RATINGS OF EVERYDAY ACADEMIC AND COGNITIVE SKILLS IN EVALUATION OF SCHOOL LEARNING AND LEARNING PROBLEMS: INITIAL SCALE DEVELOPMENT AND VALIDATION

A Dissertation

by

GORDON DALE LAMB

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2008

Major Subject: School Psychology

RATINGS OF EVERYDAY ACADEMIC AND COGNITIVE SKILLS IN EVALUATION OF SCHOOL LEARNING AND LEARNING PROBLEMS: INITIAL SCALE DEVELOPMENT AND VALIDATION

A Dissertation

by

GORDON DALE LAMB

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Approved by:

Chair of Committee,	Cecil R. Reynolds
Committee Members,	Michael Ash
	Constance Fournier
	Don Albrecht
	Tammy Barry
Head of Department,	Michael Benz

August 2008

Major Subject: School Psychology

ABSTRACT

Ratings of Everyday Academic and Cognitive Skills in Evaluation of School Learning and Learning Problems: Initial Scale Development and Validation. (August 2008)

Gordon Dale Lamb, B.S., Texas A&M University

Chair of Advisory Committee: Dr. Cecil R. Reynolds

Although research supports the use of measures of typical performance for assessing academic and cognitive skills, there are currently few such measures in existence. Other measures have been used for research purposes, but they are not normed on a large, nationally-representative sample. The Ratings of Everyday Academic and Cognitive Skills (REACS) was created to address the need for a measure of typical academic and cognitive skills. The goal of the REACS is to provide a timely, easy to administer, and comprehensive assessment of a child's typical functioning in various academic and cognitive domains. The purpose for this dissertation was to develop the initial scale and conduct analyses to provide evidence of its reliability and validity.

In an attempt to provide preliminary evidence of the validity of scores from this measure, Parent (n = 142) and Teacher (n = 109) REACS forms were collected for data analysis. A subsample of parents and teachers completed forms to examine interrater and test-retest reliability. A group of children (n = 32) were assessed with measures of academic achievement, cognitive ability, and memory for comparison to the REACS.

Results generally showed high internal consistency, yet less reliable test-retest and interrater reliability. While the confirmatory factor analysis (CFA) of the parent scale supported a factor structure that approximated the intended structure of the REACS, a better fit was found with a simpler model for the teacher scale. Finally, both the Parent and Teacher REACS forms were found to predict academic achievement better than cognitive ability. The predictive ability of the REACS was enhanced when used in conjunction with a measure of cognitive ability.

DEDICATION

I would like to dedicate this project to the memory of my father, Maurice Dale Lamb. He died on May 31, 2008, about one week before the defense of this dissertation. He lived a life that was characterized by hard work, integrity, and service to others. This service was seen in public office, church positions, and many times, simply as a neighbor. As such, he gained the respect of many within his community. One such service was as a member of the local school board, which helped create the district's first special education program, of which I personally benefited.

Despite being a well respected member of the community, in most aspects he viewed himself as a dairy farmer and father of 7 children. He remains one of the only people I know who could lead a group of people equally well whether they were wearing suits and ties or dirt-covered overalls. Many of my first lessons in the field of psychology were not taught in a classroom, but on a farm. Looking back, I am grateful for all the experiences I had working, playing, and talking with him. I was always proud to have him as my father. As I begin this next chapter of my life without the physical presence of my first and greatest mentor, I hope to live up to his example.

ACKNOWLEDGEMENTS

I would like to thank my committee chair, Dr. Reynolds, and my committee members, Dr. Ash, Dr. Fournier, Dr. Barry, and Dr. Albrecht, for their assistance with this research project.

Thanks also go to my children, Kimberly, Michaela, Courtney, and Samantha, who provided much help with this project. I appreciate the time they spent collating and folding papers, labeling and stuffing envelopes, throwing away papers, and other aspects of making the research packets. Hopefully in years to come, they will look back fondly on the time they spent helping their dad with his dissertation.

Finally, thanks to my wife, Miriam, for her help and support at every stage of this project. I could not have completed this project without her patience and love.

NOMENCLATURE

ASI	Academic Skills Index
ACSI	Academic and Cognitive Skills Index
CSI	Cognitive Skills Index
Lang	Language Scale
Lear	Learning Scale
Math	Math Scale
MeAc	Academic-Related Memory Subscale
MeEv	Memory for Events Subscale
MePe	Personal-Related Memory Subscale
MeSc	Memory for Schedules Subscale
Memo	Memory Scale
PrSo	Problem Solving Scale
Read	Reading Scale
SyEx	Symbolic Expressive Language Subtest
SyRe	Symbolic Receptive Language Subtest
Symb	Symbolic Language Subscale
VeEx	Verbal Expressive Language Subtest
VeRe	Verbal Receptive Language Subtest
Verb	Verbal Language Subscale
Writ	Writing Scale

TABLE OF CONTENTS

CHAPTER Page

LIST OF FIGURES

LIST OF TABLES

TABLE Page

TABLE Page

CHAPTER I

INTRODUCTION: WHY STUDY TYPICAL PERFORMANCE?

Assessment measures are generally divided into two categories, maximal performance and typical performance (Cronbach, 1949, 1984). A maximal performance test measures performance in a controlled setting and is devised to elicit one's best performance "under *ideal* conditions" (Dennis, Sternberg, & Beatty, 2000; Dewey, Crawford, & Kaplan, 2003, p. 94). Maximal performance measures are commonly associated with testing of abilities, such as intelligence or achievement.

Maximal performance depends on two factors, capacity and ability. "Capacity is the person's hypothetical potentiality for" (Cronbach, 1949, p. 13) the trait being measured. Ability is "the person's performance on a task at present with maximum motivation [and ideal conditions,] but without further training" (Cronbach, p. 13). This is evident through administration instructions for tests which include building rapport to "elicit the student's optimal test performance" (Kaufman & Kaufman, 1998, p. 16) and "select a testing room that is quiet, comfortable, and has adequate ventilation and lighting" (Mather & Woodcock, 2001, p. 22). When administering neuropsychological tests, Reitan (1992) notes that it is imperative to obtain the maximum possible level of performance from the examinee. The most common maximal performance measures

---

This dissertation follows the style of *School Psychology Review*.

used in education are achievement and intelligence tests, which are used to assess current status and to predict future school performance (Anastasi & Urbina, 1997; Cronbach; Halpin, Halpin, & Schaer, 1981).

Ackerman (1994) argued that the measurement of capacity is not possible. In addition, research has shown that IQ, for example, can change over time, above what would be expected due to measurement error (Thorndike, 1940). Instead of measuring capacity, maximal performance tests focus on measuring ability (Ackerman, 1994; Cronbach, 1949, 1984).

A test of typical performance estimates mean or modal performance (e.g., how the individual typically responds; Fiske & Butler, 1963). Typical performance traditionally is associated with personality testing, where the assessor is interested in how the person feels normally, not what the person is capable of feeling (Cronbach 1949, 1984; Fiske & Butler). Typical performance measures focus on behavior under everyday situations and motivation (Anastasi & Urbina, 1997; Cronbach, 1949; Fiske & Butler, 1963).

Rationale for Study

Although maximal performance measures are widely accepted and useful, they have several limitations. First, scores on maximal performance measures do not guarantee performance will be at the same level under everyday motivation and situations (Cronbach, 1949). Second, assessing maximal performance alone does not allow a comprehensive look into an individual's strengths and weaknesses (Ackerman, 1994; Livingston, Jennings, Reynolds, & Gray, 2003; Macmann & Barnett, 1997;

Reynolds & Kamphaus, 2003). Third, obtaining intelligence and achievement scores is an expensive and time-consuming endeavor. A more extensive discussion of the limitations of maximal performance measures can be found in Ackerman (1994), Cronbach (1949), and Reynolds and Kamphaus (2003). The use of a typical performance measure may resolve some of the limitations that arise in maximal performance testing.

Many maximal performance measures are created to predict performance in everyday situations, such as an individual's ability to do well in school; however, many aspects of school performance are dependent on factors more related to typical performance. Scores on maximal performance measures do not evaluate performance under everyday motivation and situations, but this is exactly what a typical performance test is designed to measure (Ackerman, 1994; Anastasi & Urbina, 1997; Cronbach, 1949, 1960; Fiske & Butler, 1963; Goff & Ackerman, 1992). Cronbach explained this relationship:

> There is little value in determining how courteous an applicant for employment in a store *could* be when she wanted to; almost anyone of normal upbringing has the ability to be polite. But the test of a suitable employee is whether she maintains that courtesy in her daily work, even when she is not especially motivated or "on her best behavior." (p. 14)

To further understand this possibility, imagine trying to predict how many points a basketball player will score in his or her next game when the only information provided is the player's average points per game and the most points he or she has scored in a single game. The best predictor in this instance would be the player's average

performance, assuming a normal distribution of scores across games (Huck, 2000). Because measures of typical or everyday performance focus on everyday situations, they may provide a better prediction of future performance on daily tasks than maximal performance measures (Ackerman, 1994; Goff & Ackerman, 1992).

This phenomenon is also apparent with one of the most widely used measures of typical performance, grade point average (GPA; Rolfus & Ackerman, 1999). Halpin et al. (1981) found that high school GPA was better at predicting GPA in college freshmen than the American College Testing Program (ACT), the College Board Scholastic Aptitude Test (SAT), and the California Achievement Tests (CAT). The authors also discovered that the predictive ability of high school GPA was increased by 18.5% when any of the tests were used in combination with GPA.

The second limitation of maximal performance measures is that assessing maximal performance alone does not allow a comprehensive look into an individual's strengths and weaknesses. One example of this is the misuse of intelligence tests. Livingston et al. (2003) demonstrated that subtest profiles of the Wechsler Intelligence Scale for Children—Revised (WISC-R) are relatively unstable over a three-year period. Similar results have been found in studying the reliability of interpreting subtests of the Wechsler Intelligence Scale for Children—Third Edition (WISC-III; Macmann & Barnett, 1997). Livingston et al. (2003) provided a simple explanation of this phenomenon in tests of intelligence. "Paradoxically, the better an IQ test measures intelligence, the less likely profile analysis will yield additional information" (p. 504).

Reynolds and Kamphaus (2003) argued that "a good intelligence test will not be useful for measuring specific abilities and information processing skills" (p. 6).

Because a typical performance measure does not attempt to approximate g, the subtests are allowed to be better indicators of the specific traits they are measuring. A typical performance measure of cognitive functioning, therefore, could provide more detailed information about the individual's strengths and weaknesses than an intelligence test.

Using a maximal measure with a typical performance measure of academic and cognitive skills may provide better insights into strengths and weaknesses than using either measure alone. Examining the discrepancy between maximal and typical performance would be particularly interesting. Ackerman (1994) argued that this discrepancy may be more useful than the IQ-achievement discrepancy. Halpin et al. (1981) also demonstrated, through the use of GPA, that a typical performance measure may increase the ability to predict future school performance beyond the use of maximal performance measures alone. This information would be useful for both treatment planning and differential diagnosis (Ackerman, 1994).

The third limitation of maximal performance measures is the expense and time involved to administer them. Typical performance measures, such as personality tests and measures of everyday cognitive ability, usually involve rating scales (Archer, 1992; Atkinson, 2003; Goff & Ackerman, 1992; Schuerger, 2003; Williams, Klein, Little, & Haban, 1986; Williams, Ochs, Williams, & Mulhern, 1991). Rating scales can be completed by parent, teacher, or the child (Kamphaus & Frick, 2002). They easily could

be sent and received by mail (Saudino et al., 1998). Using rating scales is less expensive and time consuming than testing an individual directly (Hart & Lahey, 1999; Saudino et al.).

Another advantage of using rating scales is that they "are based on more extensive behavioural sampling, and might therefore attenuate problems associated with situational influences" (Saudino et al., 1998, p. 350). Using multiple raters allows the examiner to gain a better overall view of the child. The utility of multiple raters is emphasized by past research which suggests that each rater is likely to be more accurate than another rater in some areas (Hart & Lahey, 1999; Loeber, Green, & Lahey, 1990).

Currently, there is only one measure of typical cognitive abilities commercially available, the Learning Disabilities Diagnostic Inventory (LDDI; Hammill & Bryant, 1998). The LDDI is completed by a professional who is knowledgeable about the child (i.e., teacher, counselor, social worker). Diagnoses are derived from a profile analysis of the six scales (Gutkin, 1998). The LDDI has been praised for its new approach, solid reliability data, and ease of administration and scoring (Cox & Bell, 2002; Gutkin, 1998). A limitation of the LDDI was a high false-negative rate in predicting specific learning disabilities; however, "when considering the heterogeneity in learning disabilities diagnoses, a high 'miss' rate might be expected" (Cox & Bell, p. 97). Cox and Bell concluded that the LDDI "could be a useful supplement for the standard quantitative measures frequently used for the determination of learning disabilities" (p. 98).

The scale that has seen the largest success in research is the Parent Rating Scale of Everyday Cognitive and Academic Abilities (PRECA; Williams et al., 1991). Williams et al. used the PRECA to differentiate children with leukemia who had undergone central nervous system prophylaxis treatments from normal controls and children with learning disabilities (LD). Dewey, Crawford, Creighton, and Sauve (2000) later revised this scale to become the Parents Ratings of Everyday Cognitive and Academic Abilities (PRECAA).

Dewey et al. (2000) discovered the PRECAA may help identify low birth weight children with cognitive problems that are not identified through maximal performance assessment. Dewey et al. (2003) found that using the PRECAA with maximal performance measures of intelligence and achievement resulted in better differentiation between children with reading disorder (RD) and children with attention-deficit/hyperactivity disorder (ADHD) combined with RD, compared to using maximal performance measures alone. The PRECAA, however, is not normed on a large, nationally-representative sample. It has not been shown to differentiate accurately among specific learning disabilities (SLD), children who are low functioning without LD, children with mental retardation (MR), or children with severe emotional disturbance (SED).

Aim of Study

Addressing the need for a measure of typical academic and cognitive skills and building upon the success of past research, the Ratings of Everyday Academic and Cognitive Skills (REACS) was created. The goal of the REACS is to provide a timely,

easy to administer, and comprehensive assessment of a child's typical functioning in various cognitive domains via everyday behaviors that will improve identification and treatment planning for individuals with learning problems. The goal was to a broader measure of typical abilities than is currently available and obtaining the ratings of the teacher and parent. The use of multiple raters was included in an attempt to give the assessor a better picture of the child's behaviors both inside and outside the classroom and assess potential discrepancies between raters. The REACS was created to provide specific information about weaknesses that need remediation and strengths upon which the child can build.

Research Questions

This dissertation will attempt to answer six questions: (1) What variables best predict typical academic and cognitive skills? (2) Does the REACS show bias for or against an identified group of individuals? (3) Can the REACS add to the predictive validity of maximal performance tests in predicting school performance? (4) Do scores derived from the REACS demonstrate high enough internal consistency and test-retest reliability to be useful for diagnostic purposes? (5) Do scores from the REACS correlate adequately with tests of intelligence and achievement to produce adequate convergent and divergent evidence of validity? (6) Can the REACS be used to predict group membership of children who have been identified with ADHD, Autism/Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), MR, or Speech Language Delay?

Organization

Chapter II will present a review of the literature in areas relevant to the measurement of typical academic and cognitive performance. Specifically, the review of literature will describe the differences between maximal and typical performance measures and discuss reasons for studying the measurement of typical academic and cognitive skills. Further discussion will address how typical academic and cognitive skills can be measured, what is known about typical academic and cognitive skills, and how knowledge about typical academic and cognitive skills could be used. Discussion will end with the author's views on areas for future research. Chapter III will describe the methods and procedures used for this project. Chapter IV will present the findings from the research. Finally, Chapter V will provide a discussion of the implications of the findings and again review areas for future research.

CHAPTER II

LITERATURE REVIEW: CURRENT KNOWLEDGE REGARDING TYPICAL ACADEMIC AND COGNITIVE SKILLS

Assessment measures are commonly divided into two categories, tests of typical performance and tests of maximal performance (Reynolds, Livingston, & Wilson, 2006). Tests of maximal performance attempt to measure the best "a person *can* do" (Furnham & Chamorro-Premuzic, 2004, p. 944). These tests are commonly used to assess areas such as academic achievement, cognitive ability, and memory. Tests of typical performance attempt to measure what a person is most likely to do (Cronbach, 1949, 1960; Fiske & Butler, 1963). These tests are commonly used to assess personality and behavior.

The purpose of this chapter is to provide a rationale for measuring individuals' typical academic and cognitive performance. Discussion will begin by defining maximal and typical performance. Next, the benefits of measuring typical academic and cognitive skills will be presented. This will be followed by an overview of the common methods of measuring typical academic and cognitive skills. Discussion will conclude with a review of research conducted with several typical performance measures.

Defining a Test of Typical Academic and Cognitive Skills

Cronbach (1949) first made the distinction between maximal and typical performance when he defined tests of ability as maximal performance tests and tests of personality as typical performance tests. Maximal performance tests attempt to find an

individual's best possible performance at a given task. Typical performance tests attempt to find an individual's mean or modal performance in a given situation (Cronbach, 1949, 1960, 1984; Fiske & Butler, 1963). In order to understand the need for a test of typical academic and cognitive skills, discussion will begin by providing an overview of the differences between maximal and typical performance.

Definition of Maximal Performance

Maximal performance is contingent upon capacity and ability. Capacity is an individual's "hypothetical potentiality for" (Cronbach, 1949, p. 13) the trait being measured. Cronbach defined ability as a "person's performance on a task at present, with maximum motivation [and ideal conditions,] but without further training" (p. 13). Ackerman (1994) argued, "it may not be possible, even in theory, to specify the conditions that would allow an individual to…approximate his/her theoretical capacity" (p. 4). Because of the difficulties in trying to measure capacity, maximal performance tests provide an estimate of ability.

The first major test of cognitive abilities was developed by Binet and Simon in 1905 (Kaplan & Saccuzzo, 2001). This test consisted of tasks such as recognizing food, defining common objects, and distinguishing between abstract terms. Its purpose was to aid in determining which children could benefit from schooling (Kaplan & Saccuzzo). Because of this measure's success in predicting school achievement, a new age began in the assessment of cognitive abilities. Predicting school achievement remains one of the main purposes of estimating intelligence (Anastasi & Urbina, 1997; Halpin et al., 1981).

Fiske and Butler (1963) cited two reasons why cognitive functioning has historically been assessed through maximal performance measures. First, maximal performance measures are used to obtain a "pure measure" (p. 253) determined mainly by capacity, removed as much as possible from outside influences. Second, maximal performance in a controlled setting is considered more stable "than performance under more lifelike conditions" (p. 253).

Although maximal performance measures attempt to remove the effects from outside influences, the complete elimination of these outside influences is improbable (Kaufman & Lichtenberger, 1999). External and internal factors can affect the score on a maximum performance test. External factors recognized in test manuals include lighting, ventilation (Mather & Woodcock, 2001; Reynolds & Kamphaus, 2003), number of exposures to testing (Flynn, 1996), and general distractions (Kaufman & Lichtenberger; Mather & Woodcock; Reynolds & Kamphaus). Test manuals often provide instructions on how to reduce the influence of external factors. These instructions include selecting a comfortable room that is quiet, well lighted, and well ventilated (Mather & Woodcock).

Kanfer and Ackerman (2005) state that an individual's maximal performance is obtained when internal factors allow individuals to give their full attention to the testing task. Examples of internal factors thought to influence maximal performance test scores include motivation (Cronbach, 1949; Kirk & Brown, 2003), attention (Frazier, Demaree, & Youngstrom, 2004), sleep (Kanfer & Ackerman), depression (Kaufman & Lichtenberger, 1999; Reynolds & Kamphaus, 2003), rapport with the assessor (Kaufman & Lichtenberger), and knowledge of test-taking strategies (Flynn, 1996). To reduce the

influence of extraneous internal factors, test administrators are often instructed to build rapport (Mather & Woodcock, 2001; Reynolds & Kamphaus), tell an examinee to "**do the very best you can**" (Reynolds & Kamphaus, p. 41), and provide praise for effort (The Psychological Corporation, 2002; Reynolds & Kamphaus).

The influence of internal factors can never be fully removed from a test score. To consider the effect of some of the more common internal factors, such as depression, test manuals often report data on how the scores differ between individuals with and without these diagnoses (Reynolds & Kamphaus, 2003; Wechsler, 1997). Interpretation guides also provide theories of how different disorders may influence test scores (Kaufman & Lichtenberger, 1999).

Even if all the external and internal factors influencing maximal performance could be removed, maximal performance is not perfectly stable. Jensen (1998) stated that ability "is not an innate or hard-wired reflex" (p. 112). Because maximal performance tests estimate ability, not capacity, a person's score could change over time. For example, as athletes train, their skills increase. If they stop training, their skills will diminish over time. Other changes in ability can be attributed to maturation, such as a child learning to walk. These fluctuations in ability are also found in cognitive areas. For this reason, test manuals provide norms that are broken down by age.

The finding that scores on cognitive ability tests have been shown to change over time to a greater extent than would be predicted by measurement error alone (Flynn, 1998; Thorndike, 1940), provides empirical support to the idea that cognitive ability is not fixed. Some of these changes could be attributed to environmental factors, such as

education. For example, Lazar and Darlington (1982) outlined the long history of research indicating the ability of early academic interventions to raise IQs of children from lower income families. Dickens and Flynn (2001) contended that there is little argument over the ability of these interventions to raise IQ. Other changes may result from the aging process. Fluid ability, for example, has been shown to decline between 30 and 60 years of age (Horn, Donaldson, & Engstrom, 1981).

Definition of Typical Performance

In contrast with maximal performance measures, typical performance measures estimate an individual's mean or modal performance in the aim of predicting most likely behavior (Cronbach, 1949, 1960; Fiske & Butler, 1963). In predicting how a person will behave in everyday situations, a person's maximal performance may not be the best predictor. Cronbach (1949) stated, "abilities and capacities define limits of performance, but what one actually does is rarely motivated to the point where he uses his utmost quantity or quality of performance" (p. 305). Whereas maximal performance tests measure behavior in a contrived setting, typical performance tests measure behavior under everyday situations and motivation (Ackerman, 1994; Anastasi & Urbina, 1997; Cronbach, 1949, 1960; Fiske & Butler).

The influence of typical behavior on cognitive performance and academic achievement is intertwined with several different factors. The most prominent among these are genetic endowment (Jensen, 1973), personality (Ackerman, 1994), behavior (Flynn, 1998), and the environment (Dickens & Flynn, 2001). Bandura (1977) was one of the first authors to integrate these factors, in what he called *reciprocal determinism*.

He later named this idea “triadic reciprocal determinism” (Bandura, 1986, p. 23). This framework consisted of three constructs: the person, the environment, and behavior. Influences such as genetic endowment and personality were included in the person (Bandura, 1986). Bandura’s (1986) model emphasized a “mutual action between causal factors” (p. 23).

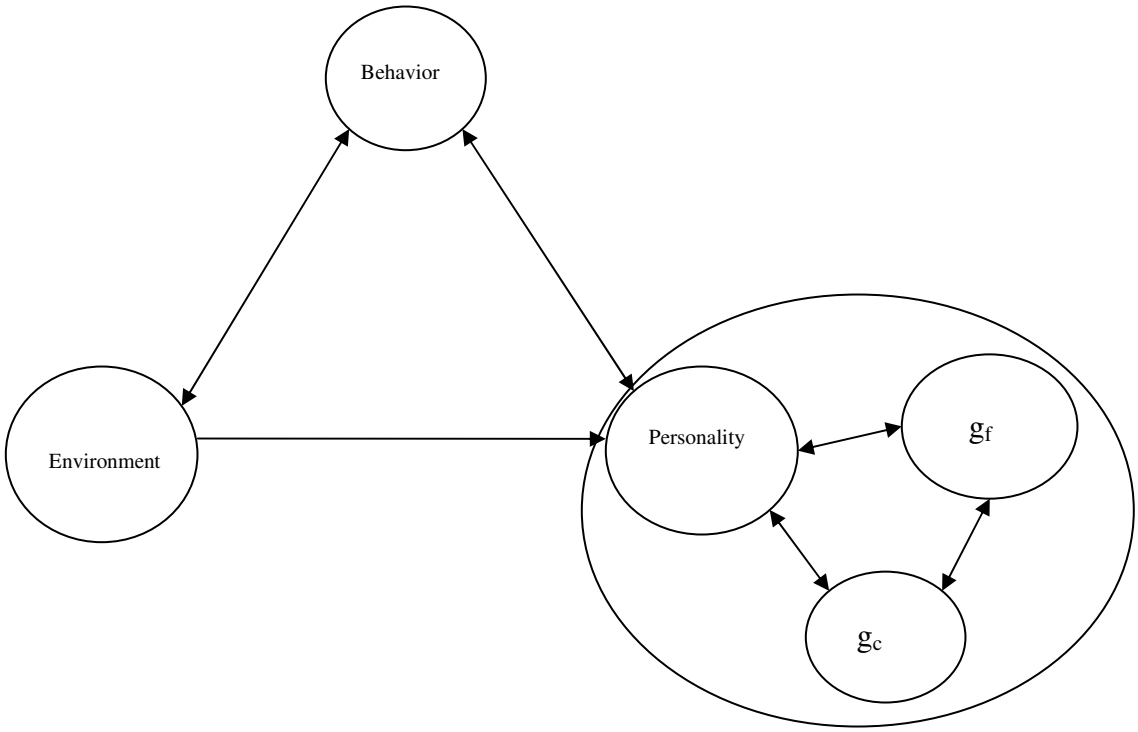

Figure 1. Model of Development of Cognitive Ability.

Similar to Bandura’s model, the model presented in Figure 1 represents the integration of research and arguments presented from divergent fields related to the nature of cognitive ability and achievement. To avoid an overly cumbersome model, discussion of the development of cognitive ability will be limited to the relationship

among five constructs: fluid intelligence (g_f), personality, behavior, the environment, and crystallized intelligence (g_c)/domain specific knowledge. The present model is similar to Bandura's in that each of his components is represented. To provide greater specificity, the person of Bandura's model is subdivided into three parts: personality, g_c, and g_f. In addition, the relationships in this model are slightly different from Bandura's model. The model in Figure 1 will be used in the discussion of these concepts and the nature of their relationships with each other.

Cattell (1966) defined g_f as "that form of general intelligence which is largely innate and which adapts itself to all kinds of material, regardless of previous experience with it" (p. 369). Personality is one's attitudes, beliefs, and interests. Behavior was defined by Barker (2001) as "the way in which an animal acts or responds within the environment" (p. 435). The environment includes any stimuli outside the person. The last concept, g_c, was defined by Cattell as "a general factor, largely in a type of abilities learned at school, representing the effect of past application of fluid intelligence, and amount and intensity of schooling" (p. 369). For the purposes of the current model, g_c and achievement will be considered together; however, it should be noted that Cattell's model distinguishes between these concepts.

Environment and the Development of Cognitive Ability

Innate capacity and the environment are interconnected in determining cognitive ability (Neisser, 1998); however, the proportional contribution of genetics and the environment has been heavily contested (Cattell, 1971; Dickens & Flynn, 2001; Flynn, 1998; Scarr & McCartney, 1983). Goldstein and Reynolds (1999) found that these

proportions varied as much as 80:20 to 20:80. They stated that "even if 80% of an individual's intellectual level is genetically determined, changes in intellectual level as a function of environmental influences and transaction may be enormous" (p. 5).

There is a high correlation between an individuals' environment and IQ (Flynn, 1998). This has been evidenced in the gradual, consistent rise in IQ since the invention of modern intelligence tests (Flynn, 1984, 1987). This phenomenon has been termed the *Flynn Effect*. As Neisser (1998) stated "the fact that (unknown) environmental factors are raising the mean IQ of Americans by 3 points per decade certainly shows that the environment matters!" (p. 15).

The role of the environment in determining cognitive ability becomes more complex when considering that individuals may shape their environment differently depending on innate ability (Jensen, 1973; Neisser et al., 1996; Scarr & McCartney, 1983). These arguments have even spawned several formulas regarding the intricate relationship between innate capacity and the environment in determining ability (Dickens & Flynn, 2001; Turkheimer, 2004; Turkheimer & Gottesman, 1996). The present model deviates from these by considering the role of personality in determining behavior that in turn shapes the environment.

Personality and the Development of Cognitive Ability

Much has been written on the role of personality in the development of academic and cognitive skills. Wittmann and Süβ (1999) contended "knowledge is influenced by intelligence, personality, interests, and motivation" (p. 86). Ackerman (2003) argued "trait complexes play an important role in determining the direction and level of effort

toward knowledge and skill acquisition" (p. 92). Cattell (1966) even contended that intelligence may be a personality trait.

