modeling for determining measurement and rater effects. One method is through confirmatory factor analysis and examination of how much variance appears to be attributable to rater effects versus the latent trait being measured. Studies using this approach have found that a large proportion of the variance could be attributed to the rater, which often outweighed the trait variance (Greenbaum, Dedrick, Prange, & Friedman, 1994; Konold & Pianta, 2007). Fergusson and Horwood (1987) estimated trait and method variance in parent and teacher ratings of conduct disorder and found nearly two-thirds of the variance was either random measurement error or variance attributable to the rater. The rater's perspective (e.g., parent or teacher) may play a greater role depending on the type of behavior being measured. In their modeling of rater bias in parents' and teachers' reports of ADHD symptoms, Hartman, Rhee, Willcutt, and Pennington (2007) found a greater degree of variance in parent ratings of ADHD behaviors attributable to bias than in teacher ratings. Greenbaum and his colleagues concluded that the large proportion of rater variance could be related to either situational specificity of the child's behavior or to measurement error.

Situational Specificity

If the impact of rating scale response format and rater effects are removed and still there is low agreement between informant ratings, the case is strengthened for the greater importance of situational specificity. The impact of situational specificity can be understood in terms of context effects. To some

extent rater effects are confounded with context effects, particularly when comparing parent ratings with teacher ratings, because each informant observes the child's behavior in different contexts (i.e., home and school, respectively).

The ASCA and ASCA-H have a great deal of overlap in terms of the situations in which behaviors are presented; 25 of 29 ASCA situations also appear on the ASCA-H, although these situations are reported upon in different settings (school and home or community). It remains to be seen whether the similarity in contextually-based items reduces the impact of context effects for parent and teacher ratings on the ASCA and ASCA-H.

Kraemer et al. (2003) suggest a model to interpret multiple informant reports that takes into account all of the various influences on obtained ratings and separates components of variance: trait, context, perspective (rater bias), and measurement error. It is suggested that careful selection of informants across multiple perspectives and contexts and subjection of informant ratings to principal components analysis can lead to an improved estimate of the trait (e.g., externalizing or internalizing behavior) being measured, with the extraneous influences of context, rater, and error removed. A constraint of this model, however, is that in order to remove the influence of context, at least one rater must be able to provide observations from across multiple contexts. Kraemer and colleagues suggested the use of self-report to achieve this cross-context viewpoint. It was not feasible to employ this model with the present study because the ASCA does not have a corresponding self-report form. In addition, with the age range of the ASCA beginning at age 5, the questionable reliability of self-

report by young children would be an issue (Loeber, Green, & Lahey, 1990). A problem with Kraemer et al.'s methodology is that they use principal components to analyze the variance in ratings, and they assume that the first principal component extracted (that which explains the greatest amount of variance) will represent trait variance. As noted earlier, however, this assumption is not a safe one; rater variance often outweighs trait variance in informant ratings.

Directions for Future Research

Future research on the ASCA-H could look at a large, more representative sample than either the present sample or Coffey's (2006) sample on which to perform factor analysis of the ASCA-H items. A comparison could then be made between the correlations of parent and teacher ratings based on the empirically derived scales and theoretically derived (i.e., item-matched) scales.

Previous research involving parent and teacher rating agreement has not reported on teacher characteristics. It is unclear how teacher education level and years of teaching experience may be related to their agreement with parent ratings. Likewise, previous research has not examined whether parents' level of education mediates the relationship between parent and teacher ratings. Future research should examine the impact of both teacher and parent characteristics on rating agreement.

Another direction for research involves continued use of structural equation modeling to examine the relative impact of rater perspective and context on observed ratings. With regard to the ASCA and ASCA-H, future research could explore whether these scales' use of contextually-specific items matched

across parent and teacher informants leads to a reduced amount of variance explained by context effects relative to context effects using more traditional rating scales.