Typical cognitive abilities and personality traits are thought to be most closely related to g_c and domain specific knowledge (Ackerman, 1994, 1996, 2003; Goff & Ackerman, 1992; Rolfus & Ackerman, 1999). This is because g_c is thought to be a product of an individual's experiences in the environment (Goff & Ackerman; Papalia, Olds, & Feldman, 1998). Part of the individual's experience and learning is due to purposeful exposure, which increases with age. After selecting what to be exposed to, personality and motivation play a role in determining how much effort to put into retaining and processing this information for greater understanding (Ackerman, 2003).

Personality may also account for differences in the time spent processing information. This in turn may lead to differences in g_c. As Cattell (1966) contended "what we call crystallized intelligence is the collection of *skilled judgements* a person has acquired by applying his fluid intelligence to his school opportunities" (p. 304). For example, an individual with an interest in math may be taught how to add double-digit numbers. By conscious application, this knowledge could be used to add numbers with three or more digits. An individual without such interest may have to be explicitly taught how to add numbers with three or more digits.

The role of personality on the processing of information may also be influenced by differences in g_f. Differences in g_f may influence the amount of effort and time required to receive the same gains in g_c. The level of effort required may influence attitude toward the subject in general, further showing the interconnectedness of these

processes. Some individuals may view processing information for greater understanding as a rewarding experience, while others may view it as aversive.

The link between maximal cognitive ability and personality has been examined as early as 1915 by Webb (Goff & Ackerman, 1992). Lorge (1940) reviewed the literature at the time and found over 200 correlations between personality and intelligence; however, these correlations generally were of modest magnitude. This finding was also observed by Cattell (1971) in his review of literature. Cattell (1966) noted three personality traits linked to school achievement, which is closely linked to cognitive ability. These factors were "outgoing, adaptable and warmly related to the teacher… [,] more emotionally balanced and less easily upset… [, and] greater conscientiousness" (p. 311), with their weights being +0.2, +0.3, and +0.4, respectively. Cattell (1966) later relates motivation and values to school achievement. Goff and Ackerman argued that the low correlations found between personality and intelligence measures are due to one measure asking for typical performance, while the other asks for maximal performance. They proposed that personality constructs were more closely related to typical cognitive performance than maximal.

The arrow from environment to personality signifies that personality is influential in interpreting information gathered through the environment (McCaul, 1944). Interests and temperament may influence the environmental information to which one attends (Driver, 2001). Personality is also involved in assigning meaning to events (e.g., joke verses criticism; Weiner, 1986). In this model, there is not a direct link from personality to environment. This is to indicate the view that personality does not

influence the environment directly but does so through behavior. For example, upset babies do not receive comfort for being upset but because they are crying (i.e., the behavioral manifestation of the emotional state).

Behavior and the Development of Cognitive Ability

Part of the difficulty in determining the relationship between personality and cognitive ability may be because personality may serve as a moderator between behavior and cognitive development. The influence of behavior on personality and personality on behavior is thought to be dependent on many different factors (Fazio & Roskos-Ewoldsen, 2005; Liu & Sibley, 2004). Part of the difficulty in assessing attitude-behavior relations is that behavior is often situation dependent (Liu & Sibley). For example, what an individual views as acceptable behavior in one instance may not be acceptable in another.

Instances in which behavior appears incongruent with expressed attitudes may be a result of environmental contexts that allow the individual to excuse the discrepancy and behave contrary to personal attitudes. For example, an individual may believe lying is wrong but decide to lie to protect someone. In this case, the individual has two choices. One, maintain the attitude and refrain from lying the next time; or two, change the attitude to include exceptions to this global belief. In such instances, behavior influences attitude as the individual deals with the cognitive dissonance created by the discrepancy between attitude and behavior (Festinger, 1957; Myers, 1999).

Fazio and Roskos-Ewoldsen (2005) reviewed the literature on attitude-behavior relations and found seven factors that lead to better agreement between attitudes and

behavior. These were the specificity of the questions to the desired behavior, awareness of ones feelings, level of self-monitoring, group norms, the amount of time given to make a decision, strength of attitude, and accessibility of attitudes from memory. As Fazio (1986) postulated, even if only at a small level, attitude guides almost all behavior.

Personality serves as a moderator between behavior and cognitive ability. This moderation is done through the behavior shaping the environment. For example, a child with an interest in dinosaurs may choose to go to the library to read books about dinosaurs. Reading these books would increase the child's knowledge of dinosaurs, and most likely would increase the child's reading ability and vocabulary. In this example, personality affected the choice of behaviors, which in turn changed the environment. Over time, differences in behavior between two children with the same cognitive ability may account for the eventual divergence of academic achievement and cognitive ability and differences in domain specific knowledge between the two children.

To summarize, the development of cognitive ability is determined by the interactions of several factors. Learning and achievement are not only dependent on the abilities with which one is born, but also what one chooses to do with those abilities as a result of personality influencing behavior. Behavior, therefore, may be an important determinant in cognitive ability and academic achievement. A measure of typical academic and cognitive performance could isolate the behaviors a student exhibits that either encourages or discourages academic success.

The Value of Measuring Typical Academic and Cognitive Skills

A measure of typical academic and cognitive performance could be utilized in psychoeducational assessments for many reasons. Some of these reasons include that typical performance measures may a) be better than maximal performance at predicting how an individual will behave in real life (Cronbach, 1949), b) be a better predictor of long term performance (Ackerman, 1986), c) be better at predicting performance in the later stages of skill acquisition than maximal performance tests (Ackerman, 1986, 1994; Goff & Ackerman, 1992), d) improve the prediction of academic achievement beyond what is possible using cognitive ability alone (McDermott, 1984; McDermott & Beitman, 1984; Yen, Konold, & McDermott, 2004), e) provide valuable information pertaining to an individual's strengths and weaknesses (Ackerman, 1994; Dennis et al., 2000), f) be more cost effective and efficient than measuring maximal performance (Dennis et al.; Kratochwill, Sheridan, Carlson, & Lasecki, 1999) making them ideal screening tools (Colligan, 1976; Dewey et al., 2000; Diamond & Squires, 1993; Hammill & Bryant, 1998; Hecht & Greenfield, 2001), and g) help evaluate changes in behaviors associated with academic achievement as a result of remediation programs (Diamond & Squires). The section that follows will discuss these seven reasons in greater detail.

First, typical performance measures may be better than maximal performance measures in predicting how an individual will behave in real life. Whereas maximal performance tests measure behavior in a controlled setting, typical performance tests measure behavior in everyday situations and under everyday motivation (Ackerman,

1994; Anastasi & Urbina, 1997; Cronbach, 1949, 1960; Fiske & Butler, 1963). In studying problem solving of individuals with frontal lobe dysfunction, Channon (2004) argued "the dangers of ignoring real-life performance in favour of focusing only on controlled laboratory experiments…are substantial" (p. 238).

When considering typical performance, best possible performance is not as important as performance on a daily basis. Cronbach (1949) explained the value of assessing how an individual behaves in an everyday environment with the following example:

> There is little value in determining how courteous an applicant for employment in a store *could* be when she wanted to; almost anyone of normal upbringing has the ability to be polite. But the test of a suitable employee is whether she maintains that courtesy in her daily work, even when she is not specially motivated or "on her best behavior." (p. 14)

To further illustrate this point, imagine trying to predict how many points a basketball player will score in the next game when the only information provided is the player's average score of 10 points per game and the player's personal best of 30 points in a single game. The best predictor in this instance would be the player's average performance, assuming a normal distribution of points scored across games. Because measures of typical performance focus on measuring mean or modal behavior, they may provide a better prediction of future performance on daily tasks than maximal performance measures (Ackerman, 1994; Goff & Ackerman, 1992).

Second, because of the effects of personality, motivation, and self-regulation, typical performance may be better than maximal performance at predicting long term performance. “Investigators conclude that individual differences in intellectual abilities poorly predict (i.e., r = .2 to .4) task performance as time and number of trials on the tasks increase” (Ackerman, 1986, p. 102). When using a maximal performance measure for prediction, future behavior is calculated based on a single observation period. Wittmann and Süβ (1999) argued “aggregating repeated single acts leads to higher reliability” (p. 82). The measurement of typical performance requires an aggregation of many single acts to estimate mean or modal behavior; therefore, it may be a better predictor of long term behavior.

One example of the long term predictive ability of typical performance measures is grade point average (GPA), one of the most common typical performance measures of academic achievement (Rolfhus & Ackerman, 1999). Halpin et al. (1981) demonstrated this in their finding that high school GPA was a better predictor of the GPA of college freshman than the CAT, the ACT, or the SAT. Using GPA with these maximal performance measures was also found to greatly increase the ability to predict future GPA beyond the use of any one measure alone (Halpin et al.).

Third, typical performance measures may be better suited for assessing performance in the later stages of skill acquisition (Ackerman, 1994; Goff & Ackerman, 1992). Contrasting the predictive qualities of typical behavior and maximal cognitive ability, Ackerman stated that maximal performance is associated with skill acquisition in its early stages or “the cognitive phase of skill acquisition” (p. 13). After this phase, the

cognitive demands are reduced and other factors related to typical performance, such as personality and motivation, are more influential in determining the level of proficiency. As Ackerman stated "when there is a mismatch between intelligence-as-typical performance and intelligence-as-maximal performance, the learner may be satisfied with a suboptimal level of task performance, and essentially 'exit' form [*sic*] the learning process" (p. 13). Because typical performance can predict performance after basic skills are acquired, information gained from typical performance measures could be used to make better decisions in job selection or college admission (Cronbach, 1949).

Conversely, Dennis et al. (2000) argued that typical performance tests "may not predict successfully in situations that require a person to put forward his or her best effort" (p. 194). It is plausible, therefore, that a measurement of typical academic and cognitive skills would only produce moderate correlations with tests of maximal performance (Dennis et al.).

Fourth, typical performance measures can be used to predict academic achievement. This has been demonstrated using parent report (Colligan, 1976; Dewey et al., 2003; Williams et al., 1991), teacher report (Alexander, Entwisle, & Dauber, 1993; Cadieux & Boudreault, 2002; Demaray & Elliot, 1998; Glascoe, 2001; Hecht & Greenfield, 2001), and outside observers (Attwell, Orpet, & Meyers, 1967).

The accuracy of predictions made using typical performance measures is critical. Several studies looked at the accuracy of teacher's predictions. Glascoe (2001) assessed teachers' accuracy in predicting academic performance as evidenced by achievement test scores. Teachers were asked to use a five-point scale to rate academic performance. With

the exception of children with moderate academic difficulties, this one-item test predicted children's achievement across all academic areas. Demaray and Elliot (1998) studied teachers' predictions of the Kaufman Test of Academic Achievement –Brief form (KTEA) scores of first through fourth graders. They found that the teachers' predicted standard scores had a correlation of r = .84 with the actual standard scores. They concluded that "teachers' judgments of students' academic achievement were quite accurate and can be captured efficiently through a rating-scale format" (p. 18). Begeny, Eckert, Montarello, and Storie (2008) studied the ability of teachers to predict reading performance using a rating scale and other methods. They found that teachers were more accurate in rating students with strong reading skills than they were in rating students with low to average reading skills.

A consistent finding in the research literature is that using typical performance measures along with a measure of cognitive ability resulted in a better prediction of academic achievement than using the cognitive ability test alone (Schaefer & McDermott, 1999; Yen et al., 2004). McDermott (1999) compared the predictive ability of the Differential Ability Scale (C. D. Elliott, 1990), a measure of intelligence, and the Learning Behavior Scale (LBS; McDermott, Green, Francis, & Stott, 1999), a measure of typical performance, at predicting academic achievement test scores and grades in school. They found that typical performance accounted for about 27% of the variance in school grades and 12% of the variance in the scores on the achievement test. Intelligence test scores accounted for about 16% of the variance in school grades and 32% of the variance in achievement test scores.

McDermott (1999) provided two explanations for the greater ability of typical performance to predict school grades than intelligence. First, it could be a result of source invariance. Because teachers assign class grades, they may be more likely to have ratings that correlated highly with school grades than raters that did not have such knowledge (McDermott, 1999). Second, Wentzel (1989) argued that success in the classroom requires skills that are not measured by achievement tests. Some of these traits may include motivation, interest, social cognitions, attention, or organization. Another possible explanation is that school grades require consistent performance over time in a less controlled setting; whereas, achievement tests require doing well at one point in time in a more controlled setting.

In some cases the ability of typical performance tests to predict achievement may even exceed that of cognitive ability tests. Furnham and Chamorro-Premuzic (2004) utilized cognitive ability test scores, a personality measure, and a measure of typical academic performance as rated by a tutor to predict grades on two statistics tests. The performance rated by the tutor "account[ed] for around a third of the [total] variance, intelligence tests barely 3% and the remainder of around 10% attributable to personality traits" (p. 952). These findings may be a result of the greater specificity of the tutors' ratings in comparison to the estimate of *g*.

Fifth, assessing a child's typical performance may provide a more comprehensive view of the child's strengths and weaknesses than is possible by only looking at maximal performance (Ackerman, 1994; Dennis et al., 2000). One such example is found in the work of Smith-Park, Fawcett, Nicolson, and Fisk (2004). Through studying everyday

behaviors, they discovered that adults with dyslexia showed greater impairment that was statistically significant in organization, absentmindedness, and attention than adults not diagnosed with dyslexia. As another example, McDermott (1999) discovered that academically successful students were more likely to participate actively, listen attentively, and accept feedback from their teachers than their less successful peers.

At the subtest level, typical performance tests could be particularly better than intelligence tests in discovering strengths and weaknesses. McDermott and Glutting (1997) demonstrated that ipsative subtest analysis adds little to the explanation of achievement variation or the discrimination of individuals from clinical subgroups. Research has also demonstrated that most tests of cognitive ability lack the subtest stability needed to appropriately perform profile analysis (Livingston et al., 2003; Macmann & Barnett, 1997; Reynolds & Kamphaus, 2003). Therefore, the information obtained from subtest analysis of cognitive ability tests adds little new information and that information has little reliability. Cattell (1936) contended that a good intelligence test "should contain only subtests highly saturated with 'g'" (p. 4). Reynolds and Kamphaus argued that the better a test measures *g,* the worse it is at measuring distinct abilities. A more thorough review of the pitfalls of interpreting intelligence tests at the subtest level can be found in Reynolds and Kamphaus (2003).

The discovery of strengths and weaknesses in typical performance relative to maximal performance may be particularly relevant. The discrepancy between typical and maximal performance may reveal a potential for improving performance (Gilbert, 1978). Differences between maximal and typical strengths and weaknesses may occur for

several reasons. These differences may be due to the individual's personality (Goff & Ackerman, 1992), interests (Ackerman, 2003; Fritzsche, McIntire, & Yost, 2002), motivation (Cronbach, 1949), or self-regulation (Ackerman, 1994). As mentioned earlier, personality and interests may determine how individuals choose to use their capacity to learn. Motivation and self-regulation may determine how vigilant one is in acquiring knowledge and developing skills along those interests.

Sixth, measuring typical academic and cognitive skills may be more cost effective and efficient than measuring maximal performance (Dennis et al., 2000; Kratochwill et al., 1999). Because of the relatively low cost and time required to measure typical academic and cognitive skills, these measures could be used as a screening device to guide further testing (Colligan, 1976; Dewey et al., 2000; Diamond & Squires, 1993; Hammill & Bryant, 1998; Hecht & Greenfield, 2001). Saving assessment time through adequate screening measures allows children who need specialized services to receive them with less delay.

Finally, typical performance measures may help evaluate changes in behaviors associated with academic achievement as a result of remediation programs. Schaefer and McDermott (1999) argued "the qualities underlying intelligence are inextricably tied to complex networks of genetic and environmental factors that are essentially unalterable in the lives of most children" (p. 300). On the other hand, learning behaviors may be altered and are therefore prime targets for academic interventions (McDermott, 1999; Schaefer & McDermott). Because typical performance measures of academic and cognitive performance relate more specifically to learning behaviors, the strengths and

weaknesses found through these measures may more directly translate into target behaviors for change (McDermott, 1984). Also because of their focus on specific behaviors related to school success or failure, a measure of typical performance may be able to detect subtle changes in behavior that have not yet manifested themselves through maximal performance test scores.

Methods of Assessing Typical Academic and Cognitive Skills

The value of measuring typical academic and cognitive skills is meaningless unless it can be accurately measured. Measuring typical academic and cognitive skills requires some level of aggregation of behavior over time. This could be done by the assessor completing a large number of behavioral observations or enlisting the help of individuals who have already conducted such observations informally through daily interactions (i.e., parents, teachers, or the individual; Cronbach, 1949, 1984). Each method has advantages and disadvantages.

Behavioral Observations

Behavioral observations allow the assessor to see behaviors of interest firsthand. If the behavioral observations are structured and conducted by competent individuals, such observations would theoretically be the best indicator of typical performance (Cronbach, 1949); however, determining typical performance through observation can be very time consuming. In describing the difficulty in determining typical performance through behavioral observation, Cronbach stated:

> It is doubtful if one ever has a truly typical day. Typical behavior could be described as an average or composite of many single behaviors….To observe

> typical behavior, one must in some way obtain a sample of all relevant situations and of all times when the situation arises. (p. 305)

Although limited observations have produced meaningful predictions of school achievement (McKinney, Mason, Perkerson, & Clifford, 1975), many observations would be required to know if the observed behaviors were typical (Cronbach, 1949, 1984). Additionally, generalizations from observed behaviors would be limited to the situations in which the individual was observed. In order to make generalizations from naturalistic observations, behaviors must be observed across different settings and times of day (Cronbach, 1984).

Another important point to consider is the act of observing may alter the target behavior. Cronbach (1949; 1984) stated that many behavioral observations may be required to ameliorate the effects the observation may have on the target behavior. Although behavioral observations are an essential part of any assessment, using direct behavioral observations to estimate typical academic and cognitive performance would be highly impractical in terms of time and cost effectiveness.

Rating Scales

Rating scales are the most common method used for determining typical performance (Cronbach, 1949). Although rating scales have primarily been used to assess personality and behavior associated with clinical diagnoses, in recent years they have been used to measure typical academic and cognitive performance (Andrewes, Hordern, & Kaye, 1998; Dewey et al., 2000; Dewey et al., 2003; Golomb, 1999; Hammill & Bryant, 1998; Williams et al., 1986; Williams et al., 1991). Rating scales are

commonly completed by individuals other than the assessor, reducing the assessor's administration time, thereby reducing the cost of the assessment (Hart & Lahey, 1999; Saudino et al., 1998). Rating scales of typical academic and cognitive performance have utilized the ratings of teachers on their students (Hammill & Bryant), children on their elderly parents (Williams et al., 1986), parents on their children (Dewey et al., 2000; Dewey et al., 2003; Williams et al., 1986; Williams et al., 1991), and students rating their own behavior (Kruger & Dunning, 1999).

Advantages of Using Rating Scales

Rating scales have been preferred over behavioral observations for measuring typical academic and cognitive performance (Dewey et al., 2000; Dewey et al., 2003; Williams et al., 1991; Yen et al., 2004). Kratochwill et al. (1999) cited seven strengths of rating scales and checklists over observation and interviewing alone. These strengths are more cost, time, and effort efficiency; providing a fairly comprehensive view of the construct of interest; finding problems missed with other methods as a result of their breadth; obtaining information that is easy to quantify; providing an efficient pre and post treatment measure of performance; a convenient method of measuring treatment outcomes; and forming identifiable groups based on responses, which groupings can be used to identify individuals who may best respond to a particular treatment.

When an assessor administers a maximal performance test, that assessor is obtaining a single sample of behavior. From this one sample, predictions are made about the examinee's future performance in real life settings (e.g., a college entrance exam predicting future college success). Although rating scales are typically completed in one

session, they are still able to reduce the limitations of behavioral sampling found in ability testing. This is because the rater mentally averages the behaviors observed during a specified time frame (e.g., past six months) to provide an overall estimate of typical behavior (Anastasi & Urbina, 1997; Glascoe & Dworkin, 1995; Kratochwill et al., 1999; Saudino et al., 1998). Because of this compilation of observations, the results may provide a closer approximation to what the individual is most likely to do in an everyday setting than a test of maximal performance can provide.

Factors Affecting Rating Scales

Because rating scales depend on a rater estimating behavior, this form of measurement is not as accurate as compiling data through many direct observation sessions. Many factors affect the accuracy of rating scales. First, one must consider the possible motivations of the rater to provide either a positive or negative picture of the subject of the ratings (Olson, 1936). Second, ratings may be distorted as a function of subjectively estimating an individual's mean or modal behavior (Cronbach, 1949, 1984; Kratochwill et al., 1999). Third, this subjective estimation is limited to the exposure the rater has had with the subject, in the areas targeted on the rating scale (Cronbach, 1949, 1984; Glascoe, 2001). Fourth, raters may have their own pattern of answering questions, called a response set (Baker, 1999; Kamphaus & Frick, 2002). Fifth, exposure to past test results or others' ratings may produce a conformity effect (Glascoe et al., 1989). Sixth, the ratings are also dependent on the rater understanding the directions and what is being asked by each item (Cronbach, 1949; Kratochwill et al.).

Ratings rely heavily on the accuracy of the rater's estimation (Cronbach, 1949, 1960). A rater may be motivated to respond inaccurately (positively or negatively), even if unintentionally, to obtain a desired outcome. For example, Olson (1936) found evidence of this tendency when he discovered differences between signed and anonymous ratings on the Woodworth-Mathews Personal Data Sheet. Blanchard, Clemmensen, and Steiner (1985) found evidence of a response set that may have been due to patients trying to gain a favorable recommendation from the examiner. Reasons why students may over or underrate themselves include preserving their unrealistic views about themselves (Harter, 1998), trying to earn approval (Norton, 1990), and protecting themselves from failure (Harter; Norton).

Even if the rater has no outcome-oriented motivation, the rater's insights about the individual being rated are likely to be distorted to some degree (Cronbach, 1949; Kratochwill et al., 1999). This happens for several reasons. First, for raters other than the self, even when a significant amount of time is spent with the individual, only a portion of the individual's behaviors are seen, usually in a limited number of situations (Cronbach, 1984). When asked to provide ratings, the rater's memory is subject to "selective recall" (Cronbach, 1984, p. 529). For instance, these ratings may display a "*halo effect*," (Cronbach, 1949, p. 397) where the rater's overall evaluation of the individual influences the evaluation of specific qualities. Forehand, Lautenschlager, Faust, and Graziano (1986) discovered that the rater's mood when completing ratings may affect the rater's perceptions of the individual.

Rating differences also may appear as a function of the role of the person who is asked to complete the ratings. Garner and Smith (1976) and Wills (1978) demonstrated that ratings on the same individual can differ systematically between helping professionals and lay persons. Cronbach (1984) found that, "whereas ratings by lay persons err on the generous side, social workers, counselors, and others in the helping professions have somewhat the opposite tendency" (p. 509). More recently, Shohamy, Gordon, and Kraemer (1992) found little difference in the reliability of lay persons verses professionals, but found those who had received training about completing the ratings produced more reliable scores. Research has also demonstrated different patterns of responding between parent, teacher, and student reports of the same behaviors (Loeber, Green, Lahey, & Stouthamer-Loeber, 1991). Because of differences due to rater-type, it is suggested that ratings from several raters be obtained to create a better picture of the individual (Kamphaus & Frick, 2002; Kratochwill et al., 1999).

Rating distortions may also arise as a result of the rater's lack of knowledge about the individual (Cronbach, 1984; Glascoe, 2001) and/or the construct of interest (Cronbach, 1949). Reynolds and Kamphaus (2004) emphasize choosing raters who know the individual well. For teachers they suggest daily contact for at least a month, or that same amount of contact spread out across multiple months. For parents they suggest that if only one parent can provide ratings, the parent who has spent time with the child frequently and recently should be chosen. Knowledge of the individual is important; however, the rater also "should have had an opportunity to observe her or him in situations in which the behavior in question could be manifested" (Anastasi & Urbina,

1997, p. 466). Hammill and Bryant (1998) suggest finding a rater who knows and has worked with the individual in the areas being rated (e.g., a math teacher to rate a child's math abilities).

Raters may have their own pattern of answering questions, called a response set (Baker, 1999; Kamphaus & Frick, 2002). Some raters may regularly assign high or low scores to most individuals (Cronbach, 1984), which may reflect differences in that "rater's standard for performance" (Kratochwill et al., 1999, p. 356). Other raters may choose a neutral response (e.g., neither agree nor disagree) whenever faced with a difficult question (Kaplan & Saccuzzo, 2001). Still another rater may develop a pattern of responding in an attempt to present the to-be-rated individual in a certain light (Kruger, 1999).

Though it is impossible to eliminate response sets, steps can be taken to reduce their likelihood and/or to be aware when a response set exists. One of the biggest steps would be through thoughtful writing of the items, which will be discussed in more detail later in the paper. Validity scales can also be used to notify the examiner when the ratings are likely to be affected by a response set (Anastasi & Urbina, 1997). Some ratings scales, such as the Behavioral Assessment System for Children-2 (BASC-2; Reynolds & Kamphaus, 2004) and the Minnesota Multiphasic Personality Inventory -2 (MMPI-2; Hathaway & McKinley, 1989) utilize multiple validity scales to assess possible response sets and unusual patterns of responding (Archer, 1992; Kamphaus & Frick, 2002).

Exposure to previous test results and the opinions of others can alter ratings (Glascoe et al., 1989). Thus, the amount of exposure a rater has had to the formal or informal evaluations of others may inadvertently produce high agreement among raters. Raters should be instructed to base their ratings solely on their own experience and not the opinions of others. When possible, raters should be naive about others' ratings.

The items on the rating scale itself may cause rating distortion (Kratochwill et al., 1999). "Questions are not likely to prove reliable or valid if they mean different things to different subjects" (Cronbach, 1949, p. 307). How the item is scored depends largely on the rater's interpretation of its wording. For example, in reading the question "Do you *usually* [italics added] seek suggestions from others?" (Cronbach, p. 308), the word *usually* may mean *sometimes* to one person and *often* to another (Cronbach). Difficulty in understanding the item content may also be related to the reading level of the item.

Cultural differences may also account for differences between the intended definition and the definition assumed by the rater. Okagaki and Sternberg (1993), for example, discovered that various cultural groups maintained different implicit definitions of intelligence. Different groups of people may also show similar response patterns to individual items that appear unrelated to the to-be-measured construct, bringing up the possibility of cultural bias (Anastasi & Urbina, 1997; Kaplan & Saccuzzo, 2001).

Factors to Consider When Constructing a Rating Scale

Several steps can be taken to reduce the possibility that confusion about item content will influence the ratings. Expert raters can be enlisted to help determine

potentially confusing or culturally offensive items (Anastasi & Urbina, 1997). The ratings for and by individuals from different identifiable groups of people can be assessed to determine if consistent differences between these groups exist, called differential item functioning (Kaplan & Saccuzzo, 2001). The ratings of items can also be used to determine which items detract from the internal consistency of the scale as a whole. This is done with the assumption that less reliable items may be the result of different views of what the item is asking, or that the item relates to a less-related aspect of the construct (Kaplan & Saccuzzo).

When writing test items for a rating scale, three factors should be considered. Items should be written with adequate clarity to avoid confusion (Aday, 1989, 1996). The breadth of the item content should be adequate (Aday, 1996). The items should also reduce the chance of a response set or increase the ability to detect one. By considering each of these factors, there is a greater chance that the user will obtain meaningful results.

Aday (1989) stated that writing clear items that convey the intended meaning "requires creativity and ingenuity on the part of the survey designer" (p. 131). Several steps can be taken to ensure clarity of writing. First, the items should be written within the reading level of the rater (Sommer & Sommer, 1997), using words that both fit the concept and "make sense to the *respondents*" (Aday, 1996, p. 191). Second, avoid questions that ask about two areas at once, or "*double-barreled questions"* (Aday, 1996, p. 194). Third, avoid asking questions in a manner that may cause respondents to think the writer expects them to respond in a particular way (Aday, 1996). Fourth, the item

and the response options should be written in a way that does not create a double negative (e.g., Never gets up on time, with *never* being one of the response options). Fifth, when the intended rater is someone other than the self, ask questions about observable behaviors and avoid global statements. Sixth, Sommer and Sommer advise writers to avoid using excessive jargon when constructing rating scales.

Several strategies can be used to prevent and detect response sets. To prevent individuals from choosing a neutral response, Kaplan and Saccuzzo (2001) suggest using an even number of response choices and removing the neutral option, thereby not allowing the rater to be neutral. To reduce the ease of purposely over or under estimating problem areas, Baker (1999) suggested "clearly reversing the meaning of some questions so that consistency in response requires agreeing with some questions and disagreeing with others" (p. 210). Items also can be written in a way that allow for the construction of validity scales (Anastasi & Urbina, 1997). By placing some very similar items or the same item in several places in the scale, the consistency of responses can be estimated. Additionally some items can be written specifically to detect individuals trying to project an overly positive (e.g., I like everyone) or negative (e.g., I always make mistakes) image.

Cronbach (1984) gave five guidelines for item content in a rating scale. "Each rating should refer to a single variable" (p. 514). "There should be a number of items touching on the same aspect of behavior" (p. 514). "Scales should describe the strength of a trait…and not present 'opposite' traits as a bipolar scale" (p. 514). "Items should be as free as possible of theoretical preconceptions" (p. 515). "The span of the scale should

not extend beyond the range of cases" (p. 515). Glascoe and Dworkin (1995) stated that a valid scale depends upon the items matching the constructs being studied.

Types of Raters

It is often advantageous to obtain ratings from multiple raters (Glascoe, 1991; Reynolds & Kamphaus, 2004). One such advantage is the ability to compare the agreement between raters. Another advantage is increased accuracy because of the greater likelihood of covering all aspects of development (Glascoe). Depending on the behavior being considered, a specific rater type may be a better assessor of the behavior. Xie, Mahoney, and Cairns (1999) discovered that teacher-report of academic competence of high school students was a better predictor of college attendance than self-report of academic competence. Loeber et al., (1990) found that mental health professionals viewed teachers as better informants than parents about hyperactivity and inattentiveness; however, mothers were viewed as the better informant of internalizing disorders. The next section will discuss the main types of raters used in the academic context: teacher report, parent report, and self-report.

Teachers are part of the school environment and may therefore observe school behavior without altering the environment. Teachers are trained to be experts on academic and cognitive skills. They also spend a large amount of time with their students, allowing them to become well-versed in the typical behavior of each student. Studies of the ability of school teachers to predict their students' academic achievement fall along two categories, those that ask the teacher to rank the student's academic

achievement on a single likert scale, called a global rating, (Glascoe, 2001), and those that ask about specific behaviors (McDermott, 1999; Williams et al., 1986).

Because a level of subjectivity is part of any rating scale, one fear of teacher ratings is the influence of cultural bias. Early research has shown that cultural bias existed when teachers were asked to make global ratings about students from different cultural groups (Kelly, Bullock, & Dykes, 1977; Zucker & Prieto, 1977). More recent findings suggested that the global ratings of teachers were not influenced by the child's age, race, gender, or socioeconomic status (Glascoe, 2001). McDermott (1999) studied teachers' ratings of specific learning behaviors and found no statistically significant difference in the ratings of Hispanic or African-American children. Another study using the same scale found no differences in teacher ratings on the basis of gender or ethnicity (Yen et al., 2004).

Bahr, Fuchs, Stecker, & Fuchs (1991) compared cultural bias between global ratings and ratings of specific behaviors. They obtained information from teachers including a global statement of the student's "*appropriateness for referral*" (p. 602), verbal descriptions of problem behaviors, and provided ratings on the Revised Behavior Problem Checklist for black and white students. They found that black students were rated higher on appropriateness for referral by both black and white teachers; however, "teacher descriptions and ratings of…classroom behavior failed to distinguish the black from white group" (Bahr et al, p. 606). Therefore, some rater biases may be reduced when asked to provide ratings of specific behaviors.

Also an important rater type, parents have long been viewed as an excellent source of information about their children (Kamphaus & Frick, 2002). Especially at younger ages, parents may be the most knowledgeable experts on their children. Parents' ratings are based on extensive observations of their children's behavior (Glascoe & Dworkin, 1995). Although they may not always view their academic behavior directly, they observe many indicators of their child's academic and cognitive skills (e.g., report cards, graded homework).

Empirical evidence suggests that the accuracy of parent ratings is not affected by many demographic factors. Parent accuracy is not influenced by the parent's marital status, area of residence, child's birth order (Glascoe, MacLean, & Stone, 1991), parent's education, experience, gender, family size, child's race, or child's gender (Glascoe et al.; Glascoe & Sandler, 1995). Lichtenstein (1984), however, found statistically significant differences in ratings based on age and socioeconomic status. Further investigation is needed to evaluate potential parent bias based on age and socioeconomic status.

Parent rating scales can help the parents become more involved in the entire assessment and remediation process of children with difficulties. Kim, Sugawara, and Kim (2000) cited five benefits of parental participation in their child's assessment: greater satisfaction with the assessment, increased cooperation with educational professionals, greater understanding of their child's abilities, an increased ability to observe their child's performance, and a more realistic view of their child's abilities.

The issue of parental over and underestimation of children's academic and cognitive skills has been studied by several authors (Diamond & Squires, 1993; Ewert & Green, 1957; Hunt & Paraskevopoulos, 1980; Norton, 1990). One possibility for this phenomenon is that parental inaccuracy may be a result of the parent's own psychological history or problems (Ewert & Green; Glascoe & Dworkin, 1995). Parents often rate their child by comparing their child to other children (Glascoe et al., 1989); however, Glascoe and MacLean (1990) found that some parents felt they did not have a good source for comparison because they had few contacts with other children. In some instances, over estimation may be the result of the parents reporting on newly-formed skills that have not yet been mastered and observed by others (Diamond & Squires; Fuchs, Fuchs, Power, & Dailey, 1985). This may be most pronounced when dealing with pre-school and physically or mentally impaired children. "Parents understand what their children verbalize more readily than strangers do, and children probably respond more readily to communication from their parents than from strangers" (Wolfensberger & Kurtz, 1971, p. 44). Finally, over and underestimation may be a result of looking at absolute ratings of the child's performance. A better approach may be to look at the placement of the parent's ratings of the child relative to the ratings of other parents. This would control for any systematic over or under estimation, as long as the parents rated children of differing levels of ability in incrementally different ways.

Self-report scales may provide a good estimate of typical performance because individuals have had a large opportunity to observe their own behavior (Cronbach, 1949). On the other hand, as Cronbach (1960) stated "even when he tries to be truthful,

we cannot hope that he is a really detached and impartial observer of himself. His report is certain to be distorted to some degree" (p. 34).

The issue of over and underestimation also affects self-reports (Ackerman, Beier, & Bowen, 2002; Kruger, 1999; Kruger & Dunning, 1999; Stone & May, 2002). Kruger and Dunning found that students in the top quartile were more likely to underestimate their ability, whereas students in the bottom quartile were more likely to overestimate their ability. Overestimation is hypothesized to be caused by poor metacognitive awareness or self-protection, while underestimation may be due to overestimating the abilities of peers (Kruger & Dunning; Stone & May). Harter (1998) stated that underestimation may be due to feelings of incompetence, while overestimation may be due to preserving feelings of competence.

Despite these findings, Stone and May (2002) found that even between high and low achieving students, scores between groups differed enough to predict group membership. Kruger (1999) argued that inaccurate estimation also may be due to taking "insufficient account of the comparison group" (p. 229). He hypothesized that judgments about one's own performance are made relative to the performance of others, using "one's own skills…as a judgmental anchor" (p. 223). The easier the task, the higher individuals rate their ability relative to their peers; the harder the task, the lower the rating.

Ackerman et al. (2002) argued that most over and underestimation "might be accounted for by…regression to the mean" (p. 588). They hypothesized:

> The likelihood of *overestimating* or *underestimating* one's own abilities depends much more on the ambiguity of the statement: (1) where the activity or aptitude is unknown to the individual—and so must be inferred from other information (e.g. "I could learn to juggle"); or (2) the domain to be considered is over-broad (e.g. "intelligence"). (p. 590)

To test the hypothesis, Ackerman et al. assessed individuals using objective and self-report measures. The self-report scale used specific and ambiguous questions. They found statistically significant correlations between the self-report and objective scales when utilizing specific questions, while replicating past research findings of overestimation when using ambiguous questions, thus supporting their hypothesis. It could also be concluded from these studies that individuals are more likely to rate their abilities at an average level when questions are ambiguous.

Evidence of Measures of Typical Academic and Cognitive Skills

Many studies in the research literature have utilized rating scales to assess academic and/or cognitive ability. Relatively few ratings scales, however, have been developed for use in research, and very few have been made commercially available for practical use with children. Some of the most notable scales found in the research literature include the LBS, PRECA, PRECAA, and the LDDI.

Learning Behavior Scale

The LBS (McDermott et al., 1999) is a 29- item rating scale completed by classroom teachers. This scale is intended to measure four intrapersonal factors believed to affect school performance: attitude toward learning, competence motivation,

strategy/flexibility, and attention/persistence (McDermott, 1999; Worrell, Vandiver, & Watkins, 2001). Using a nationally representative normative sample, this measure has demonstrated strong evidence of reliability and validity (McDermott). The reliability evidence has also been replicated using an independent sample of elementary school students (Worrell et al.), academically talented students (Worrell & Schaefer, 2004), and village children in St. Vincent, in the West Indies (Durbrow, Schaefer, & Jimerson, 2001).

Studies utilizing the LBS have discovered that this scale can be used to increase the predictive ability of intelligence tests in predicting school grades (McDermott, 1999; Schaefer & McDermott, 1999; Yen et al., 2004) and academic achievement (Durbrow et al., 2001; McDermott; Schaefer & McDermott; Yen et al.).

Parents Rating Scale of Everyday Cognitive and Academic Abilities

Williams et al. (1986) applied methods previously used in personality measurement to cognitive measurement. Specifically, they used rating scales in an attempt to measure typical academic and cognitive skills directly, rather than indirectly through personality constructs and motivation. Because “many demented patients refuse or cannot take neuropsychological tests” (p. 104), Williams et al. attempted to assess cognitive functioning by administering rating scales to the spouse or child of patients with dementia. Their questionnaire showed 100% accuracy at predicting individuals suffering from dementia, based on reports of cognitive functioning. These findings may have been inflated because the sample of participants with dementia included individuals with moderate but not mild impairment (Williams et al.).

Williams et al. (1991) furthered this movement by using parent ratings to assess the everyday cognitive abilities of children who received treatment for Acute Lymphoblastic Leukemia (ALL), children with LD, and normal controls. Because a comprehensive measure of typical cognitive functioning did not exist, they created their own, the PRECA. This scale has several subscales: "Memory, Language, Higher Cognitive Abilities, Apraxia, Hyperactivity/Impulse Control, Learning Behavior, and Academic Skills" (Golomb, 1999, p. 44; Williams et al.).

The PRECA had high internal consistency and test-retest reliability. "The overall coefficient alpha was .98; alpha ranged from .79 to .99 for each subscale. Test-retest reliability was also high; Pearson correlations ranged from .68 to .94 for each subscale" (Williams et al., 1991, p. 18). The difference between children treated for ALL and normal controls was only statistically significant for the Academic Skills subscale; however, children with LD scored statistically lower than the controls on all subscales and lower than children treated for ALL on all subscales except Academic Skills.

Golomb (1999) used the PRECA to study the potential intellectual decline of children who undergo bone marrow transplantation. It was discovered that the correlation between change of IQ and total PRECA score after one and two years was statistically significant at the .01 level. Because academic achievement tests were not used, no comparisons between parent report of Academic Skills and achievement test scores were made.

Parents Ratings of Everyday Cognitive and Academic Abilities

Dewey et al. (2000) revised the PRECA to become the PRECAA. The PRECAA was comprised of six subscales: Memory, Language, Higher Cognitive Abilities, Coordination, Learning Behavior, and Academic Skills. In their study, they compared the cognitive, language, memory, and motor function of children ages 6.0 to 14.5 years from three groups, children born with very low birth weight who were developing normally, children who were born with very low birth weight who were "'suspect' for developmental learning problems" (Dewey et al., 2000, p. 38), and children of normal birth weight. Along with the PRECAA, the authors used several maximal performance measures, including the WISC-III, Wide Range Assessment of Memory and Learning (WRAML), Peabody Picture Vocabulary Test-Revised (PPVT-R), and the Clinical Evaluation of Language Fundamentals – Revised Screening Test (CELF-R). Dewey et al. (2000) discovered the PRECAA ratings of "memory, language, cognitive, and motor difficulties were consistent with actual performance on psychometric measures" (p. 42).

On the other hand, the PRECAA had low accuracy at indicating children with low scores on maximal performance measures, but it had a high level of accuracy at indicating children without low scores; therefore, it had high specificity but low sensitivity (Dewey et al., 2000).

Dewey et al. hypothesized that this finding was a result of the difference between the PRECAA, that asks questions about daily functioning, and maximal performance tests that indicate performance in a controlled setting. Because of the difference between maximal and typical performance measures, Dewey et al. claimed that the use of the

PRECAA along with maximal performance measures may allow for better understanding of how the level of functioning affects daily life and may help identify low birth weight children with cognitive problems that are not identified through maximal performance assessment alone.

Dewey et al. (2003) compared the PRECAA scores of children with RD, children with ADHD, and children with RD and ADHD combined. The PRECAA was used in conjunction with several maximal performance measures, including the Vocabulary and Block Design portions of the WISC –III from which a Full Scale IQ was estimated, WRAML, and Woodcock-Johnson-Revised Broad Written Language cluster. The authors found that the PRECAA was better at predicting group membership than the maximal performance tests. Using the PRECAA with the maximal performance measures resulted in fewer false positives or negatives in differentiating between children with RD and children with ADHD and RD than using maximal performance measures alone (Dewey et al.).

The PRECAA was normed using 90 children from public schools in the Calgary, Alberta area (Dewey et al., 2003). The children were predominately "from families in the middle range of socioeconomic status" (Dewey et al., p. 90). To date it has not been normed on a large, nationally-representative sample. Research has not been published assessing its accuracy at predicting group membership among children who are low functioning without a SLD, children with MR, or children with SED.

Learning Disabilities Diagnostic Inventory

The LDDI (Hammill & Bryant, 1998) is another commercially available measure of everyday cognitive abilities. The LDDI assesses "intrinsic processing difficulties" (Cox & Bell, 2002, ¶1) to differentiate between SLDs. It is a rating scale intended to be completed by a professional who has detailed knowledge about the child (i.e., teacher, counselor, social worker). The LDDI produces scores for each of its six scales (listening, speaking, reading, writing, mathematics, and reasoning). A single score of overall ability is not available (Hammill & Bryant). Hammill and Bryant claimed that an overall score would be inappropriate because the scales measure heterogeneous traits. Diagnoses are determined through conducting a profile analysis of the six scales (Gutkin, 2001).

The LDDI has received praise for its new approach to assessing learning disabilities, its solid reported reliability data, and ease of administration and scoring (Cox & Bell, 2002; Gutkin, 2001). There are two main shortcomings of the LDDI. First, the LDDI has not been shown to have adequate sensitivity to increase the diagnostic accuracy over traditional tests, with a false negative rate between 23 and 43 percent (Cox & Bell; Gutkin; MacDonald, 2001). Cox and Bell argued that the high false negative rate is not surprising, considering the diverse criteria for diagnosing SLD. Second, because of the LDDI's low sensitivity, Gutkin argued that the LDDI does not save assessment time.

Future Directions for Research

Goff and Ackerman (1992) argued that intellectual abilities cannot be divorced from motivation and personality. They proposed that a typical intellectual engagement can be better understood by attempting to understand the personality and attention

factors that affect typical intellectual performance. In a review of the literature, no articles were found that empirically investigated typical cognitive performance and personality. Because this relationship already has a strong theoretical foundation (Ackerman, 1994; Goff & Ackerman; Wittmann & Süβ, 1999), it is a ripe field of research.

Another area that has theoretical underpinnings but little empirical research is the potential power of typical performance measures to predict performance in the later stages of skill acquisition (Ackerman, 1994; Cronbach, 1949; Goff & Ackerman, 1992). Longitudinal research may be the best way to assess this relationship. This also could be accomplished with specific tasks that could be learned quickly across multiple sessions within a period of several weeks or months.

Research also could focus on the discrepancy between typical and maximal performance in students with academic difficulties, particularly students with SLD. Though this relationship is claimed to be potentially more valuable than the discrepancy between intelligence and achievement (Ackerman, 1994), no published studies on this topic were found. This relationship could be examined by comparing the discrepancy between intelligence test scores and typical performance to the discrepancy between intelligence test scores and achievement test scores.

Because studies of potential rater bias yielded mixed results, this topic warrants further investigation. When assessing bias, it is important to determine if bias is a product of the test, an artifact of the beliefs of the rater, or a representation of actual

differences between groups. To make this determination, it is important to use multiple measures of the desired constructs.

Summary

Tests of maximal performance measure best performance, while tests of typical performance measure average performance. One use of typical performance tests is to measure typical academic and cognitive skills. Measuring these skills may predict real-life behavior; provide insights into the impact of personality, motivation, and self-regulation on performance; predict long-term performance; provide information about strengths and weaknesses; and be more cost effective and efficient than measuring maximal performance. Typical academic and cognitive skills are commonly measured through rating scales, because of their accuracy and efficiency. In studying children and adolescents, multiple raters, such as teachers, parents, and self, provide a better overall view of the child compared to the use of one assessment alone. A test of typical performance could be used as a screening device to find children with potential academic difficulties, saving time and money. Using measures of typical and maximal performance together may provide valuable information about the individual, increase ability to predict school performance, predict performance in the later stages of skill acquisition, give a more comprehensive view of strengths and weaknesses, and help evaluate change resulting from remediation programs. Potential areas of research to further knowledge of typical performance include assessing the relationship between personality and typical performance, predicting behavior in the later stages of skill

acquisition, studying how discrepancies between maximal and typical performance are related to academic problems, and determining sources of bias in raters.

Hypotheses for the Present Study

In creating the REACS, several hypotheses will be tested. In regards to the agreement between forms, it is predicted that there will be a moderate correlation between the parent and teacher forms, which has been seen in other popular ratings scales, such as the BASC-2. Several hypotheses regarding convergent and divergent evidence of validity will be tested. Moderate to high correlations are predicted between the REACS and the Kaufman Test of Educational Achievement, Second Edition, Brief Form (KTEA-II-Brief Form; Kaufman & Kaufman, 2005) and the Reynolds Intellectual Assessment Scales (RIAS; Reynolds & Kamphaus, 2003). Moderate to high correlations are predicted between selected REACS scales, subscales, and subtests and the BASC-2.

The stability of the scale scores is predicted to be high enough to support profile analysis. The REACS will not show bias in regards to gender or ethnicity, as evidenced by expert judgments and lack of statistically significant scores between identifiable groups. Factor structure should have one main factor, most closely associated with *g*, and support three secondary factors representing the three different indexes (Academic Skills, Cognitive Skills, and Self-Regulation). The REACS should be able to predict membership in the following four groups: ADHD, PDD-NOS, MR, or Speech Language Delay. The most promising prediction is that by assessing the child's typical performance, the overall rating on the REACS will enhance the prediction of academic achievement over standard intelligence tests alone.

CHAPTER III

METHODS

This dissertation project is part of a larger research project, validating the REACS for children age 4-18. Tests for comparison to the REACS were selected to cover the age range of the entire sample. The dissertation was originally intended to cover the child population (age 6-11), because it was thought to be the most convenient sample to obtain. During the data collection process, the author attempted to collect data for all age groups simultaneously. The data collection process was very slow, because few schools consented to participate. After more than one year of data collection, an adequate sample of child (6-11) forms had been obtained from parents/caregivers, but not from teachers. At that time, adequate parent/caregiver and teacher forms had been collected for the preschool (4-5) forms.

Several factors may have contributed to the increased success in collecting preschool forms over the child forms. Preschools/daycares had fewer children per site, but they were more likely to agree to participate. This may have been due to fewer levels of administration governing the site. In the public schools, permission had to be obtained first from the superintendent, then from the principal, and then from the teachers. At least three people had to agree to get one classroom to participate. In dealing with the preschools/daycares, the person who made the decision about participation status was often a teacher as well. The smaller size allowed for greater person-to-person contact with the individual who would actually hand out and complete forms, thus there was less

confusion regarding the distribution and completion of forms. In the schools, instructions were often passed through a building administrator or other contact person to the participating teachers. For these reasons, and in consultation with the author's dissertation committee chair, the decision was made to change the dissertation focus from the child population to the preschool population.

Participants

Phase 1: Expert Raters

Members of the expert panel were selected in consultation with the committee chair, looking for experts in ethnic diversity, special education, and school psychology. The expert panel consisted of 6 members, all residing in Texas. The panel included members that varied in ethnicity, (1 African-American, 2 Hispanic, 3 White/Non-Hispanic), gender, (3 male, 3 female), and profession (1 school psychology graduate student, 1 special education teacher, 1 practicing school psychologist, and 3 professors). One of the professors was a former teacher. Forms were returned by 5 of the 6 members.

Phase 2: Pilot Study

Finding Potential Participants

Participants were recruited from preschools/daycares and public schools in a metropolitan area in Missouri. Preschools/daycares were found through the phonebook. School districts were found through the Missouri Regional Education Applicant Placement (Cooperating School Districts, 1999). The MO REAP is website that provides information about open teaching positions in the state. It allows applicants to search

Missouri school districts by six geographic regions. This tool was used to compile a list of school districts in the target region.

Demographic information was collected about the districts in the target region using the School District Demographics System (National Center for Education Statistics, n.d.). This website provides information about the racial and ethnic breakdown of the geographic area of the school district. This information was used to identify target districts that would aid in creating a sample that would approximate the U.S. population in terms of gender and ethnicity, based on the 2000 census data. Ethnicity was broken into four groups: White non-Hispanic/Latino, Hispanic/Latino, Black/African-American, and Other. These populations represent 69.1%, 12.5%, 12.3%, and 6.1%, respectively, of the U.S. population according to the 2000 census data (U.S. Census Bureau, n.d.). Schools were contacted, starting with the more diverse districts and progressing toward the larger number of districts that were predominately White/Non-Hispanic, to find schools willing to participate.

Recruiting Potential Participants

In total, 53 sites were contacted, including 12 preschools/daycares and 41 public school districts. Preschools and daycares are considered together because, for most sites, it was difficult to establish a distinguishing characteristic about the programs and services offered that would identify a site as a preschool as opposed to a daycare. Of the sites contacted, 8 agreed to participate in the study, including 4 preschools/daycares and 4 public schools.

Participants were recruited through these 8 sites and by personal solicitation of individuals with children in the target age group. From all recruitment sources, 36 parents/caregivers completed Form A (3 male, 33 female; 35 White/Non-Hispanic, 1 Asian), and 37 parents/caregivers completed Form B (1 male, 36 female; 36 White/Non-Hispanic, 1 African-American). Of the 36 children rated on Parent Form A, 33 were listed as White/Non-Hispanic; 1, Hispanic; and 2, Other (15 male, 21 female). Of the 37 children rated on Parent Form B, 36 were listed as White/Non-Hispanic and 1 as African-American (20 male, 17 female). From the 8 participating sites, 9 teachers completed forms (9 female; 9 White/Non-Hispanic). Teacher Form A included ratings on 30 children (all White/Non-Hispanic), and Teacher Form B included ratings on 28 children (25 White/Non-Hispanic, 1 Hispanic, 1 African-American, 1 Asian). Gender was not reported.

Phase 3: Validation Study

Finding Potential Participants

For the third phase of data collection, 2 sites from Phase 2 participated. These were preschools/daycares in a metropolitan area in Missouri.

Additional participants were recruited from preschools/daycares and schools in a metropolitan area in Oregon. Potential sites were located through a search of the phone book and the internet. Additional preschool/daycare sites were located through a search of the Oregon Child Care Resource & Referral Network (2008). This tool gives a list of providers that meet requested search criteria, including age group, license status, and

geographic area. For the purposes of the study, the search was conducted for both licensed and unlicensed providers offering services for children age 3-5.

Recruiting Potential Participants

In total, 179 sites were contacted regarding participation in the study. These contacts included 8 public school districts, 18 private schools, and 153 preschools/daycares. Initially, 51 sites agreed to participate. This included 0 public schools, 5 private schools, and 46 preschools/daycares. Among these 51 sites, 27 had less than 10 students, 13 had 10-20 students, and 11 had more than 20 students. Of the 51 sites that agreed to participate, 5 did not allow teachers to complete forms, leaving 46 sites that allowed teacher participation. Of these 46 sites, 25 sites had 1 teacher, 12 had 2-3 teachers, and 9 had 4 or more teachers. For the purposes of this study, *teacher* refers to an adult authority figure in such positions as kindergarten teacher, preschool teacher, and daycare provider.

From the group of 51 sites that agreed to participate, 45 sent out forms to parents/caregivers and/or teachers. Six preschools/daycares either withdrew from the study or failed to send out the forms after receiving them. The remaining 45 sites included 5 private schools and 40 preschools/daycares.

Participants were also found through personal solicitation of individuals with children in the target age group. Personal solicitation was used primarily to obtain additional ratings of kindergarten students, since all public school districts declined to participate.

Overview of Participants

From all recruitment sources, 179 parents/caregivers and 43 teachers completed rating scales. These participants rated 142 children on the parent form and 109 children on the teacher form. Testing was conducted with 32 children. Most of the parents/caregivers who provided ratings were female, White/Non-Hispanic, and spoke English as their primary language. Parent education level was high, with a majority of the parents/caregivers having a Bachelor's degree or higher. All teacher participants were female. Most were White/Non-Hispanic and spoke English as their primary language. Most of the ratings came from preschools/daycares during the fall; therefore, there were more ratings of 4 year olds than 5 year olds. Children rated were predominately White/Non-Hispanic and spoke English as their primary language.

Participants in the study were divided into several groups, based on the forms they completed. The forms that went into the Parent Primary sample were the initial forms collected on any one child. A subsample of these parents/caregivers rated the same child again at least 1 week later. The second ratings went into the Parent Test-Retest sample and were not counted in the Parent Primary sample. A subsample of children rated in the Parent Primary sample was also rated by a second parent/caregiver. These additional ratings went into the Parent Interrater sample and were not counted in the Parent Primary sample. The same groups were made with the teacher forms in the same way: Teacher Primary, Teacher Test-Retest, and Teacher Interrater. A subsample of children rated by a parent/caregiver in the Parent Primary group was also rated by a teacher in the Teacher Primary group. These ratings from the Primary samples made up

the Parent and Teacher Comparison group. A group of children rated in the Parent Primary sample was assessed further as the Testing group. Most children in the Testing group were also rated by a teacher in the Teacher Primary sample. A description of the participants for each sample or subsample is provided in the following sections.

Table 1

Rater Demographics, Primary Samples

	Parent		Teacher
	Age 4	Age 5	Age 4-5
Sample Size	86	56	43
Gender			
Male	5	7	43
Female	81	49	0
Median Age	33	34	38
Ethnicity			
White/Non-Hispanic	80	50	38
Hispanic	1	1	2
African-American	0	1	0
Asian/Pacific Islander	4	3	1
Other	1	1	2
Education Level			
Less than HS	0	2	0
HS/GED	3	1	6
Some college	10	13	12
Associate's	10	5	9
Bachelor's	42	29	13
Master's	11	5	3
Post-Master's/Specialist	3	0	0
Doctorate	6	1	0
Primary Language			
English	81	50	40
Other	5	6	3
Median Years Experience	---	---	10

Table 2

Child Demographics, Parent Forms

	Primary	Interrater	Test-Retest
Sample Size	142	37	38
Median Age (years-months)	4-8	4-9	4-9
Age			
4 years	86	21	25
5 years	56	16	13
Gender			
Male	68	16	13
Female	74	21	25
Grade Level			
Preschool	97	23	27
Kindergarten	37	12	9
None	8	2	2
Ethnicity			
White/Non-Hispanic	118	35	35
Hispanic	1	0	0
African-American	1	0	0
Asian/Pacific Islander	7	0	1
Other	15	2	2
Primary Language			
English	135	37	38
Other	7	0	0

Participants in the Primary Sample

Participants in the Parent Primary sample included 142 parents/caregivers (130 female, 12 male) rating 142 children (68 female, 74 male). Table 1 provides detailed information about parent/caregiver characteristics, with parents divided by age of child rated. Median parent age was 33 for those who rated 4 year olds, and 34 for those who rated 5 year olds. Of the parents/caregivers, 130 were White/Non-Hispanic and 130 spoke English as their primary language. For education level, 29 parents/caregivers had

less than an Associate's, 15 had an Associate's, 71 had a Bachelor's, and 26 had more than a Bachelor's. Children rated were 4 (n = 86) and 5 (n = 56) years old, and had a median age of 4 years 10 months. For grade level, 97 were in preschool, 37 in kindergarten, and 8 in neither preschool nor kindergarten. For ethnicity, 118 were White/Non-Hispanic, 7 were Asian, and 15 were Other. For language, 135 of the children spoke English as their primary language and 7 spoke another primary language. Table 2 provides detailed information about the children rated in the Parent Primary sample.