Conclusion

The use of the ASCA and ASCA-H, behavior rating scales that employ contextually-specific, behavioral terms and dichotomous item ratings, did not result in increased correlations between parent and teacher ratings of children's behavior. Further research is needed to determine whether changing rating scale content and format is a fruitful method for improving agreement among parents' and teachers' ratings of child behavior. It may be that rater bias and situational specificity account for a greater proportion of variance in informant ratings than method effects related to rating scale characteristics.

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Teacher Demographic Questionnaire

Your Gender: Female Male

Age: _____ Prefer not to answer

Grade(s) Taught: _____

Years of Teaching Experience: _____
(including this year)

Highest level of education completed: _____

Prefer not to answer

APPENDIX B - RATER DIRECTIONS FOR ITEM MATCHING

Rater Directions for

Item Matching Between ASCA and ASCA-H

- 1.** Read through the attached ASCA and ASCA-H forms to familiarize yourself with the items.
- 2.** Take the ASCA-H form and one at a time, determine for each ASCA-H item whether there is a corresponding ASCA item that matches it in content. On the ASCA form, record the number of the ASCA-H item next to the ASCA item it matches, if there is a matching item. If there is a match, check off the item on the ASCA-H form.
- 3.** Keep in mind - there may be more than one ASCA-H item corresponding to any one ASCA item and vice versa. There may be some ASCA-H items that have no corresponding ASCA item and vice versa.
- 4.** For the ASCA-H items for which you did not find a corresponding ASCA item (items on the ASCA-H form that you have not checked off as having a match after your initial check), perform step 2 again to check that any corresponding items were not missed.
- 5.** Perform a cross-check. For the ASCA items that have an ASCA-H item number recorded next to them, go back to the ASCA-H form and confirm that the correct item number was recorded and that the item content indeed matches.

When you have completed the steps above, please return the marked ASCA and ASCA-H forms to Sarah Rochette in the enclosed self-addressed, stamped envelope.

Thank you for your help!

APPENDIX C - MATCHED ASCA AND ASCA-H ITEMS

Table C-1

Matched ASCA and ASCA-H Items for Overactivity Scale

ASCA Item	ASCA-H Item
Responds with an angry look or turns away	Responds with an angry look or turns away
Welcomes you loudly	Greets you loudly
Answers [questions] before he/she has had time to think	Answers [questions] before he/she has had time to think
Answers [questions] except when in one of his/her bad moods	Answers [questions] except when in one of his/her bad moods
Seeks help when not needed	Seeks help when not needed
Much too talkative	Much too talkative
Tends to have untalkative moods	Tends to have untalkative moods
Uses various devices to gain your attention	Uses various ways to get your attention
Sometimes seems to seek disapproval	Seems to seek disapproval
Doesn't hesitate to lie	Doesn't hesitate to lie
Sometimes in an unfriendly mood [general manner with you]	Unfriendly moods [general manner with you]
Misbehaves when you are attending to others [how behaves in the classroom]	Misbehaves when you are attending to other things [how behaves at home]
Does things in front of you he/she knows are wrong [how behaves in the classroom]	Does things in front of you he/she knows are wrong [how behaves at home]
Improves for the moment but it does not last long [reaction to correction]	Improves for the moment but it does not last for long [reaction to correction]
Takes correction badly (sulky muttering, expression, etc.)	Takes correction badly (sulks, mutters under his/her breath, etc.)

table continues

Table C-1 (continued)