Participants in the Teacher Primary sample included 43 teachers rating 109 children (59 female, 47 male). All teachers were female, and the median age was 38. Of all teachers, 38 were White/Non-Hispanic and 40 spoke English as their primary language. For education level, 18 teachers had less than an Associate's, 9 had an Associate's, 13 had a Bachelor's, and 3 had more than a Bachelor's. Table 1 provides detailed information about teachers participating in the primary sample. Because some teachers completed multiple forms and rated both 4 and 5 year olds, teacher demographics were not split by age of child rated. Children rated were age 4 (n = 71) and 5 (n = 38), with a median age of 4 years 10 months. For grade level, 98 were in preschool and 11 were in kindergarten. Most of the children rated were White/Non-Hispanic (n = 91) and spoke English as their primary language (n = 104). Refer to Table 3 for additional information about the children rated in the Teacher Primary sample.

Table 3

Child Demographics, Teacher Forms

	Primary	Interrater	Test-Retest
Sample Size	109	8	29
Median Age (years-months)	4-10	4-9	4-6
Age			
4 years	71	8	22
5 years	38	0	7
Gender			
Male	47	4	12
Female	59	4	17
No data	3		
Grade Level			
Preschool	98	8	26
Kindergarten	11	0	3
Ethnicity			
White/Non-Hispanic	91	7	23
Hispanic	3	0	2
African-American	0	0	0
Asian/Pacific Islander	2	1	0
Other	12	0	4
No data	1		
Primary Language			
English	104	8	26
Other	5	0	3

Participants in the Test-Retest Sample

Participants in the Parent Test-Retest sample included 38 parents/caregivers (38 female) rating 38 children (25 female, 13 male). Median parent/caregiver age was 33, and all 38 were White/Non-Hispanic and spoke English as their primary language. For education level, 6 parents/caregivers had less than an Associate's, 3 had an Associate's, 20 had a Bachelor's, and 9 had more than a Bachelor's. Table 4 provides information

Table 4

Rater Demographics, Test-Retest Samples

	Parent	Teacher
Sample Size	38	16 (29 forms)
Median Age (years-months)	4-9	4-6
Test Interval (days)	7-29	7-29
Median Test Interval (days)	17.5	21
Gender		
Male	0	0
Female	38	16
Median Age	33	39.5
Ethnicity		
White/Non-Hispanic	38	14
Hispanic	0	2
African-American	0	0
Asian/Pacific Islander	0	0
Other	0	0
Education Level		
Less than HS	0	0
HS/GED	0	3
Some college	6	7
Associate's	3	3
Bachelor's	20	2
Master's	5	1
Post-Master's/Specialist	0	0
Doctorate	4	0
Primary Language		
English	38	14
Other	0	2
Median Years Experience	---	14

about parents/caregivers in the test-retest group. Children rated had a median age of 4 years 9 months, with 25 children age 4, and 13 children age 5. For grade level, 27 were in preschool, 9 were in kindergarten, and 2 were neither in preschool nor kindergarten. Most of the children (n = 35) were White/Non-Hispanic and all spoke English as their

primary language. Table 2 provides information about the children rated in the Parent Test-Retest sample.

Participants in the Teacher Test-Retest sample included 16 teachers (16 female) rating 29 children (17 female, 12 male). Median teacher age was 39.5, and most teachers were White/Non-Hispanic (n = 14) and spoke English as their primary language (n = 14). For education level, 10 teachers had less than an Associate's, 3 had an Associate's, 2 had a Bachelor's, and 1 had more than a Bachelor's. Table 4 provides information about teachers in the test-retest group. Children rated had a median age of 4 years 6 months, with 22 children age 4, and 7 children age 5. For grade level, 26 were in preschool and 3 were in kindergarten. For ethnicity, 23 were White/Non-Hispanic; 2, Hispanic; and 4, Other. Most spoke English as their primary language (n = 26). Table 3 provides information about the children rated in the Teacher Test-Retest sample.

Participants in the Interrater Sample

Participants in the Parent Interrater sample included 37 pairs of parents/caregivers rating 37 children (21 female, 16 male). The gender of the first parents/caregivers, which came from the Parent Primary sample, was 35 female and 2 male, and the gender for the second parents/caregivers was 3 female and 34 male. Median parent/caregiver age was 32 for the group of first parents/caregivers and 34 for the group of second parents/caregivers. All 37 first parents/caregivers and 35 of the second parents/caregivers were White/Non-Hispanic, and the remaining 2 second parents/caregivers were marked Other. All 37 first parents/caregivers and 36 of the second parents/caregivers spoke English as their primary language. For education level,

5 first parents/caregivers and 9 second parents/caregivers had less than an Associate's, 4 first parents/caregivers and 1 second parent/caregiver had an Associate's, 23 first parents/caregivers and 15 second parents/caregivers had a Bachelor's, and 5 first parents/caregivers and 12 second parents/caregivers had more than a Bachelor's. Table 5 provides information about the pairs of parents/caregivers in the Parent Interrater group. Children rated were age 4 (n = 21) and 5 (n = 16), with a median age of 4 years 9 months. For grade level, 23 were in preschool, 12 were in kindergarten, and 2 were neither in preschool nor kindergarten. Most of the children (n = 35) were White/Non-Hispanic and all spoke English as their primary language. Table 2 provides information about the children rated in the Parent Interrater sample.

Participants in the Teacher Interrater sample included 6 pairs of teachers (6 female) rating 8 children (4 female, 4 male). Median teacher age was 29.5 for the first teachers and 33 for the second teachers. All teachers were White/Non-Hispanic and spoke English as their primary language. For education level, 1 first teacher and 2 second teachers had less than an Associate's, 1 first teacher and 1 second teacher had an Associate's, 3 first teachers and 3 second teachers had a Bachelor's, and 1 first teacher had more than a Bachelor's. Table 5 provides information about teachers in the Interrater group. Children rated had a median age of 4 years 9 months, with all children age 4 and in preschool. For ethnicity, 7 were White/Non-Hispanic and 1 was Asian/Pacific Islander. All spoke English as their primary language. Table 3 provides information about the children rated in the Teacher Interrater sample.

Table 5

Rater Demographics, Interrater Samples

	Parent		Teacher	
	1st	2nd	1st	2nd
Sample Size	37		6 (8 forms)	
Median Age (years-months)	4-9		4-9	
Gender				
Male	2	34	0	0
Female	35	3	6	6
Median Age	32	34	29.5	33
Ethnicity				
White/Non-Hispanic	37	35	6	6
Hispanic	0	0	0	0
African-American	0	0	0	0
Asian/Pacific Islander	0	0	0	0
Other	0	2	0	0
Education Level				
Less than HS	0	0	0	0
HS/GED	0	0	0	1
Some college	5	9	1	1
Associate's	4	1	1	1
Bachelor's	23	15	3	3
Master's	3	7	1	0
Post-Master's/Specialist	1	1	0	0
Doctorate	1	4	0	0
Primary Language				
English	37	36	6	6
Other	0	1	0	0
Median Years Experience	---	---	9	3

Participants in the Parent to Teacher Comparison Sample

Participants in the Parent to Teacher Comparison sample included 45 parents/caregivers and 27 teachers rating 45 children. The gender of the parents/caregivers, which came from the Parent Primary sample, was 43 female and 2

male, and the gender for the teachers, which came from the Teacher Primary sample, was all 27 female. Median age was 33 for the parents/caregivers and 38.5 for the teachers. Most of the parents/caregivers (n = 44) and teachers (n = 24) were White/Non-Hispanic and most parents/caregivers (n = 43) and teachers (n = 25) spoke English as their primary language. For education level, 8 parents/caregivers and 12 teachers had less than an Associate's, 6 parents/caregivers and 5 teachers had an Associate's, 20 parents/caregivers and 9 teachers had a Bachelor's, and 11 parents/caregivers and 1 teacher had more than a Bachelor's. Children rated were age 4 (n = 34) and 5 (n = 11), with a median age of 4 years 7 months, and 25 were female and 20 were male. For grade level, 40 were in preschool and 5 were in kindergarten. Most of the children were White/Non-Hispanic (n = 41) and spoke English as their primary language (n = 44). Table 6 provides information about the parents/caregivers, teachers, and children in the Parent to Teacher Comparison sample.

Participants in the Testing Sample

Participants in the Testing sample were divided into 6 groups, although many children existed in all groups. Although the groups were intended to be the same, some children were missing parts of the assessment. For example, some Teacher REACS forms were never returned or children younger than 4 years 6 months could not be tested with the KTEA-II-Brief Form; therefore, the numbers of children in each group were not the same. Children were assessed with the RIAS, KTEA-II-Brief Form, and Parent or Teacher BASC-2, for comparison to the Parent REACS or Teacher REACS. The Parent

and Teacher REACS forms came from the Parent Primary and Teacher Primary samples. Table 7 provides information about the demographic makeup of each group.

Table 6

Child and Rater Demographics, Parent and Teacher Comparison

	Child	Parent	Teacher
Sample Size	45	45	27
Median Age (years-months)	4-7	33	38.5
Age			
4 years	34	---	---
5 years	11	---	---
Gender			
Male	20	2	0
Female	25	43	27
Grade Level			
Preschool	40	---	---
Kindergarten	5	---	---
Ethnicity			
White/Non-Hispanic	41	44	24
Hispanic	0	0	1
African-American	0	0	0
Asian/Pacific Islander	1	1	1
Other	3	0	1
Primary Language			
English	44	43	25
Other	1	2	2
Education Level			
Less than HS	---	1	0
HS/GED	---	2	3
Some college	---	5	9
Associate's	---	6	5
Bachelor's	---	20	9
Master's	---	4	1
Post-Master's/Specialist	---	2	0
Doctorate	---	5	0
Median Years Experience	---	---	10

Table 7

Child Demographics, Testing Sample

	RIAS		KTEA-II		BASC-2	
REACS Rater	Parent	Teacher	Parent	Teacher	Parent	Teacher
Sample Size	31	21	22	14	32	24
Median Age (years-months)	4-7	4-7	4-8	4-10	4-7	4-9
Age						
4 years	23	17	15	10	24	17
5 years	8	4	7	4	8	7
Gender						
Male	16	10	10	5	17	12
Female	15	11	12	9	15	12
Grade Level						
Preschool	26	17	18	10	28	19
Kindergarten	4	4	3	4	4	5
None	1	0	1	0	0	0
Ethnicity						
White/Non-Hispanic	31	19	22	13	32	22
Hispanic	0	0	0	0	0	0
African-American	0	0	0	0	0	0
Asian/Pacific Islander	0	0	0	0	0	0
Other	0	2	0	1	0	2
Primary Language						
English	31	21	22	14	31	24
Other	0	0	0	0	1	0

The Parent REACS to RIAS group consisted of 31 children (15 female, 16 male). The children were age 4 (n = 23) and 5 (n = 8), with a median age of 4 years 7 months. For grade level, 26 were in preschool; 4, in kindergarten; and 1, neither grade. All children were White/Non-Hispanic and spoke English as their primary language.

The Parent REACS to KTEA-II-Brief Form group consisted of 22 children (12 female, 10 male). The children were age 4 (n = 15) and 5 (n = 7), with a median age of 4

years 8 months. For grade level, 18 were in preschool, 3 were in kindergarten, and 1 was in neither grade. All children were White/Non-Hispanic and spoke English as their primary language.

The Parent REACS to Parent BASC-2 group consisted of 32 children (15 female, 17 male). The children were age 4 (n = 24) and 5 (n = 8), with a median age of 4 years 7 months. For grade level, 28 were in preschool and 4 were in kindergarten. All children were White/Non-Hispanic and 31 spoke English as their primary language.

The Teacher REACS to RIAS group consisted of 21 children (11 female, 10 male). The children were age 4 (n = 17) and 5 (n = 4), with a median age of 4 years 7 months. For grade level, 17 were in preschool and 4 were in kindergarten. Most of the children were White/Non-Hispanic (n = 19), with 2 listed as Other, and all spoke English as their primary language.

The Teacher REACS to KTEA-II-Brief Form group consisted of 14 children (9 female, 5 male). The children were age 4 (n = 10) and 5 (n = 4), with a median age of 4 years 10 months. For grade level, 10 were in preschool and 4 were in kindergarten. Most of the children were White/Non-Hispanic (n = 13), with 1 listed as Other, and all spoke English as their primary language.

The Teacher REACS to Teacher BASC-2 group consisted of 24 children (12 female, 12 male). The children were age 4 (n = 17) and 5 (n = 7), with a median age of 4 years 9 months. For grade level, 19 were in preschool and 5 were in kindergarten. Twenty-two of the children were White/Non-Hispanic and 2 were listed as Other. All spoke English as their primary language.

Clinical Groups

To provide further evidence of validity, the study intended to include ratings of children who had one of several predetermined diagnoses. Despite many efforts to obtain these samples, none of these efforts resulted in obtaining participants to fill the clinical groups. Participation was sought from the local special education services district that serves multiple counties, a local outpatient clinic serving children with developmental disabilities, and the 8 local school districts. After waiting four months for approval to approach the clinic's Internal Review Board, the author learned that the approval process for an outside researcher would take an additional 4-6 months; therefore, this option was not pursued. All other sites declined to participate. Without the participation of these sites, only 15 parent forms and 2 teacher forms were collected on individuals falling in the four diagnostic groups, with a maximum of 8 forms from any group (Speech Language Delay). Because of the low *n*, this part of the study was eliminated.

Materials

Phase 1: Expert Raters

Description of the REACS

The Teacher REACS and Parent REACS were originally written to contain three indexes: academic skills, cognitive skills, and self-regulation. Together, the three indexes form the Academic and Cognitive Skills Index (ACSI) and are comprised of eleven scales related to school functioning: Math, Reading, Writing, Language, Learning, Memory, Problem Solving, Attention, Hyperactivity Control, Impulse Control, and Organization. Raters respond to each item on a 5-point scale: 1 = Never, 2 = Rarely,

3 = Sometimes, 4 = Usually, and 5 = Almost Always. Questions vary in direction (i.e., positive attribute or negative attribute) to help guard against a response set. See Figure 2 for a visual representation of the proposed breakdown of the REACS scales.

Academic Skills Index. The Academic Skills Index (ASI) covers ability in core academic subject areas and is comprised of the Math, Reading, and Writing Scales. It is intended to provide an overall estimate of the student's typical academic performance. This score would be comparable to the battery composite (Kaufman & Kaufman, 1998) or academic skills (Mather & Woodcock, 2001) score on a standard achievement test.

The Math Scale is intended to measure the ability to use numbers to measure, add, subtract, multiply, or divide. The REACS uses this definition to assess mathematical knowledge, while leaving more complex problem solving to the problem solving scale. Example items for this scale include "makes borrowing (regrouping) errors while subtracting" and "accurately measures with a ruler."

Reading is the ability to interpret accurately the written word. Reading is a fundamental skill affecting many aspects of life. In fact, Bickel and Milton (1983) call the lack of literacy "an extreme form of educational failure" (p. 203). Questions on the Reading Scale include "comprehends what he/she reads" and "reads the same line twice."

Writing is the ability to transmit knowledge and ideas through an agreed upon system of symbols. This could include writing by hand, typing, or Braille. Written communication is an essential skill affecting the individual in many ways inside and

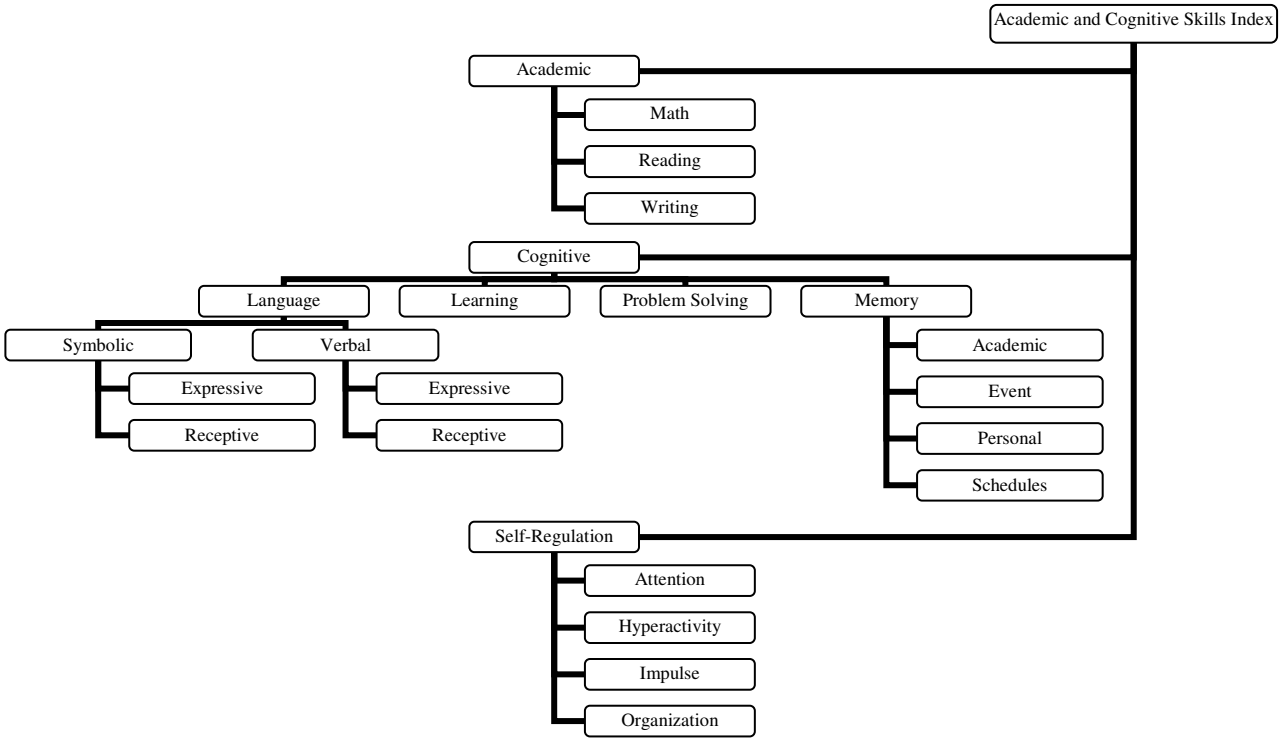

Figure 2. Breakdown of the REACS.

outside of the classroom. Example items for this scale include “uses poor grammar in writing” and “uses proper punctuation.”

Cognitive Skills Index. The Cognitive Skills Index (CSI) is the summation of four cognitive processes that are essential in the acquisition, utilization, and transmission of knowledge and skills. This index utilizes the scores from the Language, Learning, Memory, and Problem Solving Scales. This summative score is intended to be comparable to the full scale IQ on a standard intelligence test.

Language is the ability to exchange ideas with another person. The Language Scale covers verbal and symbolic language, subscales in the Language Scale. Verbal language is the ability to communicate through the spoken word. Symbolic language is the ability to communicate using symbols or gestures. Both verbal and symbolic language are divided into receptive and expressive abilities, subtests in the Language Scale. Receptive language is the ability to understand the communication of others. Expressive language is communicating in a way that is understandable by others. Each of the two subscales contains the two subtests: Verbal Receptive, Verbal Expressive, Symbolic Receptive, and Symbolic Expressive. Examples from each subtest include “understands verbal directions,” “stutters,” “can tell what road signs are by their shape,” and “raises hand to speak in class,” respectively.

Learning is the acquisition of knowledge or skills. This acquisition may occur directly or indirectly, through “inference from the observation of behavior” (Jensen, 1989, p. 40) and results in “a relatively permanent change in behavior” (Barker, 2001, p. 440). The REACS will assess the child’s ability to discriminate between objects or

concepts, transfer learning from one area to another, and improve performance through practice and repeated exposure (Jensen). Items in the Learning Scale include "repeats mistakes" and "quality of work improves with practice."

Memory is defined as the "ability to mentally record and store events, feelings, reactions, and actions and then recall them, as needed" (Sattler, 1998, p, 1055). The REACS contains four subscales: Academic-Related Memory, Memory for Events, Personal-Related memory, and Memory for Schedules. Academic-Related memory is memory for things pertaining directly to the school setting. Memory for events is memory of the details surrounding an event. Personal-Related memory is memory for information relative to the individual, such as birthday or address. Memory for schedules is memory for the time and location of upcoming events. Items in this section include "remembers the teacher's directions for class assignments," "inserts details into past events that didn't really happen," "loses things," and "plans several activities at the same time by mistake" for the Academic-Related Memory, Memory for Events, Personal-Related Memory, and Memory for Schedules Subscales, respectively.

Problem solving is defined as logically thinking one's way through a problem to arrive at a reasonable and acceptable solution. It involves "defining ends, seeking means to attain them, and…defining new…subgoals to the original end" (Mackworth, 1965, p. 56). This scale contains items such as "can make a budget" or "resolves arguments without adult intervention."

Self-Regulation Index. The Self-Regulation Index (SRI) is intended to measure four areas of typical behavior that may have an impact on typical academic functioning,

attention, hyperactivity control, impulse control, and organization. Papalia et al., (1998) define self-regulation as "a child's independent control of behavior, to conform to understood social expectations" (p. 652). Problems with self-regulation are manifest in several disorders than can affect school functioning, such as ADHD and specific learning disabilities. This measure is intended to provide a means of directly assessing the potential summative effect these four areas may have on typical academic and cognitive performance.

Attention is the ability to sustain concentration or "respond to tasks or play activities as long as others of the same age" (Barkley, 1996, p. 67). According to the *Diagnostic and Statistical Manual of Mental Disorders,* fourth edition, text revision (DSM-IV-TR), an inability to pay attention can lead to academic deficits [American Psychiatric Association (APA), 2000]. Items in this scale include "is easily distracted" and "pays attention during long conversations."

Hyperactivity is when one's activity level is in excess of what is appropriate in a given situation (Schroeder & Gordon, 2002). Example items in this scale include "sits still" and "is restless."

Impulse control is the ability to regulate inappropriate urges (Schroeder & Gordon, 2002). Lack of impulse control is a key component of ADHD, and its mastery is a fundamental part of maturation (APA, 2000; Papalia et al., 1998). A child who is overly impulsive is less governed by rules (Schroeder & Gordon) and often has more referrals to the principal's office, resulting in less time in class learning. Items from this scale include "plans out behavior carefully" and "is impatient."

Organization is the ability to arrange things, ideas, or time in a coherent, systematic manner. Items in this scale include “room is clean” and “plans time wisely.” Deficits in these areas are commonly found in children with ADHD (APA, 2000) and children with specific learning disabilities (Hoover, 1989; Kovach & Wilgosh, 1999; McGuire, Hall, & Litt, 1991).

Expert Rater Version of REACS

Expert panelists were given a special copy of the REACS to assist them in their evaluation. The likert scale was only listed with the instructions, and the demographic information was included as a separate page. The expert rater version had the items sorted by scale and double spaced, for ease in making comments. This REACS version had 404 items with an average of 23.8 items per division (range, 15-32) for the parent form, and 421 items with an average of 24.8 items per division (range, 18-36) for the teacher form.

To assist the expert panelists in evaluating the REACS items, they also received an evaluation form and list of definitions for the scales. The evaluation form included questions involving cultural bias, clarity of items, and the theoretical basis for the REACS. Space was also provided to suggest additional items for each category and to make general comments or suggestions. The list of definitions provided the panelists with the theoretical definition the author used as the basis for including items in each area.

Phase 2: Pilot Study

After changes were made based on the expert panelists' suggestions, 329 items remained on the Parent REACS and 339 items remained on the Teacher REACS. Due to the length of the questionnaire, it was assumed that gaining participation from parents and teachers would be difficult. The REACS items were divided into two forms for both parents and teachers. Form A contained 8 divisions of the REACS: Math, Writing, Symbolic Receptive Language, Verbal Receptive Language, Memory for Events, Personal Memory, Problem Solving, and Hyperactivity. Form B contained 9 divisions: Reading, Symbolic Expressive Language, Verbal Expressive Language, Learning, Memory for Schedules, Academic-Related Memory, Attention, Impulse Control, and Organization. This split was selected to keep the two forms approximately the same length, and so that all items for the smallest subdivision of each scale (e.g., Verbal Expressive Language or Reading) were on the same form, for analysis purposes. The REACS Parent Form A included 163 items; the REACS Parent Form B, 166 items; the REACS Teacher Form A, 164 items; and the REACS Teacher Form B, 175 items.

The Phase 2 version of the REACS forms was formatted for ease of completion to encourage participation by parents and teachers. The Parent REACS forms included the parent and child demographic information on the front of the form. The instructions and 5-point likert scale were included before the first item, with the likert scale also at the bottom of every page: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Usually, and 5 = Almost Always. Items were arranged in two columns, with the response choices (i.e., 1, 2, 3, 4, 5) listed for each item. To help raters keep their place, a line was placed at the

end of every 10 items. To reduce the likelihood of a response bias influencing ratings on single items, the items from each scale/subscale/subtest were distributed randomly throughout the form. Raters were instructed to circle the number corresponding to their answer choice. The Teacher REACS forms differed from the Parent REACS in that the teacher demographic information was gathered separately, so teachers completing multiple REACS forms would only have to provide their demographic information once. Other formatting was kept the same as the Parent REACS.

Phase 3: Validation Study

REACS Forms

Based on the analyses conducted with the Phase 2 data, the final version of the REACS was created. Items from Forms A & B were combined to include all 17 scales/subscales/subtests. Because the rating scale still appeared lengthy, the SRI and corresponding scales were eliminated. The Self-Regulation scales were chosen for elimination because similar information can be gathered easily via other rating scales (e.g., BASC-2).

The resulting number of scales was 7: Math, Reading, Writing, Language (Symbolic Receptive, Symbolic Expressive, Verbal Receptive, Verbal Expressive), Learning, Problem Solving, and Memory (Schedules, Events, Personal, and Academic-Related). The Parent REACS form included 173 items, and the Teacher REACS included 158 items. The same basic formatting and likert scale used in Phase 2 was also used for this version of the REACS. Also the same, the teacher demographic information was collected separately.

Based on observations from Phase 2, minor changes were made to the demographic section and instructions. The format of the demographic section was changed, due to errors made by raters. For example, some raters put the current date on the line for child's date of birth. Therefore, an additional line for age was added, as a means of verifying the date of birth. Additionally, the language section was simplified. Due to large numbers of items that were left blank or marked *Not Applicable* on Phase 2, the instructions were changed to clarify the use of the *Never* response option. An exaggerated example was provided (i.e., Uses blinkers when driving), with the suggestion of marking it *1, Never*, because 4-5 year olds do not drive.

Measures for Comparison

To provide evidence of validity based on internal structure, three measures were chosen for administration to a sub-sample of participants. Measures utilized in this study included the RIAS (Reynolds & Kamphaus, 2003), the KTEA-II-Brief Form (Kaufman & Kaufman, 2005), and the parent and teacher preschool report forms of the BASC-2 (Reynolds & Kamphaus, 2004).

RIAS. Cognitive ability and memory function was assessed using the RIAS (Reynolds & Kamphaus, 2003). This measure is individually administered and normed for use with individuals from age 3 to 94. The RIAS was chosen because it can be administered quickly and has been shown to produce a reliable estimate of *g* that is comparable or better than those of measures twice its length (Reynolds & Kamphaus, 2003). Due to these and other qualities, one reviewer even claimed that this measure "should become part of every school psychologist's battery of tests" (R. W. Elliot, 2004,

p. 328). Furthermore, the inclusion of a quickly administered measure of memory allows for comparisons between the RIAS and the Memory Scale of the REACS. The Index scores from the RIAS are standard scores with a mean of 100 and standard deviation of 15. The subtest scores are T-scores with a mean of 50 and standard deviation of 10.

KTEA-II-Brief Form. The KTEA-II Brief Form (Kaufman & Kaufman, 2005) provides a brief measure of academic achievement for individuals age 4 years 6 months to 90 years. The brief form includes scales for Reading and Math available at the youngest age, with a Writing Scale that can be given to children who have begun kindergarten. The scores from the Reading and Math Scales for younger children, and those of all three scales for individuals in kindergarten or above are used to compute an overall measure of academic achievement called the Brief Achievement Composite (BAC). Scores generated are Standard Scores with a mean of 100 and standard deviation of 15.

BASC-2. The preschool Parent Report Scales (PRS) and Teacher Report Scales (TRS) from the BASC-2 were originally chosen to provide a measure of behavioral functioning to compare with the Self-Regulation scales from the REACS. Because it was anticipated that many of the children for which ratings would be obtained would be typically developing, the BASC-2 was a natural choice over global behavior rating scales such as the Achenbach System of Empirically Based Assessment (ASEBA) preschool forms (Achenbach & Rescorla, 2000) which do not allow T-scores below 50 due to truncation. It was decided to continue to administer the BASC-2 after the elimination of the SRI of the REACS, to allow for a comparison of the REACS scores

from those that are contained within the BASC-2 Adaptive Skills Composite. The Preschool forms of the BASC-2 are made for children age 2 to 5 years. The scores from each scale or composite are represented as T-Scores with a mean of 50 and standard deviation of 10. The scales are scored in a way that a high score on a clinical scale represents higher levels of dysfunction, while a high score on an adaptive scale represents greater functionality in that area.