ASCA Item	ASCA-H Item
Answers back aggressively, makes threats or creates a disturbance [reaction to correction]	Answers back aggressively, makes threats or creates a disturbance [reaction to correction]
Uses bad language in circumstances that offend others	Uses bad language that offends [other adults]
Clowns around, plays silly tricks [with others of his/her age]	Clowns around, plays silly tricks [with others of his/her own age]
Unkind to weaker students [of his/her age]	Unkind to weaker children [of his/her age]
Quarrels, provokes others [of his/her age]	Quarrels, provokes others [of his/her own age]
Tries to dominate [others of his/her age]	Tries to dominate [others of his/her age]
Takes things from others' desks	Takes others' things without permission
Snatches objects away from other students	Snatches objects away from children
Has deliberately destroyed others' belongings	Has deliberately destroyed others' belongings
Has stolen from other pupils	Has stolen from other children
Often loses or forgets his books, writing materials, etc.	Often loses his/her belongings
Destroys his/her books or defaces them with scribbling, drawing, etc.	Destroys his/her belongings purposely
Charges in without taking time to think or follow instructions [how copes with new learning tasks]	Charges in without taking time to think or follow instructions [how copes with new tasks]
Helps [with jobs] unless in a bad mood	Helps [with jobs or chores] unless in a bad mood
Asks to be given jobs but often doesn't finish them or do them properly	Asks to be given jobs but often doesn't finish them

table continues

Table C-1 (continued)

ASCA Item	ASCA-H Item
Tries to push in front of other students [when standing in line]	Tries to push ahead of others [when waiting in line]
Inclined to cheat	Inclined to cheat
Poor loser (causes a disturbance when the game goes against him/her)	Poor loser (causes a disturbance when the game goes against him/her)
Rather loud but not disruptive [during informal/unorganized play]	Rather loud but not disruptive [during informal/unorganized play]
Wants to dominate and have his/her own way [during informal/unorganized play]	Wants to dominate and have his/her own way [during informal/unorganized play]
Plays around [when working with his/her hands]	Fools around [when working with his/her hands]
Has ruined his/her work purposely	Has ruined his/her work on purpose
Makes sexually offensive gestures or remarks	Makes sexually offensive gestures or remarks
Makes sudden inappropriate noises	Makes sudden inappropriate noises
His/her actions are constantly interrupted by involuntary movements	His/her actions are constantly interrupted by involuntary movements
Has made unprovoked attacks on other students	Has made unprovoked attacks on other children
Without warning or apparent reason he/she may throw an object across the room, sweep things onto the floor, etc.	Without warning or apparent reason he/she may throw an object across the room, sweep things onto the floor, etc.
Rushes about shouting madly	Rushes about shouting madly

Table C-2

Matched ASCA and ASCA-H Items for Underactivity Scale

ASCA Item	ASCA-H Item
Waits for you to greet him/her first	Waits for you to greet him/her first
Seems too unconcerned about people to greet	Seems too unconcerned about you to greet
Not shy but rarely offers an answer [to questions]	Not shy but rarely offers an answer [to questions]
Freezes up and doesn't answer [questions]	Freezes up and has trouble answering [questions]
Too timid to ask [for help]	Too timid to ask [for help]
Not shy but never seeks help	Never seeks help even if needed
Aloof, seldom says anything [to you]	Distant, seldom says anything [to you]
So shy it's difficult to get him/her to speak to you at all	So shy it's difficult to get him/her to speak [with you]
Wants your interest but holds back	Wants your interest but holds back
Quite unconcerned whether he/she gets any of your attention or not	Quite unconcerned whether he/she gets any of your attention or not
Distant, makes no relationship [general manner with you]	Distant, makes no effort to relate to you [general manner with you]
Rarely smiles [general manner with you]	Rarely smiles [general manner with you]
Shy but not unfriendly [general manner with you]	Shy but not unfriendly [general manner with you]
Never any trouble because he/she's so timid [how behaves in the classroom]	Never any trouble because he/she's so timid [how behaves at home]
Does not stand up for himself/herself	Does not stand up for himself/herself
Appears too withdrawn to come forward [to help with jobs]	Too withdrawn to offer help [with jobs or chores]

table continues

Table C-2 (continued)

ASCA Item	ASCA-H Item
Needs encouragement to join in [team games]	Needs encouragement to join in [games]
Is too timid to join in [informal/unorganized play]	Too timid to join in [informal/unorganized play]

APPENDIX D - INSTITUTIONAL REVIEW BOARD APPROVAL

PENNSTATE



Senior Vice President for Research
Office for Research Protections

The Pennsylvania State University (814) 865-1775
201 Kern Graduate Building Fax: (814) 863-8699
University Park, PA 16802-3301 www.research.psu.edu/orp/