Procedure

Development of the REACS

The organization of the REACS was originally determined over a course of several meetings between the author and his dissertation chair. During these meetings they discussed topics that should be included in such a measure. It was determined that two main divisions should exist. The first division would provide a measure of academic skills, with questions targeting skills traditionally taught at school, (i.e., math, reading, and writing). The second division would measure cognitive skills, with questions covering topics related to the acquisition, utilization, and transmission of knowledge and skills both in and out of an academic setting (i.e., language, learning, memory, and problem solving. A third division was later proposed to assess self-regulation as an essential skill (i.e., attention, hyperactivity, impulse control, and organization).

Once the general framework for the measure was determined, the original items were developed via a literature review and multiple planning sessions with the dissertation chair and another committee member. This literature review included a review of rating scales that have been used solely in research and as well as those that

are commercially available. Many of the research versions of questionnaires that served as inspiration for item content were found in published dissertations. Sattler's (1998) work, which provides insights and structured interviews for a variety of problems of clinical concerns, was also used to generate ideas for item content. For the Self-Regulation and Memory Scales, some ideas for item content were obtained through a review of the *DSM-IV-TR* (APA, 2000). Additional content for the academic scales was derived from a review of grade level expectations for Texas and Ohio. A listing of sources reviewed during the development of the original items can be found in Table 8.

To maintain the focus on everyday skills, efforts were taken to ask questions about typical or everyday manifestations of the constructs being assessed. In some areas (such as writing), however, it was difficult to cover the desired breadth of the scale without asking more academically oriented questions. Attempts were made to keep the number of these items to a minimum.

Phase 1: Expert Raters

The expert panel reviewed the trial items, based on four criteria: how well the item fits the construct of interest, clarity in writing for the intended reader, low likelihood of cultural misunderstanding, and fit with accepted principles of test writing (Anastasi & Urbana, 1997). To assist in their review, they received a copy of the items, an evaluation form, and a list of intended definitions for each scale. Reviewers were given several weeks to review the items and return their forms. The author received forms back from 5 of the 6 panelists. Attempts were made to contact the sixth panelist,

but no attempt was successful in contacting the panelist. (See Appendix C for the expert panel forms, modified to meet the dissertation margins.)

Table 8

Sources Used in Creation of Initial REACS Items

	REACS Scales										
Sources	**Ma**	**Re**	**Wr**	**La**	**Le**	**Me**	**PS**	**At**	**Hy**	**IC**	**Or**
Behavior Assessment System for Children-2 (Reynolds & Kamphaus, 2004)				x				x	x	x	x
Diagnostic and Statistical Manual of Mental Disorders-IV-TR (APA, 2000)				x		x		x	x	x	x
Eyberg Child Behavior Inventory (Robinson, Eyberg, & Ross, 1980)								x	x		
Gilliam Asperger's Disorder Scale (Gilliam, 2001)				x							
Gilliam Autism Rating Scale (Gilliam, 1995)				x							
Handouts from Defiant Children: A Clinician's Manual for Assessment and parent Training (Barkley, 1997)						x		x	x	x	x
Kaufman Test of Educational Achievement – Normative Update (Kaufman & Kaufman, 1998)	x	x		x							
Learning Disabilities Diagnostic Inventory (Hammill & Bryant, 1998)	x	x	x	x	x	x	x	x			x
Maryland Student Behavior Checklist (Backelman, 1987)				x		x		x	x	x	x
Model Competency-Based Mathematics Program (Ohio Department of Education, n.d.)	x										
Organizational Skill & Behavior Rating Form (Menius, 1985)					x	x		x			x
Parent Rating Scale of Everyday Cognitive and Academic Abilities (Williams et al., 1991; listed in Golomb, 1999)		x	x	x	x	x	x				
Problem Solving Inventory (Heppner & Petersen, 1982)							x				
San Diego State University AD/HD Questionnaire (Pethick, 2002)								x	x	x	x
Structured interviews from Clinical and Forensic Interviewing of Children and Families (Sattler, 1998)	x	x	x	x	x	x	x	x	x	x	x
Sutter-Eyberg Student Behavior Inventory-Revised (Rayfield, Eyberg, & Foote, 1998)								x	x	x	
Table of Standards and Expectations (National Council of Teachers of Mathematics, 2000-2004)	x										
Texas Essential Knowledge and Skills for Kindergarten (Texas Education Agency, 2007)	x	x	x								
Texas Primary Reading Inventory (Foorman et al., 1998)		x									

Note: Ma = Math; Re = Reading; Wr = Writing; La = Language; Le = Learning; Me = Memory; PS = Problem Solving; At = Attention; Hy = Hyperactivity; IC = Impulse Control; Or = Organization.

Phase 2: Pilot Study

Recruitment of Sites

Potential sites were contacted to solicit participation for the study (See Appendix D for the pilot study forms, modified to meet the dissertation margins). For school districts, the author attempted to speak to the superintendent or other administrator who could authorize conducting a research study within the district. Generally this person could only be contacted through a secretary. In many instances the secretary quickly declined for the district. When possible, a message was left for the administrator and a packet that provided the details of the study was mailed. When the administrator gave consent to contact building principals, a cover letter giving consent to solicit participation was obtained from the administrator. This letter prefaced the information that was sent to principals about the project. Preschools/daycares were contacted in the same way. Often the top administrator was a director, who also was a teacher at the site. For sites that agreed to participate, a contact person was identified. Often this was the principal or a well-established teacher.

Collecting Parent and Teacher REACS Forms

Once a site agreed to participate and a contact person was established, information was gathered on the number of students and teachers in the target classrooms. When possible, a brief meeting was scheduled at the site to explain the study to all teachers who would potentially participate. Most sites did not allow such a meeting. In this case, the study was explained to the contact person. The contact person

discussed the study with teachers and reported back how many were willing to participate. A date was then scheduled for delivery of research forms.

Parent forms were prepared and bundled to match the number of children in each class. A parent packet consisted of a cover letter, informed consent form, either Form A or Form B of the Parent REACS, and a return envelope with the author's address. These documents were enclosed in an envelope which was given to the parent or guardian of a 4-5 year old. Envelopes were bundled in groups, with Form A alternating with Form B, so that each form would be distributed equally to parents across sites.

Through the cover letter, parents were invited to participate in the study. Those who agreed to participate were asked to complete the rating scale and return it to the child's teacher by the announced deadline. Those who chose not to participate were asked to return unused forms to the child's teacher. All returned forms, completed or uncompleted, were used to determine the return rate for each classroom. As an incentive, the classroom with the highest return rate earned a lunch party (e.g., pizza).

Teacher forms were prepared and bundled for each teacher who considered participating in the study. Each teacher packet included a cover letter, informed consent, instructions for completing rating scales, instructions for selecting students randomly, a teacher demographic form, and up to 10 Teacher REACS Forms. The forms were arranged with Form A and Form B alternating in each packet. All forms and instructions were enclosed in a manila file folder. Teachers were asked to complete the forms by the announced deadline. As an incentive, participating teachers were entered in a drawing for a $20 gift card to a local fast food restaurant.

During the interim, at least one phone call was made to each site. The purpose of the call was to remind the contact person of the deadline and answer any questions that had arisen about the study. If the project had proceeded as planned, the date to pick up completed forms was confirmed.

While most sites had no major questions about the project, two sites raised concerns about aspects of the project. At one site a parent complained about the length of the rating scale. The principal did not address the complaint as instructed, (i.e., reminded the parent that participation was voluntary), but withdrew the school from the study and discarded all packets that had been delivered to the site. The author learned of this decision via note in the mail expressing that the rating scale was too long, even though the principal received copies of each form for initial review before consenting to participate (3 weeks prior to distribution). At a second site, the principal worried that children could be identified by the researcher if children's birthdates were provided. The author reminded the principal that without a class roster, the children's identities were anonymous. The principal allowed data collection to continue.

Returned envelopes were picked up as arranged with each site. Upon receipt, they were counted and opened. The non-completed forms were separated out, and the completed forms were sorted by form. Each protocol was assigned an identification number as data was entered.

The overall return rate was difficult to determine because of difficulties ascertaining how many of the forms delivered to each site were sent home with the students. The approximate return rate of parent forms from sites that seemed to

participate actively was 20%. Personal solicitation was somewhat more successful, perhaps due to the personal invitation to participate, yielding an approximate return rate of 33%. Teacher participation varied greatly. For example, one site completed forms on nearly every student while another site returned only 1 completed teacher form.

Phase 3: Validation Study

Recruitment of Sites

Because of difficulty getting participation in Phase 2, the recruitment methods for obtaining participating sites were modified. Instead of discontinuing recruitment of sites after reaching a student count in excess of 200% of the collection goal, recruitment of new sites did not end until the last month of data collection. Potential sites were contacted followed the same general procedures used in Phase 2 (See Appendix E for the validation study forms, modified to meet the dissertation margins.)

Collecting Parent and Teacher REACS Forms

Once the site director agreed to participate, information was gathered regarding the number of potential participating teachers and students, and a delivery time for the forms was scheduled. During the first delivery, parent packets and teacher consent forms were given. Instructions and forms were explained to the site coordinator, in person when possible, and written instructions were provided. A sign was given to each site to remind parents to return the forms, listing the agreed upon deadline (typically 1-2 weeks later). Teacher consent forms had the same deadline as the parent forms. At the mid-point between the time of the first delivery and the deadline, each site was called to inquire of progress and answer any questions. During many of these calls, the deadline

needed to be extended due to unexpected difficulties in distributing the forms. Parents and teachers were given packets similar to those used in Phase 2.

After the first pick up of forms, each completed parent consent form was reviewed to ascertain consent to complete follow-up forms (test-retest, interrater reliability, and BASC-2 forms). The follow-up forms were then prepared for all participants consenting to the additional participation.

Teacher consent forms were reviewed and packets were made for participating teachers. Teachers received up to 10 REACS forms to complete on their students, according to the level of participation indicated on the consent form. These forms were labeled with specific students to rate, for parents who consented to allow the teacher to rate their child. All other forms were to be completed on students chosen anonymously and randomly from the class. Teachers were provided with instructions on how to select students at random, using a list of random numbers.

Parent follow-up forms and initial teacher forms were delivered together. Deadlines and follow-up phone calls were conducted in the same manner as the first delivery of forms. Forms were collected as agreed upon, and teacher follow-up forms were prepared and delivered. Teachers were limited to a maximum of 2 test-retest forms, 2 BASC-2 TRS forms, and 3 inter-rater reliability forms. This was done so that one teacher would not overly influence these subsamples. A final pick up of forms was scheduled for the teacher follow-up forms.

Of the sites that participated, 37 returned at least 1 form, including 33 preschools/daycares and 4 private schools. Sites that did not return forms generally did

not send them out to all parents. They had them available for parents to pick up, if interested. One site asked two parents about participating, and the parents said they were not interested. Based on that response, the site decided not to distribute forms to any parents. Many of the sites that failed to return forms also seemed to have agreed to participate without reviewing the research documents sent out for initial review. This assumption was based on comments made about the questionnaire's length at the time of withdrawal, despite receiving a review copy of all forms at least two weeks prior to the first delivery of forms.

In general, the return rate for Phase 3 was 10%. This low response rate may have been partially due to communication problems between the site director and other teachers who distributed and collected the forms. Teachers appeared to return REACS forms at a higher rate when they also had BASC-2 TRS forms to complete (i.e., there was a $10 per form payment for up to two forms). One teacher refused payment for completion of a TRS form. Sites with better return rates often had a contact person who took an active interest in the project and reminded parents to return forms (e.g., mentioned the study in a parent newsletter).

Once the data collection was completed, a pizza party was given to the three sites with the highest return rates. Three teachers were also drawn to receive $20 gift certificates to 1 of 3 local fast food restaurants.

Testing Procedures

Parents who indicated that they would allow their child to be tested were called on the phone and provided with details regarding testing, including a brief explanation of

the tasks that the child would do during testing. During this phone call, it was explained that scores from testing would not be given to parents. Most parents contacted agreed to participate. A few withdrew due to scheduling conflicts.

Each child was tested with the parent in the room. Prior to beginning testing, the tasks were explained to the child, and the parent was asked not to provide any assistance. While the child was tested, the parent typically sat at the opposite end of the room (behind the child) and completed the BASC-2 PRS form. Many also completed a second REACS form for the test-retest analysis. During three instances the child was overly shy and sat on the parent's lap for the first few items. During each instance, the parent was able to move to the back of the room by the completion of the first subtest. The KTEA-II, Brief Form was administered for children who were at least 4 years 6 months. Only 3 participants met requirements to be given the writing subtest (i.e., were in kindergarten).

After each child was tested, any questions from the parent were answered, and both parent and child were thanked for their participation. In return for participation, parents were paid $20. Four of the parents refused payment. A receipt was obtained from each parent. Those that refused payment were asked to sign the receipt indicating that they declined payment. Each child that participated was allowed to choose one token of appreciation (e.g., a toy car, coloring book, pencil).

Analysis

Phase 1: Expert Raters

In consultation with the dissertation committee chair, comments from the expert panel were qualitatively reviewed. Most comments made by the panel were in agreement

with each other and accepted as changes to items, forms, or instructions. Suggestions for revision included changes to demographic information gathered, deleting some items that were too high for the age group, and including additional items for early math, reading, and writing skills. Most items were deleted due to repetitiveness with other items, potential lack of fit with the construct, or inappropriate developmental level for the intended age group. One item about the use of computers was suggested for deletion because some socioeconomic groups may have less access to computers. No items were marked for deletion on the basis of being potentially offensive to individuals from different ethnic groups. After all changes were made, the Parent REACS had 329 items, and the Teacher REACS had 339 items.

Phase 2: Pilot Study

Preparation of the Data

The items from forms A and B of the Teacher and Parent REACS were analyzed to determine which ones to include in the combined measure. This process was undertaken with the goal of deleting approximately half of the items used in the pilot study. The scores from all negatively worded items were reverse scored, so when added with the other items, a higher total score meant that the individual has greater strength in that area. Total raw scores were then computed for each scale to assist with the analysis for potential item bias.

Item Bias

Following the recommendations of Reynolds (2000), the partial point-biserial correlations between gender and the item (partialing for the total subtest raw score) were

calculated to determine possible differential item functioning (DIF). Due to the homogeneity of the participant pool and small sample size, potential item bias was only analyzed on the basis of gender. Correlations were computed for 4 year olds and 5 year olds separately, to increase the likelihood of detecting a potential gender bias that may be mediated by age. Decisions regarding item deletion were made following a modification of the decision sequence used by Reynolds and Kamphaus (2003).

All items that had a statistically significant correlation ($p \leq .01$) for either age group were reviewed for possible elimination. Items were eliminated that had an effect size greater than or equal to 12% at either age or an effect size greater than or equal to 5% at both age levels. Based on these criteria, 5 items were deleted from the Parent REACS.

Internal Consistency

Further item deletions were made in order to maximize internal consistency. Internal consistency is "the degree to which the items of a scale are measuring the same domain of behavior" (Reynolds & Kamphaus, 1992, p. 129). This was used through computing the coefficient alpha (Cronbach, 1951), using the "scale if item deleted" function on SPSS (versions 11 & 14 were used simultaneously). Similar to the DIF analysis, internal consistency was computed independently for the 4 and 5 year old forms. Because coefficient alpha increases with the homogeneity of the items (Anastasi & Urbina, 1997), some items were retained even if its deletion would have resulted in higher internal consistency. Therefore, each item that appeared to increase the internal consistency by its elimination, with minimal loss to the overall content of the scale, was

eliminated. Based on these criteria, 68 items were deleted from the Parent REACS and 91 items were deleted from the Teacher REACS.

Phase 3: Validation Study

The focus of data analysis for Phase 3 was to answer the research questions proposed for the study, to ascertain the usefulness of the REACS in evaluation of school learning and learning problems. To meet this end, multiple analyses were undertaken to assess the overall validity of the REACS. Each measure was first assessed for possible biased items, utilizing the same procedure used in Phase 2. Next, the consistency of scores from the REACS was assessed. Finally, several analyses were conducted to obtain evidence related to the validity of this measure.

DIF Analysis

Analysis for Phase 3 began with an assessment of DIF, utilizing the same criteria as was used in Phase 2. Items that met these criteria were eliminated from the scale.

Computing Standard Scores

To make the comparisons between scales, particularly between composite scores and scores from other measures, a scoring system was devised. The scoring method was devised so that each subdivision of scores contributes equally to the larger grouping of scores to which it contributes (i.e., subtests contribute to subscales, subscales contribute to scales, scales contribute to indexes, and indexes contribute to the ACSI). Scoring of the REACS was designed in a bottom up procedure, as is common for most measures.

To score the items, several steps were taken. When needed, items were reverse scored so that a higher score on an item equals better performance on that construct. The

next step was to obtain the sum of all items that contributed to the same subdivision. For some items, this was the subtest level (e.g., Verbal Expressive Language); for others, the subscale level (e.g., Academic-Related Memory); and for the rest, the scale level (e.g., Reading). The total raw scores for each lowest subdivision were computed for each person. These scores were converted into z-scores. A z-score transformation was performed to convert the scores into T-scores.

Table 9

System for Combining REACS Scores

Composite	Comprised of Summed T-scores from:
Academic & Cognitive Skills Index (ACSI)	Academic Skills, Cognitive Skills Indexes
Academic Skills Index (ASI)	Math, Reading, Writing Scales
Cognitive Skills Index (CSI)	Composite Language, Composite Memory, Problem Solving, Learning Scales
Memory	Academic-Related, Personal, Schedules, Events memory Subscales
Language	Composite Symbolic, Composite Verbal
Symbolic	Symbolic Expressive, Symbolic Receptive Subtests
Verbal	Verbal Expressive, Verbal Receptive Subtests

Going up from the item level, subdivisions of items on the same level were scored so that they contributed equally to the next higher level. For example, scores from the Verbal Expressive and Verbal Receptive Subtests were combined to make the Verbal Language Subscale and scores from the Verbal and Symbolic Language Subscales were combined to make the Language Scale. The T-scores from each subtest/subscale/scale were summed. The z-score was obtained for each person for this total, and then a z-score transformation was done to yield T-scores. This process was conducted for each subdivision, up to the index level. At this point, the z-score transformation was done to yield standard scores (M = 100, SD = 15). The ASI and CSI were combined in the same fashion to computer the ACSI. To create age-based norms this procedure was conducted on the 4 and 5-year-old participants separately. See Table 9 for further clarification of the combining process.

Reliability

"Reliability refers to the accuracy with which a test can place individuals along some dimension such as a trait or domain of behavior and, thereby, differentiate people from one another" (Reynolds & Kamphaus, 1992, p. 129). Reliability is a necessary requirement for the validity of any measure (Thompson, 2004). In the construction of the REACS, three types of reliability estimates were obtained: internal consistency, test-retest reliability, and interrater reliability. Internal consistency of each scale was assessed by obtaining the coefficient alpha statistic for each level of the REACS. The internal consistency estimates were computed for 4 and 5-year-olds separately. Due to the small

sample sizes for the remaining analyses, the 4 and 5 year olds were considered together for all other analyses.

Test-retest reliability. Test-retest reliability is defined as "a method for estimating how much measurement error is caused by time sampling, or administering the test at two different points in time" (Kaplan & Saccuzzo, 2001, p. 639-640). Test-retest reliability was assessed on a subsample of the participants by having the rater fill out the same form one to six weeks after the first administration. The reliability estimates were obtained using Pearson's *r* correlation coefficients. Standardized scores for second ratings were computed using the means and standard deviations from the primary sample of each form in the z-score formula, using the primary sample as the age-based norm group.

Interrater reliability. Interrater reliability is "the level of agreement between independent ratings of the same" (Reynolds & Kamphaus, 1992, p. 129) person, by having two raters complete the same form. Interrater reliability was assessed between ratings from two different parents and two different teachers on a subsample of the children rated. Correlation coefficients are reported on each index, scale, subscale, and subtest using Pearson's *r* correlation coefficients. Standardized scores for the second rating were computed using the means and standard deviations from the primary sample of each form in the z-score formula, using the primary sample as the age-based norm group.

Validity

Validity is defined as "the degree to which accumulated evidence and theory support specific interpretations of test scores by proposed uses of the test" [American Educational Research Association (AERA), American Psychological Association, & National Council on Measurement in Education, 1999, p. 184]. Evidence of the validity of the REACS was assessed in several areas: content, internal structure, relations to other variables, and the consequences of testing. Multitrait-multimethod evidence of validity was also assessed.

Evidence based on content. Validity evidence based on test content refers to "the relationship between a test's content and the construct it is intended to measure" (AERA et al., 1999, p. 11). This evidence was obtained in two ways. First, items were developed based on a review of literature and other questionnaires similar in topic to the constructs covered by the REACS. Many of the items targeted practical manifestations of symptoms related to learning difficulties. Second, items were subjected to expert review to ensure that the content of each scale matched the construct to be tested, and that the items covered the breadth of each construct.

Evidence based on internal structure. Evidence of internal structure indicates "the degree to which the relationships among test items and test components conform to the construct on which the proposed test score interpretations are based" (AERA et al., 1999, p. 13). To examine the relationships between scales, the interscale correlation matrices were first computed. Factor analytic procedures were then used on the intercorrelation matrices of the REACS' forms. Factor analysis is a process of

"exploring the relationships among measured variables and trying to determine whether these relationships can be summarized in a smaller number of latent constructs" (Thompson, 2004, p. 10). The relationships between the scores of the different divisions of the REACS were examined using confirmatory (CFA) and exploratory factor analysis (EFA) procedures.

EFA was completed via principal-axis analysis. "Principal-axis analysis, is a purely exploratory method used to see whether factor structure model other than those evaluated with CSA [CFA] could provide a good fit to the scale intercorrelation data" (Reynolds & Kamphaus, 2004, p. 141). Using exploratory methods, even with the existence of prior theory, is recommended because it is possible for the results of the principal-axis analysis to indicate a factor structure that is different from the one conceptualized and tested using CFA.

As opposed to principal components analysis, principal-axis is performed with the assumption that scores on any given variable are not reliable. Thus, this method replaces the correlation coefficient of 1.0 in the diagonal of the correlation matrix with the lower bound estimates of reliability (or communality coefficient; Thompson, 2004). To aid in the interpretation of the principal-axis results, a varimax orthogonal rotation was used. Factor rotation is a process of "moving the factor axes measuring the locations of the measured variables in the factor space so that the nature of the underlying constructs becomes more obvious to the researcher" (Thompson, 2004, p. 38). The principal axis analysis was performed using SPSS v.14. All factors with eigenvalues equal to or greater than 1 were retained.

A CFA was then undertaken to assess the theoretical structure of the REACS divisions. Comparisons among three different models were assessed for each form. The first model included a Cognitive Skills and Academic Skills factor. The T-scores from the Math, Reading, and Writing Scales contributed to the Academic Skills factor. The T-scores from the Language, Memory, Problem Solving, and Learning Scales contributed to the Cognitive Skills Factor. The second model was similar to the first, except a Memory factor replaced the Memory Scale. This factor included T-scores from the Academic-Related Memory, Memory for Events, Personal Memory, and Memory for Schedules Subscales. The third model replaced the Language Scale with a Language Factor, with a Symbolic Language Factor and a Verbal Language Factor contributing to it. T-scores from the Symbolic Expressive and Symbolic Receptive Subtests contributed to the Symbolic Language Factor, while the Verbal Expressive and Verbal Receptive Subtests contributed to the Verbal Language Factor.

Two indexes of model fit were used for the CFA. The first index chosen was the Comparative Fit Index (CFI; Bentler, 1990). This is a commonly used index that is preferred over other indexes, such as the Normed Fit Index (NFI), which can produce an underestimation in smaller sample sizes (Bentler & Bonett, 1980). Hammill and Bryant (1998) reported that an estimate of .80 indicates an adequate fit, while an estimate of .90 or above is preferred. The Root Mean Square Estimation (RMSEA; Steiger & Lind, 1980) was also chosen. The RMSEA is the degree to which the model parameters would reproduce the population covariance. A RMSEA of zero would be obtained if the

population covariance was perfectly reproduced (Thompson, 2004). Values of .08 or less indicate a reasonable model fit (Browne & Cudeck, 1993).

Evidence based on relations to other variables. The scores obtained from the REACS were compared to several widely accepted tests to assess relations to other variables. The REACS was compared to the BASC-2 Adaptive Scales, KTEA-II Brief Form, and the RIAS. Pearson correlation coefficients were computed to assess the relationships between the REACS and these measures.

Evidence based on consequences of testing. The REACS was assessed for potential DIF based on gender. There were not enough participants to assess for DIF based on ethnicity. Analysis of the ability of the REACS to predict clinical groups was unable to be assessed, because a sufficient sample of children with clinical diagnoses could not be obtained.

Multitrait-Multimethod Evidence of Validity. To assess the viability of the Parent and Teacher forms of the REACS to measure similar constructs, the correlation between the different divisions of the parent form and teacher form were computed. Using this method, validity is evidenced through demonstrating a pattern of high correlations between measures of similar constructs between forms, while lower correlations are found between dissimilar constructs across forms (Reynolds & Kamphaus, 2004).

Prediction of Academic Achievement

The final analysis for this study was to assess the ability of the REACS to predict school achievement. This ability was assessed via linear regression. Linear regression was used to ascertain the possible additive contribution of predicting academic

achievement when scores from the REACS were included with those from the RIAS. This was done using 7 separate analyses. First, separate regressions were run using the Composite Intelligence Index (CIX) from the RIAS, and the ASI, CSI, and ACSI as the independent variables and the KTEA-II-Brief Form Brief Achievement Composite (BAC) as the dependent variable in each regression to determine each variable's ability to predict overall achievement. Next, 3 separate analyses were run to determine the potential contribution the different REACS indexes may have in predicting academic achievement (CIX and ASI, CIX and CSI, CIX and ACSI).

Summary

In summary, the dissertation study was conducted across three phases. In Phase 1 the initial items were developed and reviewed by a panel of expert raters. During Phase 2, the REACS, divided into two forms, was used by parents and teachers to rate 4 and 5 year old children. The data from these forms were used to reduce the number of items on the REACS, so it could be combined into a shorter form for Phase 3.

Phase 3 comprised the bulk of the project. Parents and teachers used the REACS to rate 4 and 5 year old children. A subsample of parents and teachers also completed the form a second time to investigate test-retest reliability. An additional group of parents and teachers completed the REACS on children already rated in the primary sample, to examine the interrater reliability of scores from the REACS. Finally, children were assessed with the BASC-2, RIAS, and KTEA-II-Brief Form to provide evidence based on relations to other variables.

Analyses were conducted with the data from Phase 3 to establish the reliability and validity of scores from the REACS. DIF and coefficient alpha estimates were examined. Each form (parent and teacher) was analyzed for test-retest reliability and interrater reliability. Each form was also analyzed using EFA and CFA. Parent and teacher forms were compared to each other to establish multitrait/multimethod evidence of validity. Finally, linear regression was used to explore the ability of the REACS to predict academic achievement alone, and in combination with the RIAS.

CHAPTER IV

RESULTS

Given that analyses from Phases 1 and 2 were discussed as part of the methods chapter, this chapter will focus on Phase 3 results from the main part of the study. Results and analyses from the Parent REACS will be discussed first, followed by the Teacher REACS. Each section will discuss the different forms of score reliability that was investigated (internal consistency, test-retest, and interrater) and the results from exploratory and confirmatory factor analytic analyses. Following this discussion, an overview of the multitrait/multimethod evidence of validity will be provided. The results section will conclude by discussing the prediction of academic achievement based on REACS scores, both with and without the aid of a test of cognitive ability.

Parent REACS

DIF Analysis

Analysis for Phase 3 began with an assessment of DIF, utilizing the same criteria as was used in Phase 2. Items that met the criteria for deletion as outlined in Phase 2 were eliminated. On the Parent REACS, 4 items were eliminated. (See Appendix A for items remaining on the Parent REACS.)

Reliability

Internal Consistency

The coefficient alpha estimates (see Table 10) for the index scores of the Parent REACS are high, with estimates in the low to mid .90s. The low estimate is on scores

from the ASI on the 5 year old sample (.923), and the high estimate is on the scores from the ACSI on the 4 year old sample (.969). The median internal consistency estimate of the produced scores across composites for both ages is .955. The pattern of reliability estimates is consistent across ages.

Table 10

Coefficient Alpha Reliabilities of Parent REACS Scores

	Child Age	
	4	5
Math	.845	.813
Reading	.814	.818
Writing	.871	.886
Academic-Related Memory	.484	.534
Memory for Events	.882	.873
Personal-Related Memory	.727	.731
Memory for Schedules	.722	.694
Problem Solving	.819	.837
Learning	.743	.796
Symbolic Expressive Language	.706	.721
Symbolic Receptive Language	.715	.650
Verbal Expressive Language	.868	.865
Verbal Receptive Language	.874	.878
Memory	.899	.880
Symbolic Language	.813	.826
Verbal Language	.895	.893
Language	.914	.919
Academic Skills Index	.936	.923
Cognitive Skills Index	.959	.950
Academic and Cognitive Skills Index	.969	.965

With the exception of the Learning scale, the coefficient alpha estimates for the scale scores range from the lower .80s to lower .90s (median = .858). The Learning Scale score has a slightly lower estimate, with a coefficient alpha of .743 for 4 year olds

and .796 for 5 year olds. The high estimate among the scale scores is .919 on the Language Scale among the 5 year olds. Combined across ages, the median alpha coefficient is .841.

The internal consistency estimates among the subscale scores are slightly lower than the estimates for the scale scores, with most estimates falling within the .70 to .80 range across age groups. The alpha estimates for the scores on the Academic-Related Memory Subscale are .484 and .534, for 4 and 5 year olds, respectively. The highest estimate is on scores from Verbal Language for 4 year olds (.895). The median subscale estimate across age groups is .772.

The alpha estimates were high for the Verbal Language Subtest scores, with a high of .878 on Verbal Receptive Language among the 5 year olds. Estimates are in the lower .70s for the Symbolic Language scores, with the exception of the scores from the Symbolic Receptive Subtest (.650) in the 5 year old sample. The median alpha estimate for subset scores across ages is .793.

Test-Retest Reliability

The Pearson's *r* correlations obtained to assess the test-retest reliability for the scores on the ASI of the Parent REACS are high, with a reliability of .829. The test-retest reliabilities for scores on the CSI and ACSI are lower at .385 and .609, respectively. The reliability estimates for the scale scores varied greatly, with scales contributing to the ASI ranging from .765 (Math) to .829 (Reading), with a median of .799. The test-retest reliability estimates among the scores contributing to the CSI scales range from .174 (Learning) to .734 (Problem Solving), with a median of .378.

Table 11

Test-Retest Reliabilities of the Parent REACS Scores

	Parent REACS n = 38				
		Rating 1		Rating 2	
	Rel	Mean	SD	Mean	SD
Math	.765**	48.6	8.0	48.0	7.4
Reading	.829**	51.1	8.4	49.9	9.1
Writing	.799**	50.6	8.4	51.8	8.7
Academic-Related Memory	.226	49.4	12.0	30.7	8.6
Memory for Events	.835**	51.9	8.6	48.5	6.4
Personal-Related Memory	.303	51.4	10.3	37.7	7.8
Memory for Schedules	.028	50.5	11.3	33.7	7.5
Problem Solving	.734**	49.1	9.2	47.5	8.0
Learning	.174	49.1	10.4	43.5	5.5
Symbolic Expressive Language	.588**	48.8	9.6	41.5	8.1
Symbolic Receptive Language	.469**	49.5	10.1	46.4	8.2
Verbal Expressive Language	.390*	50.9	10.1	32.3	5.3
Verbal Receptive Language	.129	50.2	10.7	40.2	5.9
Memory	.337*	51.0	10.8	34.2	6.0
Symbolic Language	.549**	49.1	10.2	43.3	7.7
Verbal Language	.248	50.6	10.4	35.1	5.2
Language	.418**	49.8	10.3	38.0	5.8
Academic Skills Index	.829**	100.2	11.9	99.8	12.7
Cognitive Skills Index	.385*	99.6	15.4	83.4	8.5
Academic and Cognitive Skills Index	.609**	99.9	13.4	90.6	10.6

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

The test-retest reliability estimates on scores from the subscales also varied greatly. The highest test-retest reliability estimate among the subscale scores is on Memory for Events (.835), while the lowest test-retest reliability estimate is for the scores from Memory for Schedules (.028). The median reliability estimate for the subscale scores is .275. The test-retest reliability estimates for the subtest scores range

from .129 (Verbal Receptive Language) to .588 (Symbolic Expressive Language), with a median for the subtests of .430 (See Table 11 for more information). These estimates are generally lower than the coefficient alpha estimates, especially among the scores of the scales contributing to the CSI. An exception to this is in the scores from the Reading Scale, which has a higher test-retest reliability estimate than coefficient alpha.

Table 12

Interrater Reliabilities of the Parent REACS Scores

	Parent REACS n = 37				
		Rater 1		Rater 2	
	Rel	Mean	SD	Mean	SD
Math	.496**	49.4	8.8	46.1	9.1
Reading	.730**	52.2	8.0	48.4	9.4
Writing	.594**	51.9	9.1	50.0	10.0
Academic-Related Memory	.058	50.2	12.0	25.1	11.9
Memory for Events	.551**	50.2	9.4	47.9	7.8
Personal-Related Memory	.247	51.8	10.1	35.3	6.8
Memory for Schedules	.104	50.0	12.1	32.9	6.0
Problem Solving	.525**	47.9	10.0	48.0	9.7
Learning	.257	50.5	11.0	34.0	6.0
Symbolic Expressive Language	.271	50.5	9.6	40.9	7.6
Symbolic Receptive Language	.189	49.2	9.5	43.4	10.5
Verbal Expressive Language	.056	51.4	11.1	31.7	4.9
Verbal Receptive Language	.047	49.5	11.2	36.5	5.5
Memory	.302	50.7	10.8	31.2	6.9
Symbolic Language	.203	49.8	9.6	41.3	8.8
Verbal Language	.065	50.5	11.1	32.7	4.8
Language	.104	50.2	10.4	35.7	6.5
Academic Skills Index	.641**	102.0	12.9	96.9	14.4
Cognitive Skills Index	.220	99.6	15.8	76.8	10.2
Academic and Cognitive Skills Index	.440**	100.9	14.0	85.3	12.3

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

Interrater Reliability

Overall, the Pearson's *r* correlations between parent/caregiver raters for the interrater reliability estimates of scores from the Parent REACS (see Table 12) are lower than the estimates for internal consistency or test-retest reliability; however, the profiles of high and low reliabilities are generally consistent with the previous findings. Scores from only one division of the Parent REACS have an interrater reliability above .70 (Reading). The interrater reliabilities for the index scores are .220 (CSI) and .641 (ASI). Scores from the scales that comprise the ASI have interrater reliabilities that range from .496 (Math) to .730 (Reading; median = .594). The interrater reliabilities for the CSI scale scores range from .104 (Language) to .525 (Problem Solving; median = .280). Among the subscale scores, Verbal Language (.065) has the lowest reliability, while Memory for Events (.551) has the highest reliability (median = .154). The interrater reliability estimates from the subtest scores of the Parent REACS range from .047 (Verbal Receptive Language) to .271 (Symbolic Expressive Language). The subtest scores have a median reliability of .280.

Validity

Evidence Based on Internal Structure

Through an inspection of the intercorrelation matrix of the scores from the various divisions of the Parent REACS, several patterns are found. The scores on scales contributing to the ASI have the highest correlations among each other. The correlations between the scores obtained on scales contributing to the CSI do not appear to have stronger correlations with each other than they do with scales from the ASI. The

Table 13

Intercorrelations Between Scores of the Scales/Composites on the Parent REACS
N = 142.

	Math	Read	Writ	MeAc	MeEv	MePe	MeSc	PrSo	Lear	SyEx	SyRe	VeEx	VeRe	Memo	Symb	Verb	Lang	ASI	CSI	ACSI
Math	---	.706	.624	.339	.494	.437	.414	.604	.399	.335	.490	.288	.240	.541	.459	.287	.413	.874	.591	.818
Read		---	.725	.321	.429	.462	.371	.352	.295	.279	.440	.279	.208*	.506	.400	.265	.369	.912	.459	.764
Writ			---	.351	.430	.456	.397	.447	.423	.369	.496	.368	.341	.522	.480	.386	.478	.881	.565	.807
MeAc				---	.293	.424	.476	.299	.384	.309	.422	.343	.481	.700	.405	.448	.471	.380	.560	.525
MeEv					---	.588	.511	.496	.434	.445	.622	.567	.453	.764	.592	.555	.634	.506	.702	.673
MePe						---	.596	.363	.486	.369	.572	.506	.543	.835	.521	.571	.604	.508	.690	.668
MeSc							---	.398	.483	.366	.492	.379	.458	.825	.476	.456	.516	.444	.671	.623
PrSo								---	.479	.392	.515	.410	.385	.497	.503	.432	.517	.525	.753	.713
Lear									---	.568	.520	.623	.626	.570	.602	.679	.707	.419	.833	.699
SyEx										---	.631	.466	.493	.475	.903	.521	.786	.368	.671	.580
SyRe											---	.558	.608	.674	.903	.634	.849	.534	.773	.730
VeEx												---	.690	.573	.567	.919	.821	.350	.733	.604
VeRe													---	.617	.609	.919	.844	.295	.747	.581
Memo														---	.637	.647	.710	.588	.838	.796
Symb															---	.639	.905	.501	.800	.726
Verb																---	.905	.351	.805	.645
Lang																	---	.472	.886	.757
ASI																		---	.605	.896
CSI																			---	.896
ACSI																				---

Note. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; SyEx = Symbolic Expressive Language; SyRe = Symbolic Receptive Language; VeEx = Verbal Expressive Language; VeRe = Verbal Receptive Language; Memo = Memory; Symb = Symbolic Language; Verb = Verbal Language; Lang = Language; ASI = Academic Skills Index; CSI = Cognitive Skills Index; ACSI = Academic and Cognitive Skills Index.
*$p < .05$.
All other correlations, $p < .01$.

correlations of scores from the Memory Subscales also failed to show high correlations among themselves when compared to measures outside of the Memory Scale. See Table 13 for the intercorrelation matrix of the Parent REACS.

EFA was done using a principal-axis analysis for the Parent REACS, which produced a two factor solution. The factor loadings suggest an Academic factor (2nd factor) and Cognitive factor (1st factor), with only one subdivision of the CSI (Problem Solving) loading on the Academic factor. Of the cognitive divisions, three of the four memory subscales (Memory for Events, Personal Memory, and Memory for Schedules) and the Problem Solving Scale cross loaded between the two factors. Overall, this solution appears to confirm the theoretical division of the REACS into an ASI and CSI. The factor loadings are found in Table 14.

Table 14

Parent REACS: Principal Axis Factor Matrix, Varimax Rotation

	Factor	
	I	II
Math	.234	.820
Reading	.150	.835
Writing	.307	.716
Academic-Related Memory	.462	.283
Memory for Events	.572	.431
Personal-Related Memory	.593	.408
Memory for Schedules	.537	.375
Problem Solving	.444	.459
Learning	.714	.245
Symbolic Expressive Language	.603	.240
Symbolic Receptive Language	.689	.411
Verbal Expressive Language	.755	.161
Verbal Receptive Language	.845	.073

Three models of the Parent REACS were assessed using CFA to determine the appropriateness of the divisions of the REACS. Model 1 is a two factor model, with an Academic and Cognitive Factor. The scales from each index (ASI & CSI) loaded onto their respective factors. Model 2 is similar to the first model, with the addition of a Memory factor in the place of the observed variable (i.e., the Memory Scale score). The memory subscales were added and loaded onto the Memory factor. Model 3 replaced the observed Language Scale variable with a Language factor. A Symbolic and Verbal factor were also created to load onto the Language factor. The Symbolic Receptive Language and Symbolic Expressive Language Subtests loaded onto the Symbolic factor while the Verbal Receptive Language and Verbal Expressive Language Subtests loaded onto the Verbal Factor. For each of the models, targeted error variances were allowed to correlate with each other when the modification indexes indicated that doing so would increase the model fit. (See Tables 15-17 for factor loadings and Figures 3-5 for models.)

Table 15

Parent REACS Factor Loadings for CFA Model 1

Scale/ Composite	Factor	
	Academic	Cognitive
Reading	.914	-----
Writing	.858	-----
Math	.834	-----
Problem Solving	-----	.590
Memory	-----	.799
Learning	-----	. 745
Language	-----	.891

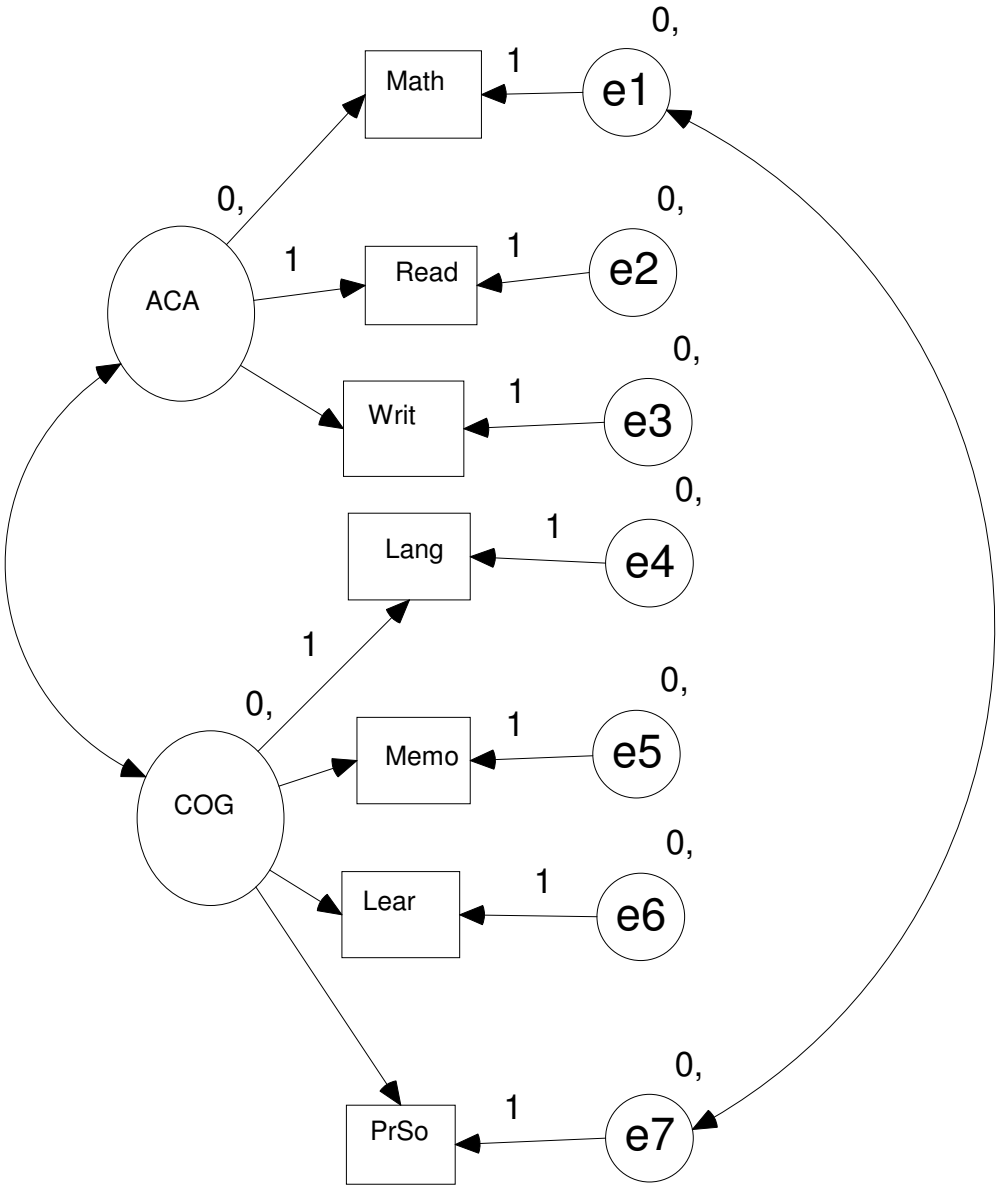

Figure 3. CFA Model 1 of Parent REACS. Math = Math; Read = Reading; Writ = Writing; PrSo = Problem Solving; Lear = Learning; Memo = Memory; Lang = Language; ACA = Academic factor; COG = Cognitive factor.

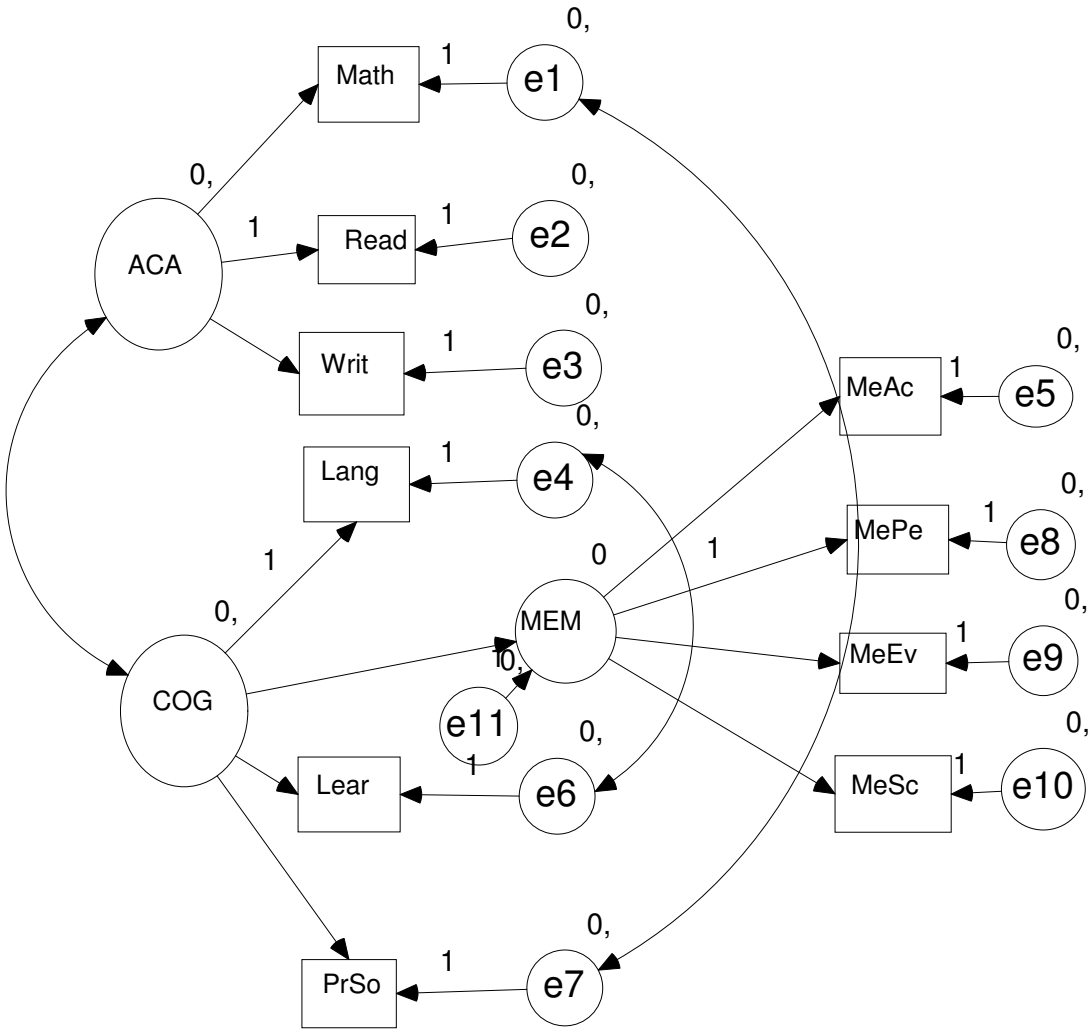

Figure 4. CFA Model 2 of Parent REACS. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; Lang = Language; ACA = Academic factor; COG = Cognitive factor; MEM = Memory factor.

Table 16

Parent REACS Factor Loadings for CFA Model 2

Scale/ Composite	Factor		
	Academic	Cognitive	Memory
Reading	.917	-----	-----
Writing	..854	-----	-----
Math	.840	-----	-----
Problem Solving	-----	.585	-----
Memory	-----	..980	-----
Learning	-----	.620	-----
Language	-----	.801	-----
Academic-Related Memory	-----	-----	.564
Memory for Events	-----	-----	.752
Personal-Related Memory	-----	-----	.783
Memory for Schedules	-----	-----	.690

Table 17

Parent REACS Factor Loadings for CFA Model 3

Scale/ Composite	Factor					
	Academic	Cognitive	Memory	Language	Symbolic	Verbal
Reading	.915	-----	-----	-----	-----	-----
Writing	.855	-----	-----	-----	-----	-----
Math	.844	-----	-----	-----	-----	-----
Problem Solving	-----	.603	-----	-----	-----	-----
Memory	-----	.955	-----	-----	-----	-----
Learning	-----	.639	-----	-----	-----	-----
Language	-----	.931	-----	-----	-----	-----
Academic-Related Memory	-----	-----	.566	-----	-----	-----
Memory for Events	-----	-----	.751	-----	-----	-----
Personal-Related Memory	-----	-----	.781	-----	-----	-----
Memory for Schedules	-----	-----	.699	-----	-----	-----
Symbolic Language	-----	-----	-----	.938	-----	-----
Verbal Language	-----	-----	-----	.806	-----	-----
Symbolic Receptive Language	-----	-----	-----	-----	.919	-----
Symbolic Expressive Language	-----	-----	-----	-----	.688	-----
Verbal Receptive Language	-----	-----	-----	-----	-----	.850
Verbal Expressive Language	-----	-----	-----	-----	-----	.688

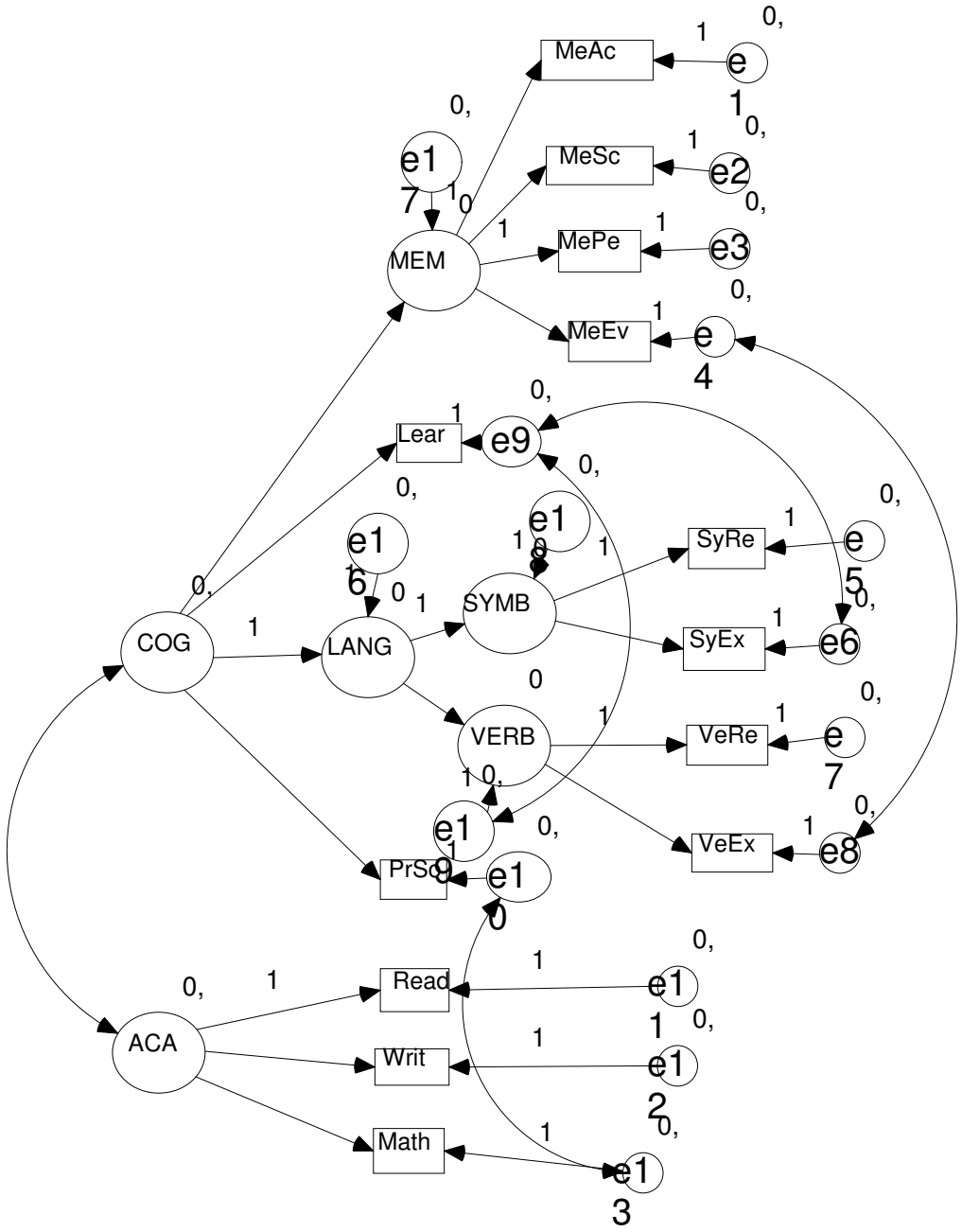

Figure 5. CFA Model 3 of Parent REACS. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; SyEx = Symbolic Expressive Language; SyRe = Symbolic Receptive Language; VeEx = Verbal Expressive Language; VeRe = Verbal Receptive Language; ACA = Academic factor; COG = Cognitive factor; SYM = Symbolic factor; VERB = Verbal factor; LANG = Language factor.

The results of these analyses varied, with moderate fit on Model 1 to a relatively good fit on Model 3, supporting the overall structure of the Parent REACS. The χ^2, CFI, and RMSEA fit indexes are presented in Table 18.

Table 18

Parent REACS CFA Model Fit Indexes

Model	df	χ^2	CFI	RMSEA
1	12	37.639	.958	.123
2	31	60.837	.962	.083
3	56	85.688	.972	.061

Evidence Based on Relations to Other Variables

To obtain evidence of validity based on the relations of the scores on the REACS to other variables, scores from the Parent REACS were compared to those obtained on the BASC-2 PRS, RIAS, and KTEA-II-Brief Form.

The comparison of scores between the Parent REACS and BASC-2 focused on scores obtained on the BASC-2 Adaptive Scales (See Table 19). Overall, scores obtained on the REACS demonstrate moderate to low correlations with those obtained on the BASC-2 PRS. On the language portions of the REACS, scores from Symbolic Expressive Language, Verbal Expressive Language, and the Symbolic Language Subscales all have their highest correlations with scores produced on the PRS Functional Communication Scale. Scores from 6 divisions of the REACS had their highest correlations with scores obtained on the PRS Adaptive Skills Composite. The

correlations between the REACS and PRS scores suggest that the two parent report measures are measuring reasonably divergent constructs.

Table 19

Correlations Between Scores of the Parent REACS and Parent BASC-2 Adaptive Scales

	BASC-2 Adaptive Scales						
	Adapt. Skills Composite	Adaptability	Social Skills	Act Daily Living	Functional Communication		
			n = 32			REACS	
REACS	r	r	r	r	r	Mean	SD
Math	-.016	.059	-.340	-.084	.283	49.8	9.3
Read	.079	-.019	-.213	.000	.360*	48.8	9.4
Writ	-.074	-.252	-.352*	-.137	.228	48.3	10.0
MeAc	.157	.233	-.036	.216	-.188	47.8	12.4
MeEv	.059	-.254	.054	.147	.404*	51.2	7.7
MePe	.188	-.051	-.013	.153	.279	50.7	9.4
MeSc	.282	.157	.035	.296	.136	50.3	11.9
PrSo	-.055	-.009	-.145	-.056	.039	49.0	8.3
Lear	.440*	.396*	.394*	.063	.271	49.8	9.4
SyEx	.188	.098	.030	.185	.327	48.4	9.7
SyRe	.138	.081	-.096	.313	.084	50.6	8.8
VeEx	.315	.189	.297	-.006	.325	50.8	7.5
VeRe	.203	.158	.096	.134	.061	49.9	9.9
Memo	.254	.079	.011	.292	.174	50.0	9.6
Symb	.183	.099	-.035	.276	.238	49.5	9.1
Verb	.274	.187	.200	.074	.191	50.4	8.7
Lang	.265	.165	.094	.208	.251	49.9	8.4
ASI	-.003	-.083	-.341	.027	.329	98.2	14.1
CSI	.311	.215	.124	.176	.249	99.5	12.2
ACSI	.169	.066	-.146	.114	.341	98.7	12.6
BASC Mean	50.1	51.3	52.1	48.3	48.1		
BASC SD	6.2	8.5	7.1	8.5	7.1		

Note. Math = Math Scale; Read = Reading Scale; Writ = Writing Scale; MeAc = Academic-Related Memory Subscale; MeEv = Memory for Events Subscale; MePe = Personal-Related Memory Subscale; MeSc = Memory for Schedules; PrSo = Problem Solving Scale; Lear = Learning Scale; SyEx = Symbolic Expressive Language Subtest; SyRe = Symbolic Receptive Language Subtest; VeEx = Verbal Expressive Language Subtest; VeRe = Verbal Receptive Language Subtest; Memo = Memory Scale; Symb = Symbolic Language Subscale; Verb = Verbal Language Subscale; Lang = Language Scale; ASI = Academic Skills Index; CSI = Cognitive Skills Index; ACSI = Academic and Cognitive Skills Index.
*$p < .05$.