Date: October 10, 2007

From: Dolores W. Maney, IRB Administrator

To: Sarah E. Rochette

Subject: Results of Review of Proposal - Expedited (**IRB #26625**)
Approval Expiration Date: October 1, 2008
"The Relationship Between Teacher and Parent Ratings on the Adjustment Scales for Children and Adolescents"

The Social Science Institutional Review Board (IRB) has reviewed and approved your proposal for use of human participants in your research. By accepting this decision, you agree to obtain prior approval from the IRB for any changes to your study. Unanticipated participant events that are encountered during the conduct of this research must be reported in a timely fashion.

Enclosed is/are the dated, IRB-approved informed consent(s) to be used when recruiting participants for this research. Participants must receive a **copy** of the approved informed consent form to keep for their records.

If signed consent is obtained, the principal investigator is expected to maintain the original signed consent forms along with the IRB research records for this research at least three (3) years after termination of IRB approval. For projects that involve protected health information (PHI) and are regulated by HIPAA, records are to be maintained for six (6) years. The principal investigator must determine and adhere to additional requirements established by the FDA and any outside sponsors.

If this study will extend beyond the above noted approval expiration date, the principal investigator must submit a completed Continuing Progress Report to the Office for Research Protections (ORP) to request renewed approval for this research.

On behalf of the IRB and the University, thank you for your efforts to conduct your research in compliance with the federal regulations that have been established for the protection of human participants.

Please Note: The ORP encourages you to subscribe to the ORP listserv for protocol and research-related information. Send a blank email to: L-ORP-Research-L-subscribe-request@lists.psu.edu

DWM/dwm
Enclosure
cc: Robert L. Hale

974135

An Equal Opportunity University

APPENDIX E - INFORMED CONSENT FORMS



ORP USE ONLY: IRB#26625 Doc. #2 The Pennsylvania State University Office for Research Protections Approval Date: 10/10/2007 DWM Expiration Date: 10/01/2008 DWM Social Science Institutional Review Board
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Informed Consent Form for Social Science Research

The Pennsylvania State University

Title of Project: The Relationship Between Teacher and Parent Ratings on the Adjustment Scales for Children and Adolescents

Principal Investigator: Sarah Rochette, Doctoral Student in School Psychology
800 W. Cherry Ln., State College, PA 16803
seg184@psu.edu, (814) 769-9540

Advisor: Robert Hale, Professor of Education
102 CEDAR Building, University Park, PA 16802
h12@psu.edu, (814) 863-2420

1. **Purpose of the Study:** The purpose of this research is to compare the responses of parents and teachers on the Adjustment Scales for Children and Adolescents (ASCA), a behavior rating scale, to evaluate how they are related.
2. **Procedures to be followed:** You will be asked to complete a brief demographic survey about yourself and to complete the Adjustment Scales for Children and Adolescents (ASCA) for up to a maximum of six of your students whose parents have consented to participate in the study.
3. **Discomforts and Risks:** There are no risks in participating in this research beyond those experienced in everyday life. Some of the questions ask about inappropriate behaviors that children could display and might cause discomfort.
4. **Benefits:** The benefits to you include increasing your familiarity with behavior rating scales, to which you may be exposed in your role as a classroom teacher, as well as increasing awareness of child behaviors that may be of concern. The benefits to society include developing behavior rating scales that may lead to improved agreement among raters and improvements in diagnostic accuracy for emotional and behavioral disorders.
5. **Duration/Time:** It will take approximately 10-20 minutes to complete each ASCA form. Therefore, if you complete the maximum number of six ASCA forms, it may take up to 1-2 hours to complete participation in this research. You will be asked to complete the demographic survey and ASCA forms after parent forms have been returned. The ASCA forms will be sent to you in December and January and should be completed within 4 weeks of the forms being sent to you.
6. **Statement of Confidentiality:** Your participation in this research is confidential. The data will be stored and secured in the Principal Investigator's office in a locked file

cabinet and in a password-protected computer file. Code numbers will be recorded on the first page of the ASCA forms, such that neither your name nor the child's name will appear on the completed forms once they have been received. The name of the child will be attached to the forms initially so you know for which child you are completing an ASCA form; this name can be removed by you upon completion of the form or will be removed upon receipt by the Principal Investigator. During the time between completing and submitting the ASCA forms, please secure the forms at a home office or in a locked file cabinet in your classroom or school office. The list associating the code numbers with names will be stored in a password-protected computer file and destroyed when all data has been received. The Principal Investigator will have access to your identity and data; the Advisor may have access to data upon request. Penn State's Office for Research Protections, the Social Science Institutional Review Board and the Office for Human Research Protections in the Department of Health and Human Services may review records related to this research study. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

7. **Right to Ask Questions:** Please contact Sarah Rochette at (814) 769-9540 with questions, complaints or concerns about this research. You can also call this number if you feel this study has harmed you. Questions about your rights as a research participant may be directed to Penn State University's Office for Research Protections at (814) 865-1775.
8. **Payment for participation:** You will be receive a \$16 movie theater gift certificate for your participation.
9. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

You must be 18 years of age or older to consent to take part in this research study. If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below.

You will be given a copy of this consent form for your records.

Participant Signature

Date

Person Obtaining Consent

Date



ORP USE ONLY: IRB#26625 Doc. #1
 The Pennsylvania State University
 Office for Research Protections
 Approval Date: 10/10/2007 DWM
 Expiration Date: 10/01/2008 DWM
 Social Science Institutional Review Board

Implied Informed Consent Form for Social Science Research

The Pennsylvania State University

Title of Project: The Relationship Between Teacher and Parent Ratings on the Adjustment Scales for Children and Adolescents

Principal Investigator: Sarah Rochette, Doctoral Candidate in School Psychology
 800 W. Cherry Lane, State College, PA 16803
 seg184@psu.edu, (814) 769-9540

Advisor: Robert Hale, Professor of Education
 102 CEDAR Building, University Park, PA 16802
 h12@psu.edu, (814) 863-2420

1. **Purpose of the Study:** The purpose of this research is to compare the responses of parents and teachers on the Adjustment Scales for Children and Adolescents (ASCA), a behavior rating scale, to evaluate how they are related.
2. **Procedures to be followed:** You will be asked to complete the ASCA-Home form as well as a brief demographic survey about your child and yourself. Your child's teacher may complete the teacher version of the ASCA about your child.
3. **Discomforts and Risks:** There are no risks in participating in this research beyond those experienced in everyday life. Some of the questions ask about inappropriate behaviors that children could display and might cause discomfort.
4. **Benefits:** The benefits to you include increasing your familiarity with behavior rating scales, to which you may be exposed in the future as part of school screening or evaluation procedures, as well as increasing your awareness of child behaviors that may be of concern. The benefits to society include developing behavior rating scales that may lead to improved agreement among raters and improvements in diagnostic accuracy for emotional and behavioral disorders.
5. **Duration/Time:** It will take approximately 10-20 minutes to complete the ASCA form and demographic survey.
6. **Statement of Confidentiality:** Your participation in this research is confidential. A code number has been assigned so your child's name will never appear on a behavior rating form. Once all forms have been collected, the list associating your child's name with the code will be destroyed, so your child's name and your name will in no way be linked to your responses. Penn State's Office for Research Protections, the Social Science Institutional Review Board and the Office for Human Research Protections in the Department of Health and Human Services may review records related to this research study. In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

7. **Right to Ask Questions:** Please contact Sarah Rochette, at (814) 769-9540 with questions, complaints or concerns about this research. You can also call this number if you feel this study has harmed you. Questions about your rights as a research participant may be directed to Penn State University's Office for Research Protections at (814) 865-1775.
8. **Payment for participation:** If you return the completed form, you will automatically be entered in a drawing to win one of four \$25 Target gift cards.
9. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

You must be 18 years of age or older to take part in this research study.