Table 20

Correlations Between Scores of the Parent REACS and RIAS

	RIAS										REACS	
	GWH	VRZ	OIO	WHM	VRM	NVM	VIX	NIX	CIX	CMX		
	n = 31											
REACS	r	r	r	r	r	r	r	r	r	r	Mean	SD
Math	.357*	.311	.272	-.079	.352	.253	.161	.264	.244	.343	49.6	9.4
Read	.584**	.355*	.401*	-.039	.413*	.318	.416*	.267	.385*	.455*	48.5	9.4
Writ	.453*	.189	.296	.042	.465**	.122	.234	.276	.293	.299	47.8	9.6
MeAc	.388*	.337	.100	-.173	.445*	.284	-.077	.379*	.188	.387*	47.5	12.5
MeEv	.195	.074	-.085	.219	.461**	.058	.039	.170	.135	.260	51.0	7.7
MePe	.166	.271	.185	.066	.308	.089	.277	.091	.206	.241	50.6	9.5
MeSc	.141	.277	.062	-.189	.479**	.139	.028	.106	.086	.321	50.3	12.1
PrSo	.409*	.273	.425*	-.081	.290	.198	.153	.380*	.313	.261	48.8	8.3
Lear	.074	.061	.017	-.165	.143	-.012	-.082	.060	.001	.040	50.4	8.9
SyEx	.027	.104	-.070	-.107	.381*	.010	-.154	.084	-.023	.181	48.7	9.7
SyRe	.290	.307	-.011	-.127	.443*	.001	.040	.156	.117	.193	50.2	8.7
VeEx	.252	.305	.182	.137	.245	-.118	.271	.196	.277	.018	51.3	7.1
VeRe	.270	.246	-.028	-.110	.231	-.107	.125	.045	.110	.023	50.0	10.1
Memo	.318	.358*	.107	-.069	.589**	.214	.087	.266	.214	.429*	49.8	9.7
Symb	.163	.217	-.051	-.134	.452*	.003	-.075	.127	.043	.204	49.4	9.3
Verb	.285	.293	.063	-.010	.257	-.122	.201	.116	.194	.022	50.8	8.6
Lang	.256	.292	.001	-.089	.415*	-.067	.064	.139	.131	.134	50.1	8.5
ASI	.527**	.326	.367*	-.029	.469**	.261	.310	.305	.350	.416*	97.7	14.1
CSI	.343	.325	.178	-.128	.475**	.112	.077	.274	.216	.288	99.6	12.4
ACSI	.511**	.380*	.324	-.087	.548**	.222	.235	.336	334	.413*	98.5	12.7
RIAS Mean	58.0	58.2	63.5	62.6	51.3	60.7	117.9	122.3	122.0	112.7		
RIAS SD	10.5	12.2	12.0	12.8	10.8	17.2	17.9	19.5	18.6	21.5		

Note. Math = Math Scale; Read = Reading Scale; Writ = Writing Scale; MeAc = Academic-Related Memory Subscale; MeEv = Memory for Events Subscale; MePe = Personal-Related Memory Subscale; MeSc = Memory for Schedules; PrSo = Problem Solving Scale; Lear = Learning Scale; SyEx = Symbolic Expressive Language Subtest; SyRe = Symbolic Receptive Language Subtest; VeEx = Verbal Expressive Language Subtest; VeRe = Verbal Receptive Language Subtest; Memo = Memory Scale; Symb = Symbolic Language Subscale; Verb = Verbal Language Subscale; Lang = Language Scale; ASI = Academic Skills Index; CSI = Cognitive Skills Index; ACSI = Academic and Cognitive Skills Index; GWH = Guess What; VRZ = Verbal Reasoning; OIO = Odd-Item Out; WHM = What's Missing; VRM = Verbal Memory; NVM = Nonverbal Memory; VIX = Verbal Intelligence Index; NIX = Nonverbal Intelligence Index; CIX = Composite Intelligence Index; CMX = Composite Memory Index.
*$p < .05$.
**$p < .01$.

The profile of correlations between scores on the Parent REACS and scores on the RIAS provides evidence of the convergent and divergent validity of scores from the Parent REACS (See Table 20). The scores from the ASI and its scales have moderate correlations with those obtained on the verbal portions of the RIAS, with a moderate

correlation (.584) between scores obtained on the Reading Scale of the REACS and the Guess What subtest (GWH) of the RIAS. Scores on the REACS Memory subscales correlate more highly with scores obtained on the RIAS Composite Memory Index (CMX) than they do with scores on the CIX. The REACS Memory Scale scores and all of the memory subscale scores have their highest correlations with scores on the Verbal Memory (VRM) subtest of the RIAS. The ASI, CSI, and ACSI scores also have their highest correlations with scores on the VRM (.469, .475, and .548, respectively). Against prediction, the scores on the CSI and ACSI both have a lower correlation with scores obtained on the CIX (.288 and .413, respectively) than the ASI (.416). The REACS division with the highest correlation with the CIX is the Reading Scale (.455).

For further evidence of validity, scores from the Parent REACS were also compared to the KTEA-II-Brief Form (See Table 21). The correlations between the scores obtained on the KTEA-II subtests and those obtained on the REACS are generally low among the CSI and its scales, ranging from .452 (Problem Solving) to -.274 (Verbal Language). The correlation between scores on the ASI and its scales appear highly correlated with scores obtained on the KTEA-II (median = .538). This pattern generally followed what was predicted at the beginning of the study. Due to an insufficient number of participants (n = 3), comparisons to the KTEA-II Writing subtest were not made.

Evidence Based on Consequences of Testing

The Parent REACS was assessed for potential DIF based on gender. All items that exceeded the conservative criteria used in this study were deleted. No other information was obtained for this dimension of validity.

Table 21

Correlations Between Scores of the Parent REACS and KTEA-II-Brief Form

	KTEA-II-Brief Form				
	Reading n = 22	Math n = 22	BAC n = 21	REACS	
REACS	r	r	r	Mean	SD
Math	.368	.652**	.586**	51.1	9.3
Reading	.538**	.538**	.641**	50.4	8.8
Writing	.435*	.500*	.504*	51.4	8.0
Academic-Related Memory	.147	.111	.113	48.9	14.0
Memory for Events	.240	.140	.207	50.5	7.4
Personal-Related Memory	.131	.067	.092	51.4	10.5
Memory for Schedules	.065	-.056	.009	51.3	14.0
Problem Solving	.185	.452*	.347	49.7	8.7
Learning	-.225	-.319	-.319	51.6	9.6
Symbolic Expressive Language	.082	.007	.017	49.1	9.0
Symbolic Receptive Language	.127	-.033	-.027	50.7	9.2
Verbal Expressive Language	-.236	-.152	-.242	51.2	7.8
Verbal Receptive Language	-.190	-.227	-.251	50.7	10.9
Memory	.190	.088	.137	50.6	11.2
Symbolic Language	.104	-.023	-.015	49.9	9.3
Verbal Language	-.231	-.217	-.274	51.0	9.2
Language	-.075	-.138	-.164	50.5	9.3
Academic Skills Index	.490*	.661**	.632**	101.6	13.6
Cognitive Skills Index	.036	.027	.006	101.1	13.6
Academic and Cognitive Skills Index	.309	.402	.372	101.4	13.0
KTEA Mean	109.9	105.3	107.5		
KTEA SD	10.6	13.2	12.5		

Note. BAC = Brief Achievement Composite.
*$p < .05$.
**$p < .01$.

Teacher REACS

DIF Analysis

Analysis for Phase 3 began with an assessment of DIF, utilizing the same criteria as was used in Phase 2. Items that met the criteria for deletion were eliminated from the scale. On the Teacher REACS, 4 items were eliminated. (See Appendix B for items remaining on the Teacher REACS.)

Table 22

Coefficient Alpha Reliabilities of Teacher REACS Scores

	Child Age	
	4	5
Math	.908	.924
Reading	.830	.898
Writing	.936	.931
Academic-Related Memory	.628	.622
Memory for Events	.911	.929
Personal-Related Memory	.708	.847
Memory for Schedules	.657	.732
Problem Solving	.979	.974
Learning	.912	.922
Symbolic Expressive Language	.919	.938
Symbolic Receptive Language	.842	.827
Verbal Expressive Language	.882	.921
Verbal Receptive Language	.860	.923
Memory	.870	.896
Symbolic Language	.942	.947
Verbal Language	.929	.956
Language	.965	.972
Academic Skills Index	.963	.960
Cognitive Skills Index	.979	.979
Academic and Cognitive Skills Index	.985	.977

Reliability

Internal Consistency

The coefficient alpha estimates (See Table 22) for the index scores of the Teacher REACS are high, with estimates in the mid .90s. The low estimate is in the ASI for the 5-year-old sample (.960), and the high estimate is on scores from the ACSI for the 4-year-old sample (.985). The median reliability estimate of obtained scores across composites for both ages was .978. The pattern of reliability estimates was consistent across ages.

The coefficient alpha estimates for the scale scores of the Teacher REACS are also high, with all but one estimate in the upper .80s to upper .90s (median = .923). The lowest estimate is for scores on the Reading Scale in the 4-year-old sample (.830), while the highest estimate is for scores from the Problem Solving Scale of the 4-year-old sample (.979).

The internal consistency estimates for the subscale scores are generally high, although somewhat lower than the scale and index estimates. The coefficient alpha reliabilities of the subscale scores range from .622 (Memory for Academics, 5 year olds) to .956 (Verbal Language, 5 year olds). The median coefficient alpha reliability for subscale scores is .879 across ages.

Reliability estimates among the Language subtest scores are high, with scores in the mid .80s to low .90s. The low estimate is for the scores from the Symbolic Receptive Language Subtest (.827) and the high alpha coefficient is on the scores from the

Symbolic Expressive Language Subtest within the 5 year old sample (.938). The median alpha estimate is .901.

Table 23

Test-Retest Reliabilities of the Teacher REACS Scores

	Teacher REACS n = 29				
		First		Second	
	Rel	Mean	SD	Mean	SD
Math	.792**	48.6	7.8	45.4	7.9
Reading	.783**	47.5	8.6	50.1	10.3
Writing	.855**	46.6	10.0	47.5	10.0
Academic-Related Memory	.329	50.4	9.4	28.9	6.9
Memory for Events	.880**	49.7	9.1	49.6	9.7
Personal-Related Memory	.622**	48.3	7.9	44.0	7.7
Memory for Schedules	.770**	47.7	9.7	33.9	9.8
Problem Solving	.659**	48.9	9.3	46.9	6.3
Learning	.249	48.3	8.8	43.4	6.8
Symbolic Expressive Language	.870**	47.7	9.7	45.9	9.4
Symbolic Receptive Language	.873**	47.8	9.8	46.7	8.9
Verbal Expressive Language	.314	48.9	10.3	31.4	3.6
Verbal Receptive Language	.826**	49.1	10.1	47.7	6.8
Memory	.060	49.2	7.6	37.1	6.7
Symbolic Language	.902**	47.6	9.8	46.0	9.2
Verbal Language	.504**	48.9	10.0	39.0	4.7
Language	.758**	48.2	9.5	42.2	6.9
Academic Skills Index	.831**	96.1	13.0	96.3	14.2
Cognitive Skills Index	.396*	97.8	13.2	87.5	9.1
Academic and Cognitive Skills Index	.701**	96.8	12.4	91.5	11.4

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

Test-Retest Reliability

The test-retest reliability estimates for the scores from the Teacher REACS indexes are varied (.396, .831, and .701 for CSI, ASI, and ACSI, respectively). The scores from the scales contributing to the ASI had a Pearson's *r* reliability ranging from .783 (Reading) to .855 (Writing). The test-retest reliabilities of the scale scores contributing to the CSI within this sample, range from .758 on the Language Scale to .060 on the Memory Scale, which is substantially lower than the next lowest scale (Problem Solving, .659). The median test-retest reliability estimate of scores from the scales contributing to the CSI is .758, with a median reliability of .792 from the scores contributing to the ASI.

The test-retest reliability estimates for the scores obtained on the subscales and subtests, range from .314 to .902. The highest test-retest reliability estimate among the subscale scores is on Symbolic Language (.902), which is the highest test-retest reliability estimate of any division of the teacher form. The low estimate is from scores on Academic-Related Memory (.329). The scores for the Memory for Schedules Subscale within this sample has a test-retest reliability (.770) that exceeds the computed coefficient alpha (.657) derived from the same scores. The median reliability for the subscale scores is .696. The reliability estimates for scores from the Language subtests are in the .80s, except for Verbal Expressive Language (.314). The median subtest reliability across the subtests is .848. See Table 23 for test-retest reliabilities.

Table 24

Interrater Reliabilities of Teacher REACS Scores

	Teacher REACS n = 8				
		Rater 1		Rater 2	
	Rel	Mean	SD	Mean	SD
Math	.641	54.4	7.5	46.4	7.5
Reading	.600	51.6	5.7	49.8	5.8
Writing	.859**	53.7	5.3	49.9	8.9
Academic-Related Memory	.197	52.2	7.5	31.1	2.5
Memory for Events	.564	55.0	5.2	47.7	8.1
Personal-Related Memory	.450	52.6	8.1	43.5	7.6
Memory for Schedules	.807*	49.4	7.8	33.6	5.5
Problem Solving	.179	49.6	6.4	47.1	8.6
Learning	.001	50.2	9.0	43.9	2.4
Symbolic Expressive Language	.432	52.7	5.3	45.5	4.8
Symbolic Receptive Language	.292	53.8	5.8	47.6	5.9
Verbal Expressive Language	.274	52.7	8.8	31.3	4.5
Verbal Receptive Language	.352	50.5	7.1	48.1	5.5
Memory	.291	53.3	4.8	37.7	4.6
Symbolic Language	.353	53.5	5.7	46.3	5.3
Verbal Language	.081	51.7	8.1	39.1	4.8
Language	.035	52.7	6.6	42.4	5.0
Academic Skills Index	.768*	105.1	9.4	97.9	10.1
Cognitive Skills Index	.023	102.4	10.0	88.1	6.8
Academic and Cognitive Skills Index	.478	104.0	8.9	92.6	8.2

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

Interrater Reliability

The interrater reliability estimates for the scores from the Teacher REACS are generally lower than the coefficient alpha or test-retest estimates. Despite this, they maintain a similar pattern of higher and lower reliabilities. The median interrater

reliability for the index scores is .478, with a high reliability of .768 (ASI), and a low of .023 (CSI). Scores from the scales that make up the ASI have a median reliability of .641, with a high of .859 (Writing). Scores for the scales from the CSI have interrater reliabilities ranging from .001 (Learning) to .291 (Memory; median = .107). The median reliability for subscale scores is .353, with a high of .807 (Memory for Schedules) and a low of .081 (Verbal Language). The median interrater reliability estimate for the subtest scores is .322. The high estimate is .432 (Symbolic Expressive Language) and the low is .274 (Verbal Expressive Language). See Table 24 for more information.

Validity

Evidence Based on Internal Structure

Through an inspection of the intercorrelation matrix of the scores between the different divisions of the Teacher REACS, several patterns are found (See Table 25). The intercorrelations of the scores within Teacher REACS are generally higher, yet very similar, to those found among the scores within the divisions of the Parent REACS. The strongest associations between scales are those found among the scores from the scales that comprise the ASI. Scores from the scales contributing to the CSI generally have a stronger correlation to the CSI than the ASI. These scores from the different divisions of the CSI also have a stronger correlation among each other, than between themselves and the scores obtained on scales from the ASI.

EFA was done using a principal-axis analysis for the Teacher REACS. The analysis produced a two factor solution, as it also did for the Parent REACS. The analysis points to an Academic factor, made up of the academic scales and 6 of the 10

Table 25

Intercorrelations Between Scores of the Scales/Composites on the Teacher REACS
N = 109

	Math	Read	Writ	MeAc	MeEv	MePe	MeSc	PrSo	Lear	SyEx	SyRe	VeEx	VeRe	Memo	Symb	Verb	Lang	ASI	CSI	ACSI
Math	---	.883	.811	.502	.775	.751	.203*	.715	.551	.606	.799	.546	.689	.768	.738	.650	.728	.948	.756	.898
Read		---	.842	.485	.724	.699	.144	.730	.635	.627	.758	.519	.699	.699	.729	.641	.718	.959	.762	.907
Writ			---	.537	.622	.682	.191*	.694	.659	.649	.767	.543	.681	.680	.745	.644	.728	.934	.756	.890
MeAc				---	.559	.494	.353	.627	.699	.618	.566	.639	.700	.797	.623	.704	.696	.537	.772	.690
MeEv					---	.708	.066	.813	.561	.761	.791	.606	.795	.800	.813	.735	.813	.749	.818	.828
MePe						---	.115	.651	.557	.599	.721	.511	.677	.802	.694	.627	.695	.752	.739	.789
MeSc							---	.242	.439	.150	.107	.359	.294	.546	.135	.343	.251	.190*	.405	.313
PrSo								---	.749	.606	.567	.663	.749	.734	.616	.743	.713	.649	.875	.803
Lear									---	.811	.753	.720	.854	.783	.822	.828	.865	.753	.930	.887
SyEx										---	.809	.749	.811	.704	.951	.820	.929	.663	.835	.789
SyRe											---	.611	.794	.744	.951	.739	.886	.818	.808	.857
VeEx												---	.806	.720	.715	.950	.873	.566	.815	.728
VeRe													---	.820	.844	.950	.940	.729	.921	.869
Memo														---	.761	.810	.823	.756	.915	.880
Symb															---	.820	.954	.780	.864	.866
Verb																---	.954	.681	.913	.840
Lang																	---	.766	.931	.894
ASI																		---	.801	.949
CSI																			---	.949
ACSI																				---

Note. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; SyEx = Symbolic Expressive Language; SyRe = Symbolic Receptive Language; VeEx = Verbal Expressive Language; VeRe = Verbal Receptive Language; Memo = Memory; Symb = Symbolic Language; Verb = Verbal Language; Lang = Language; ASI = Academic Skills Index; CSI = Cognitive Skills Index; ACSI = Academic and Cognitive Skills Index.
Correlations that are underlined are not significant.
*$p < .05$.
All other correlations, $p < .01$.

subdivisions of the CSI. A second factor is comprised of the other 4 subdivisions of the REACS (Academic-Related Memory, Memory for Schedules, Learning, & Verbal Expressive Language), but only one (Memory for Schedules) did not cross load onto the first factor. The factor loadings can be found in Table 26.

Table 26

Teacher REACS: Principal Axis Factor Matrix, Varimax Rotation

	Factor	
	I	II
Math	.890	.131
Reading	.869	.158
Writing	.793	.261
Academic-Related Memory	.402	.655
Memory for Events	.810	.290
Personal-Related Memory	.755	.241
Memory for Schedules	-.079	.492
Problem Solving	.709	.698
Learning	.483	.539
Symbolic Expressive Language	.683	.501
Symbolic Receptive Language	.853	.266
Verbal Expressive Language	.443	.702
Verbal Receptive Language	.674	.656

Three models of the Teacher REACS were assessed using CFA to determine the appropriateness of the divisions of the REACS. (See Tables 27-29 factor loadings and Figures 6-8 for models.) The CFA of the Teacher REACS utilized the same three models as the Parent REACS, but unlike the results for the Parent REACS, the best model fit statistics are observed in Model 1. Table 30 provides the χ^2, CFI, and RMSEA fit indexes.

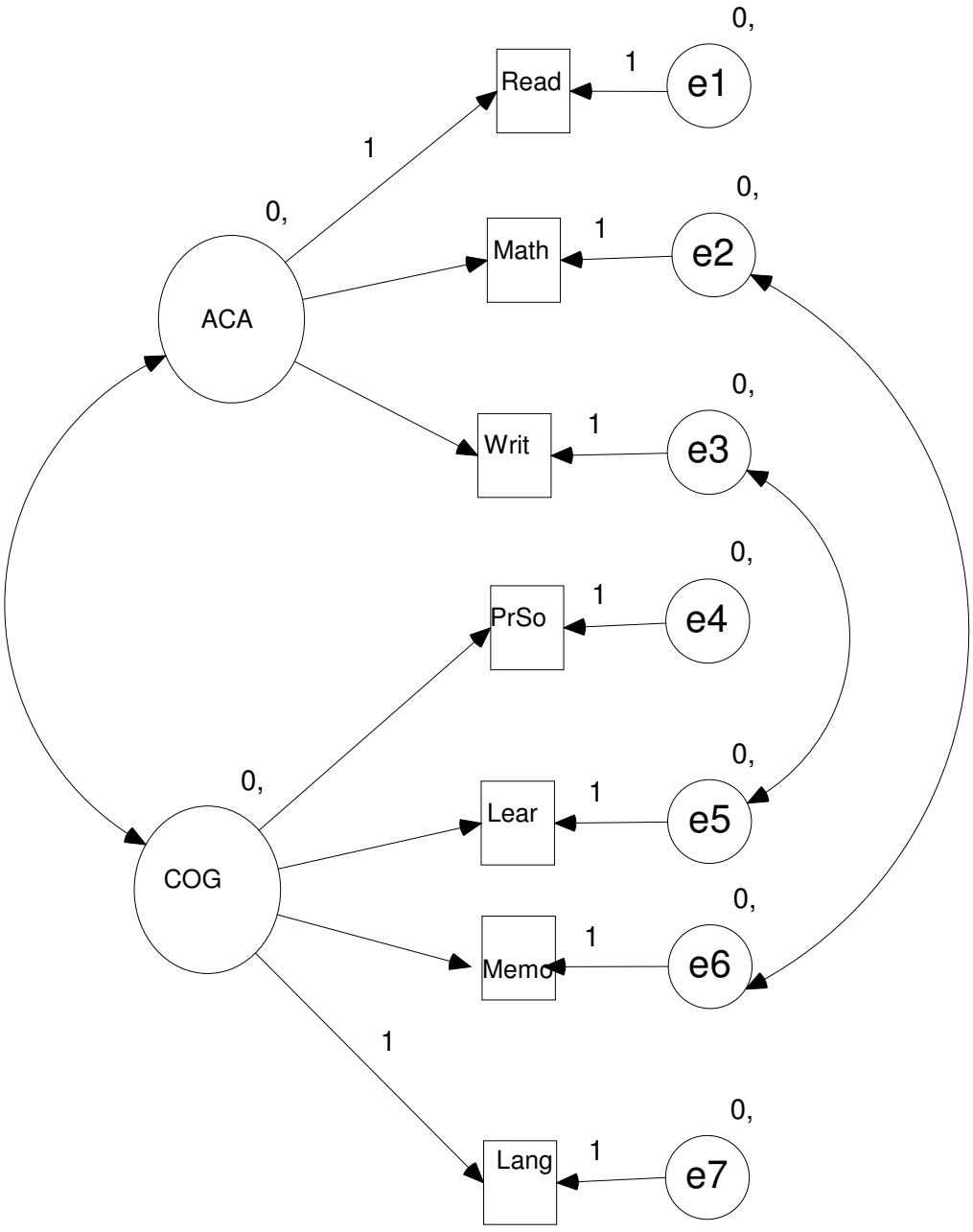

Figure 6. CFA Model 1 of Teacher REACS. Math = Math; Read = Reading; Writ = Writing; PrSo = Problem Solving; Lear = Learning; Memo = Memory; Lang = Language; ACA = Academic factor; COG = Cognitive factor.

Table 27

Teacher REACS Factor Loadings for CFA Model 1

Scale/ Composite	Factor	
	Academic	Cognitive
Reading	.946	-----
Writing	.886	-----
Math	.929	-----
Problem Solving	-----	.920
Memory	-----	.878
Learning	-----	.801
Language	-----	.928

Table 28

Teacher REACS Factor Loadings for CFA Model 2

Scale/ Composite	Factor		
	Academic	Cognitive	Memory
Reading	.950	-----	-----
Writing	.888	-----	-----
Math	.924	-----	-----
Problem Solving	-----	.925	-----
Memory	-----	.982	-----
Learning	-----	.780	-----
Language	-----	.937	-----
Academic-Related Memory	-----	-----	.672
Memory for Events	-----	-----	.892
Personal-Related Memory	-----	-----	..792
Memory for Schedules	-----	-----	.267

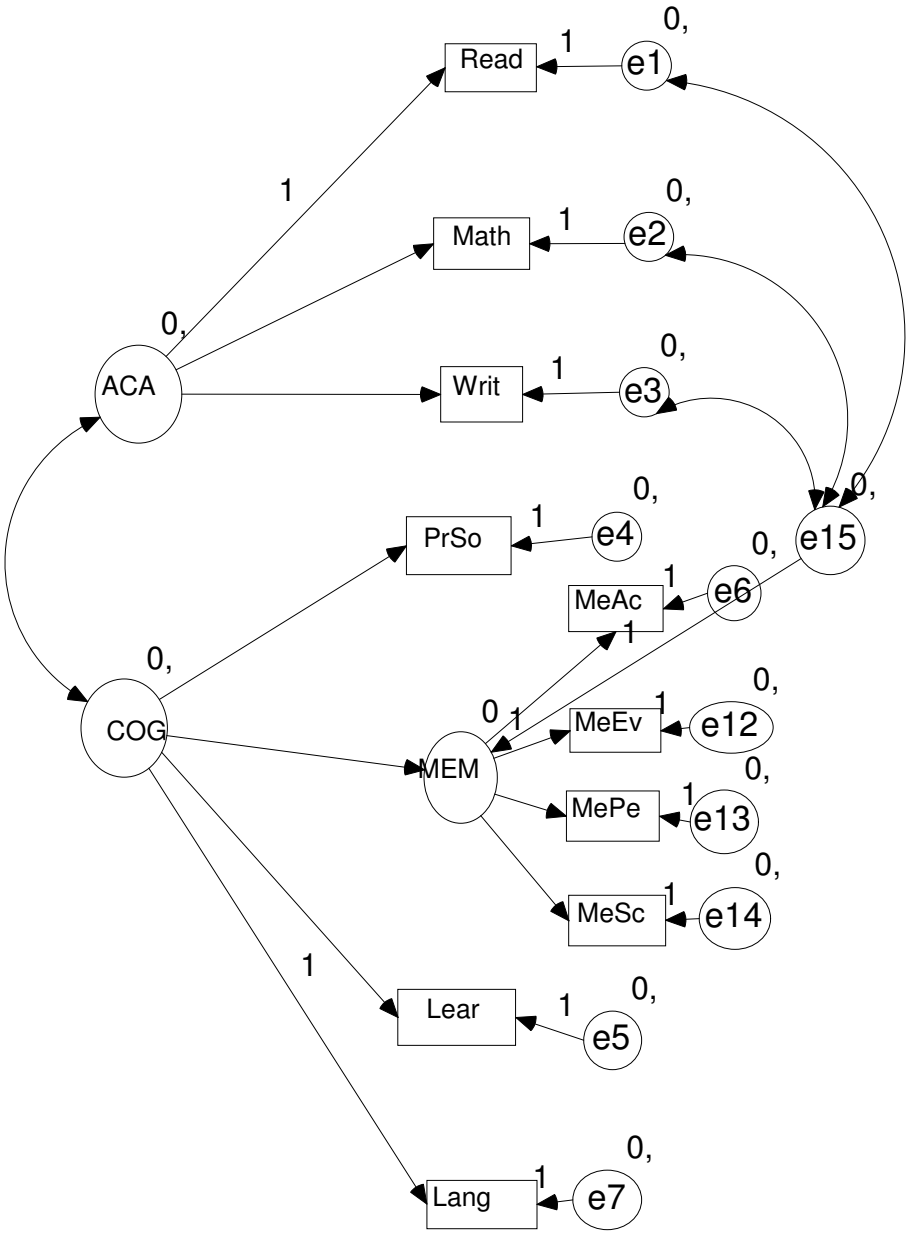

Figure 7. CFA Model 2 of Teacher REACS. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; Lang = Language; ACA = Academic factor; COG = Cognitive factor; MEM = Memory factor.