Completion and return of the behavior rating form and survey implies that you have read the information in this form and consent to take part in the research.

Please keep this form for your records or future reference.

APPENDIX F - SUPPLEMENTAL ANALYSES OF EXPANDED PARENT SCALES

Allowing multiple item matches to ASCA items of ASCA-H items regarding greeting and getting along with other adults (in addition to the items regarding greeting and getting along with the parent) resulted in the addition of 3 items each to both the Overactivity and Underactivity parent scales (see Table F-1). The additional items on the Overactivity scale increased the internal consistency to .79 from .77, still within the range considered *respectable* for research scales (DeVellis, 2003). The additional items on the Underactivity scale increased the internal consistency to .61 from .54, considered *undesirable* versus *unacceptable*, and still below the standard of .65 considered *minimally acceptable* (DeVellis). The mean score of the parent Overactivity scale was increased slightly, from 5.09 to 5.34 ($SD = 4.25$). The mean score of the parent Underactivity scale was increased more, from .75 to 1.31 ($SD = 1.61$). The increase in the mean score of the Underactivity scale was mainly due to the relatively high endorsement ($N = 139$) of the item *Waits for them to greet him/her first*.

The correlations between the expanded parent ASCA-H scales and the ASCA scales were the same as the correlations with the original parent ASCA-H scales (Table F-2), with the exception that the correlations corrected for attenuation were .01 lower due to the increased internal consistency reliability of the expanded scales. At the item level (see Table F-3), correlations for the teacher-other adult item match versus the teacher-parent item match were somewhat larger for two items, smaller for two items, and the same for one item.

For one item, the teacher-other adult correlation was very small and positive while the teacher-parent correlation was very small and negative. In all cases, the item-level correlations represented a low level of agreement between parent and teacher ratings. As with the remainder of the items on the parent scales, the sensitivity and positive predictive power of the additional parent items were small while the specificity and negative predictive power were large.

Table F-1

Additional Matched ASCA and ASCA-H Items for Expanded Parent Scales

<i>Overactivity Scale</i>	
ASCA Item	ASCA-H Item
Responds [to greeting] with an angry look or turns away	Responds [to greeting] with an angry look or turns away
Welcomes you loudly	Welcomes them [other adults] loudly
Uses various devices to gain your attention	Uses various ways to get their [other adults'] attention
<i>Underactivity Scale</i>	
ASCA Item	ASCA-H Item
Waits for you to greet him/her first	Waits for adults to greet him/her first
Seems too unconcerned about people to greet	Seems too unconcerned to greet [other adults]
Quite unconcerned whether he gets any of your attention or not	Seems unconcerned whether s/he gets their [other adults'] attention or not

Table F-2

Correlations Between Teacher and Expanded Parent Scales

Scale	Uncorrected r	p	t	df	r Corrected for Attenuation
Overactivity	.35*	<.001	7.21	372	.41*
Underactivity	.11	.03	2.13	372	.16

* Denotes significant correlation at the 0.01 level (2-tailed).

Table F-3

Correlations and Diagnostic Utility Statistics of Additional Matched Items for Expanded Parent Scales

Item	Description ^a	r	SEN	SPE	PPP	NPP
O-46	Responds with an angry look or turns away when greeted by other adults	-.01	.00	.99	.00	.99
O-47	Greets other adults loudly	.00	.07	.92	.07	.93
O-48	Uses various ways to get adults' attention	.15	.29	.87	.30	.86
U-19	Waits for adults to greet him/her first	.15	.46	.69	.50	.66
U-20	Seems too unconcerned about adults to greet	.03	.08	.95	.06	.97
U-21	Unconcerned whether s/he gets adults' attention	-.03	.12	.86	.18	.79

Note. Statistics reported for utility of parent ratings in predicting teacher ratings.

SEN = Sensitivity, SPE = Specificity, PPP = Positive Predictive Power, NPP = Negative Predictive Power

^a Item descriptions are abbreviated with context integrated into wording

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