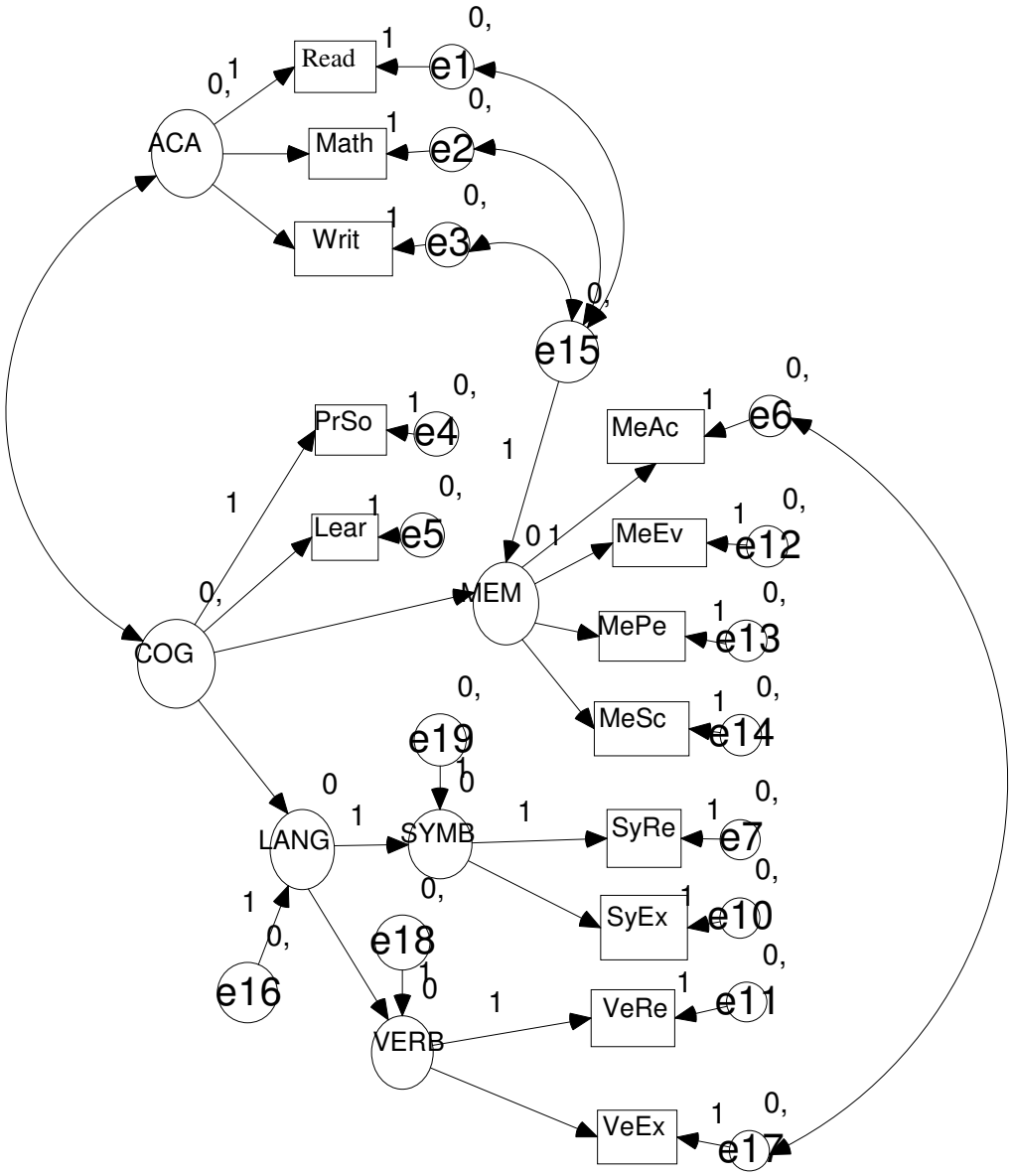

Figure 8. CFA Model 3 of Teacher REACS. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; SyEx = Symbolic Expressive Language; SyRe = Symbolic Receptive Language; VeEx = Verbal Expressive Language; VeRe = Verbal Receptive Language; ACA = Academic factor; COG = Cognitive factor; SYM = Symbolic factor; VERB = Verbal factor; LANG = Language factor.

Table 29

Teacher REACS Factor Loadings for CFA Model 3

Scale/ Composite	Factor					
	Academic	Cognitive	Memory	Language	Symbolic	Verbal
Reading	.950	-----	-----	-----	-----	-----
Writing	.887	-----	-----	-----	-----	-----
Math	.924	-----	-----	-----	-----	-----
Problem Solving	-----	.922	-----	-----	-----	-----
Memory	-----	.982	-----	-----	-----	-----
Learning	-----	.777	-----	-----	-----	-----
Language	-----	.992	-----	-----	-----	-----
Academic-Related Memory	-----	-----	.672	-----	-----	-----
Memory for Events	-----	-----	.898	-----	-----	-----
Personal-Related Memory	-----	-----	.790	-----	-----	-----
Memory for Schedules	-----	-----	.263	-----	-----	-----
Symbolic Language	-----	-----	-----	.956	-----	-----
Verbal Language	-----	-----	-----	.950	-----	-----
Symbolic Receptive Language	-----	-----	-----	-----	.893	-----
Symbolic Expressive Language	-----	-----	-----	-----	.906	-----
Verbal Receptive Language	-----	-----	-----	-----	-----	.984
Verbal Expressive Language	-----	-----	-----	-----	-----	.814

Table 30

Teacher REACS CFA Model Fit Indexes

Model	df	χ^2	CFI	RMSEA
1	11	26.307	.981	.114
2	30	112.691	.920	.160
3	56	206.883	.897	.158

Table 31

Correlations Between Scores from the Teacher REACS and Teacher BASC-2

	BASC-2 Adaptive Scales					
	Adapt. Skills Composite	Adaptability	Social Skills	Functional Communication		
			n = 24		REACS	
REACS	r	r	r	r	Mean	SD
Math	.552**	.484*	.509*	.510*	49.5	11.7
Read	.648**	.544**	.611**	.614**	49.8	10.9
Writ	.714**	.673**	.616**	.668**	48.2	11.0
MeAc	.611**	.596**	.503*	.587**	51.2	7.0
MeEv	.719**	.666**	.645**	.647**	49.6	11.0
MePe	.500*	.393	.357	.640**	49.4	9.7
MeSc	.026	.059	.061	-.060	54.2	7.8
PrSo	.785**	.767**	.708**	.669**	47.4	10.0
Lear	.763**	.666**	.687**	.723**	50.6	8.8
SyEx	.788**	.776**	.700**	.678**	45.9	10.1
SyRe	.679**	.680**	.611**	.568**	48.0	11.8
VeEx	.694**	.659**	.528**	.717**	49.7	9.5
VeRe	.788**	.752**	.666**	.738**	49.2	10.0
Memo	.737**	.677**	.617**	.729**	51.7	7.1
Symb	.748**	.744**	.669**	.634**	46.8	11.3
Verb	.790**	.753**	.638**	.775**	49.4	9.7
Lang	.807**	.786**	.688**	.735**	48.0	10.4
ASI	.660**	.587**	.599**	.616**	98.7	17.1
CSI	.814**	.765**	.712**	.746**	99.1	14.3
ACSI	.746**	.682**	.665**	.691**	98.8	16.2
BASC Mean	50.1	47.4	51.7	51.0		
BASC SD	10.5	9.1	11.7	8.8		

Note. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; SyEx = Symbolic Expressive Language; SyRe = Symbolic Receptive Language; VeEx = Verbal Expressive Language; VeRe = Verbal Receptive Language; Memo = Memory; Symb = Symbolic Language; Verb = Verbal Language; Lang = Language; ASI = Academic Skills Index; CSI = Cognitive Skills Index; ACSI = Academic and Cognitive Skills Index.
*$p < .05$.
**$p < .01$.

Evidence Based on Relations to Other Variables

The Teacher REACS was compared to the BASC-2 Adaptive Scales, and the resulting correlations between the obtained scores are relatively high. The highest correlations with scores from the BASC-2 are with the Language Scale, subscales, and subtests. The pattern of these correlations appears to show relative discrimination

between the Adaptive Skills scales. The correlations between scores of the REACS with those on the Social Skills scale are generally lower than the correlation between scores on the REACS and those from the Functional Communication and Adaptability scales. This pattern of correlations provides both convergent and divergent evidence of validity. See Table 31 for the correlations between the Teacher REACS and BASC-2 Adaptive Scales.

The Teacher REACS was compared to the RIAS, producing generally low correlations between the scores of these two measures (See Table 32). Over half of the divisions of the scores from the Teacher REACS have their highest correlation with the CMX (median = .532). This finding is counter to the predicted higher correlation between the CSI and ASCI with the CIX. Another unexpected finding is the high correlation between scores on the Reading Scale and the Nonverbal Memory subtest of the RIAS. One predicted finding that held true is that most of the correlations between scores on the REACS Memory Subscales also have their highest correlation with the scores obtained on the CMX. Although high correlations are found between the REACS and RIAS, many of the highest correlations are not in a pattern that would have been predicted.

Scores from the Teacher REACS were also compared to those obtained on the KTEA-II-Brief Form (See Table 33). Correlations are generally moderate between scores on the KTEA-II and the ASI scales (Median = .490). The scores obtained within this sample on the BAC have a high correlation with the those obtained on the REACS Writing Scale (.635), Personal Memory Subscale (.561), and the ASI (.569). The KTEA-

Table 32

Correlations Between Scores from the Teacher REACS and RIAS

	RIAS										REACS	
	GWH	VRZ	OIO	WHM	VRM	NVM	VIX	NIX	CIX	CMX		
	N=21											
REACS	r	r	r	r	r	r	r	r	r	r	Mean	SD
Math	.259	.098	.187	.250	.241	.638**	.134	.338	.295	.600**	49.5	11.7
Read	.142	.081	.207	.096	.273	.546*	.031	.292	.185	.541*	49.8	10.9
Writ	.117	.051	.161	.019	.431	.511*	-.027	.248	.119	.584**	48.2	11.0
MeAc	-.116	.138	.305	.083	.063	.099	.172	.057	.163	.103	51.2	7.0
MeEv	.169	.057	.212	.262	.203	.589**	.058	.359	.250	.528*	49.6	11.0
MePe	-.180	-.083	.208	.214	.052	.431	.101	-.018	.051	.363	49.4	9.7
MeSc	.221	.130	-.238	-.355	.430	-.101	.056	-.187	-.051	.141	54.2	7.8
PrSo	.344	.177	.342	.112	.440*	.437*	.158	.433	.370	.527*	47.4	10.0
Lear	.133	.232	.192	-.018	.323	.443*	.211	.109	.226	.486*	50.6	8.8
SyEx	.124	.178	.216	.103	.400	.529*	.006	.381	.234	.573**	45.9	10.1
SyRe	.148	.123	.126	.100	.384	.629**	-.087	.407	.185	.641**	48.0	11.8
VeEx	.147	.015	.192	.088	.249	.148	.179	.075	.169	.228	49.7	9.5
VeRe	.150	.154	.279	.234	.262	.478*	.150	.332	.285	.470*	49.2	10.0
Memo	.063	.107	.189	.070	.321	.452*	.155	.095	.171	.498*	51.7	7.1
Symb	.138	.151	.172	.108	.399	.594**	-.045	.405	.213	.621**	46.8	11.3
Verb	.160	.092	.255	.179	.276	.342	.177	.224	.246	.380	49.4	9.7
Lang	.156	.130	.222	.147	.360	.501*	.062	.336	.241	.535*	48.0	10.4
ASI	.177	.078	.192	.130	.328	.588**	.045	.307	.207	.599**	98.7	17.1
CSI	.195	.170	.255	.092	.386	.487*	.147	.281	.274	.543*	99.1	14.3
ACSI	.194	.128	.232	.113	.371	.562**	.098	.305	.249	.596**	98.9	16.2
RIAS Mean	57.2	57.7	62.3	61.1	51.9	57.1	118.1	118.5	119.7	109.6		
RIAS SD	11.0	12.0	10.8	10.3	11.5	16.3	18.5	16.5	16.1	20.8		

Note. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; SyEx = Symbolic Expressive Language; SyRe = Symbolic Receptive Language; VeEx = Verbal Expressive Language; VeRe = Verbal Receptive Language; Memo = Memory; Symb = Symbolic Language; Verb = Verbal Language; Lang = Language; ASI = Academic Skills Index; CSI = Cognitive Skills Index; ACSI = Academic and Cognitive Skills Index; GWH = Guess What; VRZ = Verbal Reasoning; OIO = Odd-Item Out; WHM = What's Missing; VRM = Verbal Memory; NVM = Nonverbal Memory; VIX = Verbal Intelligence Index; NIX = Nonverbal Intelligence Index; CIX = Composite Intelligence Index; CMX = Composite Memory Index.
*$p < .05$.
**$p < .01$.

this sample on the BAC have a high correlation with the those obtained on the REACS Writing Scale (.635), Personal Memory Subscale (.561), and the ASI (.569). The KTEA-II Reading subtest scores have their highest correlations with the academic scales of the REACS (Math, .410; Reading, .485; Writing, .459), the ASI (.464), and the Personal

Memory Subscale (.448). These findings appear supportive of the convergent and divergent validity of the scores obtained from the REACS. Comparisons between the scores from the KTEA-II Writing subtest and REACS scores were not made due to insufficient sample size (n = 3).

Table 33

Correlations Between Scores from the Teacher REACS and KTEA-II-Brief Form

	KTEA-II-Brief Form				
	Reading n = 14	Math n = 14	BAC n = 13	REACS	
REACS	r	r	r	Mean	SD
Math	.410	.490	.477	49.5	11.7
Reading	.485	.647*	.548	49.8	10.9
Writing	.459	.716**	.635*	48.2	11.0
Academic-Related Memory	-.176	.077	-.042	51.2	7.0
Memory for Events	.245	.528	.409	49.6	11.0
Personal-Related Memory	.448	.497	.561*	49.4	9.7
Memory for Schedules	.103	-.142	.041	54.2	7.8
Problem Solving	.057	.363	.237	47.4	10.0
Learning	.229	.280	.278	50.6	8.8
Symbolic Expressive Language	.227	.365	.321	45.9	10.1
Symbolic Receptive Language	.293	.484	.405	48.0	11.8
Verbal Expressive Language	-.033	.152	.108	49.7	9.5
Verbal Receptive Language	.183	.505	.353	49.2	10.0
Memory	.325	.456	.469	51.7	7.1
Symbolic Language	.262	.431	.366	46.8	11.3
Verbal Language	.030	.357	.248	49.4	9.7
Language	.175	.406	.316	48.0	10.4
Academic Skills Index	.464	.638*	.569*	98.7	17.1
Cognitive Skills Index	.194	.398	.333	99.1	14.3
Academic and Cognitive Skills Index	.356	.555*	.484	98.8	16.2
KTEA Mean	109.8	103.6	105.6		
KTEA SD	11.6	12.5	12.1		

Note. BAC = Brief Achievement Composite.
*$p < .05$.
**$p < .01$.

Evidence Based on Consequences of Testing.

The Teacher REACS was assessed for potential DIF based on gender. All items that exceeded the conservative criteria used in this study were deleted. No other information was obtained for this dimension of validity.

Table 34

Means and Standard Deviations for the Parent and Teacher REACS

	Parent		Teacher	
	Mean	SD	Mean	SD
Math	49.1	9.6	49.8	10.1
Reading	48.9	9.9	49.3	9.3
Writing	49.0	9.7	49.9	9.7
Academic-Related Memory	48.7	10.6	51.2	7.6
Memory for Events	50.4	8.9	48.9	10.3
Personal-Related Memory	49.3	8.9	50.3	9.5
Memory for Schedules	49.5	9.8	52.5	8.9
Problem Solving	50.4	8.8	48.7	8.9
Learning	49.8	9.2	51.6	8.1
Symbolic Expressive Language	49.1	9.5	47.7	9.2
Symbolic Receptive Language	49.8	9.7	49.7	10.1
Verbal Expressive Language	50.8	9.3	50.2	8.8
Verbal Receptive Language	49.7	9.4	50.1	8.7
Memory	49.4	9.2	51.4	7.3
Symbolic Language	49.4	9.6	48.6	9.7
Verbal Language	50.2	9.2	50.1	8.6
Language	49.8	9.3	49.4	9.1
Academic Skills Index	98.3	14.4	99.5	14.6
Cognitive Skills Index	99.7	12.5	100.4	12.0
Academic and Cognitive Skills Index	98.9	13.0	99.9	13.3

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

Multitrait-Multimethod Evidence of Validity

To assess multitrait-multimethod evidence of validity, the correlations between the scores of the Parent and Teacher REACS forms were investigated. The pattern of correlations is generally supportive of the divergent and convergent validity of the REACS. Scores between the divisions of the REACS within the same construct were generally found to correlate more highly among themselves than with scores from divisions of the REACS that are not within the same construct. An exception is in the correlations between the various divisions of the CSI and their correlations with the CSI, in comparison with their correlations with the ASI. (See Tables 34 and 35.)

Prediction of Academic Achievement

Parent REACS

During the initial analyses, the CIX from the RIAS accounted for 22.0% of the variance in achievement among the children who were given the Parent REACS. The Parent REACS indexes accounted for 37.2%, 0.0%, and 40.0% of the variance in achievement from the ACSI, CSI, and ASI, respectively. When the CIX was combined with the different indexes, the CIX and ACSI accounted for 24.5% of the variance in academic achievement. The CIX and CSI accounted for 23.9% of the variance. The CIX and ASI accounted for 41.9% of the variance in academic achievement.

Teacher REACS

For the Teacher REACS, the obtained CIX scores accounted for 0.3% of the variance in school achievement among the children who were given the Teacher REACS. The indexes accounted for 23.4%, 11.1%, and 32.4% of the variance in

Table 35

Parent to Teacher REACS Comparison

	Parent REACS																			
Teacher REACS	Math	Read	Writ	MeAc	MeEv	MePe	MeSc	PrSo	Lear	SyEx	SyRe	VeEx	VeRe	Memo	Symb	Verb	Lang	ASI	CSI	ACSI
Math	**.406**	.400	.305	.075	.393	.215	.141	-.016	.263	.310	.178	.288	.142	.265	.266	.235	.277	.419	.267	.403
Read	.453	**.445**	.383	.074	.318	.193	.084	-.040	.152	.288	.119	.139	.004	.216	.221	.077	.164	.483	.169	.390
Writ	.483	.489	**.501**	.138	.446	.177	.167	.037	.067	.269	.176	.118	-.018	.301	.246	.053	.167	.555	.192	.447
MeAc	.337	.418	.343	**-.008**	.293	.390	.129	.101	.197	.254	.154	.327	-.067	.250	.231	.141	.210	.413	.248	.388
MeEv	.304	.301	.179	.042	**.253**	.228	.134	-.089	.262	.256	.018	.260	.049	.214	.147	.169	.174	.296	.190	.286
MePe	.270	.283	.285	-.198	.330	**.281**	.133	.001	.193	.291	.052	.187	-.016	.166	.184	.092	.152	.317	.174	.291
MeSc	-.041	.060	.198	.190	.081	.044	**.217**	.150	.007	.032	.322	.014	.195	.180	.203	.117	.180	.081	.168	.140
PrSo	.242	.262	.285	.122	.242	.166	.188	**.125**	.418	.415	.165	.374	.161	.196	.320	.293	.340	.297	.360	.377
Lear	.318	.426	.513	.056	.433	.248	.267	.047	**.174**	.385	.304	.398	.171	.320	.385	.312	.388	.473	.311	.459
SyEx	.286	.320	.321	.199	.355	.224	.333	.132	.370	**.523**	.222	.400	.130	.367	.411	.290	.390	.351	.420	.443
SyRe	.435	.421	.373	.201	.452	.202	.269	.209	.298	.491	**.266**	.324	.107	.367	.418	.235	.364	.463	.411	.507
VeEx	.132	.268	.328	-.018	.431	.244	.259	.177	.257	.331	.233	**.543**	.189	.290	.315	.402	.399	.275	.371	.369
VeRe	.400	.431	.389	.071	.458	.196	.188	.151	.217	.288	.210	.359	**-.017**	.293	.277	.186	.259	.460	.304	.447
Memo	.328	.403	.374	.014	.379	.343	.231	.046	.270	.328	.200	.308	.077	**.309**	.292	.210	.279	.417	.302	.420
Symb	.381	.390	.365	.209	.422	.224	.313	.181	.345	.527	.255	.373	.120	.384	**.432**	.269	.390	.429	.432	.498
Verb	.284	.374	.384	.027	.476	.236	.240	.177	.253	.331	.237	.483	.092	.312	.317	**.315**	.352	.393	.362	.437
Lang	.354	.403	.394	.131	.473	.242	.294	.188	.319	.460	.260	.449	.114	.369	.399	.308	**.394**	.434	.421	.495
ASI	.469	.466	.415	.099	.404	.206	.137	-.005	.169	.302	.165	.189	.044	.273	.256	.126	.212	**.509**	.219	.433
CSI	.353	.423	.444	.096	.433	.265	.258	.121	.340	.456	.264	.437	.149	.339	.399	.321	.401	.460	**.400**	.499
ACSI	.442	.474	.454	.104	.444	.246	.204	.055	.262	.395	.223	.322	.099	.322	.341	.230	.317	.516	.320	**.492**

Note. Math = Math; Read = Reading; Writ = Writing; MeAc = Academic-Related Memory; MeEv = Memory for Events; MePe = Personal-Related Memory; MeSc = Memory for Schedules; PrSo = Problem Solving; Lear = Learning; SyEx = Symbolic Expressive Language; SyRe = Symbolic Receptive Language; VeEx = Verbal Expressive Language; VeRe = Verbal Receptive Language; Memo = Memory; Symb = Symbolic Language; Verb = Verbal Language; Lang = Language; ASI = Academic Skills Index; CSI = Cognitive Skills Index; ACSI = Academic and Cognitive Skills Index.
Correlations .381 and higher, $p < .01$.
Correlations .294 - .379, $p < .05$.
Correlations .293 and lower, not significant.

achievement from the ACSI, CSI, and ASI, respectively. When the CIX was combined with the different indexes of the Teacher REACS, the CIX and ACSI accounted for 27.3% of the variance in academic achievement. The CIX and CSI accounted for 12.6% of the variance. The CIX and ASI accounted for 36.3% of the variance in academic achievement.

CHAPTER V

DISCUSSION AND CONCLUSIONS

Summary and Integration of Results with Original Hypotheses

This chapter attempts to pull together all the information gained from this research endeavor. First, the findings will be discussed in terms of the original hypotheses and whether results supported each hypothesis or not. The findings will also be discussed in terms of how they contribute to the current knowledge in the field and their implications for furthering knowledge in the field of psychological assessment. The limitations of the study will be addressed, and discussion will conclude with future directions for research.

This study was designed to create and validate a rating of everyday academic and cognitive skills. To this end, the study attempted to test several hypotheses. It was predicted that there would be a moderate correlation between the scores of the parent and teacher forms. Moderate to high correlations were predicted between the REACS scores and scores of the KTEA-II-Brief Form, RIAS, and BASC-2. The stability of the scale scores was predicted to be high enough to support profile analysis. It was hypothesized that the REACS scores would not show bias in regards to gender or ethnicity. Factor structure was predicted to yield one main factor, with three secondary factors. It was hypothesized that scores from the REACS would predict membership in several clinical groups. Finally, it was predicted that the overall rating on the REACS

would enhance the prediction of academic achievement compared to using a cognitive ability test alone.

In regards to the agreement between forms, correlations between the scores of the Parent and Teacher REACS were moderate on some scales but not all. Moderate correlations were found between scores of the ASI scales and among selected Language subtests. The scores from the Memory, Problem Solving, and Learning Scales had lower correlations between parent and teacher forms. Therefore, the results partially support the hypothesis.

For areas in which the parents and teachers converged, this finding suggests that they were rating the same aspects of the child and gaining the same meaning out of the items. It is noteworthy that the scales with higher correlations cover constructs that tend to be emphasized at the preschool level (i.e., academic skills and language development); therefore, parents and teachers may be more aware of these skills. It is possible that some of the areas with lower agreement, such as memory and problem solving, may be conceptualized differently between parents and teachers, especially at this age level.

Moderate to high correlations were predicted between the REACS and the KTEA-II-Brief Form, the RIAS, and the BASC-2. In regards to the BASC-2, the hypothesis originally referred to the clinical scales of the BASC-2 that were comparable to the proposed SRI of the REACS. During the course of the study, the SRI and its scales were eliminated from the REACS; however, the BASC-2 was still administered during Phase 3 to compare REACS scores with the Adaptive Scales from the BASC-2.

The Parent REACS tended to have more moderate and low correlations with the BASC-2; yet, the pattern of correlations was more reflective of intuitive relationships between the measures. For example, the REACS Expressive Language Subtests had the highest correlations with the Functional Communication Scale of the BASC-2. The CSI had its strongest correlation with the Adaptive Skills Composite. The scores from the Teacher REACS correlated highly with scores from the TRS Adaptive Skills Composite; however, there was not a meaningful pattern of high and low correlations between the two measures**.** These scores may reflect a global assessment of the child's abilities that may have affected responses to individual items.

It was predicted that there would be moderate to high correlations between the REACS and the RIAS. The Parent REACS generally had lower correlations with the RIAS; however, it had a more predictable pattern of correlations. For example, the REACS Reading Scale scores had moderate correlations with the scores from the verbal subtests and VIX of the RIAS. The correlations between the Teacher REACS scores and the scores from the RIAS were moderate to high on a few specific scales (CMX, NVM), but low for all other scales.

The scores from the academic scales of the Parent REACS had moderate to high correlations with the scores from the KTEA-II-Brief Form. This finding was also true of the Teacher REACS. Scores from the Memory and Language divisions of the Teacher REACS had moderate correlations with scores from the Math subtest of the KTEA-II-Brief Form. The scores from the Teacher REACS Reading Scale had a higher correlation with scores from the KTEA-II Math subtest and BAC scores than it did with the Reading

subtest; however, the KTEA-II Reading subtest scores had their highest correlations with the scores from the Teacher REACS Reading Scale. Although the scores from the KTEA-II-Brief Form differentiated well among the divisions of the REACS, the REACS scores failed to differentiate among the KTEA-II subtests in an expected manner. These comparisons provide convergent and divergent evidence of validity of scores obtained on the ASI over the CSI, but not within the scales of the ASI.

Overall, the scores from the Parent REACS were better at differentiating between constructs within each measure, yet they were less reliable. The score from the Teacher REACS, on the other hand, correlated more highly with the scores on the comparison measures, yet they did not show a pattern of being able to discriminate between constructs on these measures. These findings do not provide the convergent and divergent evidence of validity needed to support the hypothesis.

The stability of the scale scores was predicted to be high enough to support profile analysis. The internal consistency of scores from both the Parent and Teacher REACS was high; however, these estimates were generally lower when looking at the test-retest and interrater reliability. Only the scores from the Reading Scale from the Parent REACS had adequate reliabilities across the three methods. Scores from the Teacher REACS had adequate test-retest reliabilities and slightly less than adequate reliability for scores on the academic scales. Only the Memory for Schedules, Writing, and ASI scores maintained adequate reliabilities across these three methods. These findings do not support profile analysis for the Parent or Teacher REACS. It is possible

that some of these instabilities may be due to the age of the children rated. Further work is needed in this area.

It was predicted that scores from the REACS would not show bias in regards to gender or ethnicity, as evidenced by expert judgments and lack of statistically significant scores between identifiable groups. All of the items for the REACS were assessed for possible item bias on the basis of gender. Using the DIF analysis, all items that met the conservative criteria were eliminated from the scales. Due to difficulties obtaining enough participants from different ethnic groups, an assessment of DIF was not able to be performed on the basis of ethnic status. This hypothesis was only partially supported at this time. Additional ratings with people from different ethnic groups would be required to answer this question more completely.

It was hypothesized than the factor structure would have one main factor, most closely associated with *g*, and support three secondary factors representing the three different indexes (ASI, CSI, & SRI). Due to eliminating the SRI, a model with three main factors was not tested, and attempts to create a model with one main factor were unsuccessful. Despite this, a factor solution that incorporated all the other parts of the structure of the REACS appeared to have adequate model fit for the parent form (Model 3). For the teacher form, the model that had the best fit was one in which the scale scores contributed directly to the cognitive and academic factors (Model 1). Although close, the hypothesized models were not produced for either the Parent or the Teacher REACS.

The hypothesis of the ability to predict group membership based on REACS scores was not tested due to difficulties obtaining the clinical groups.

In regards to the ability of the REACS to enhance the prediction of academic achievement over standard intelligence tests alone, the hypothesis was supported in both the parent and teacher forms. In this sample, scores from the REACS predicted academic achievement better than scores on the cognitive ability measure. This predictive ability was increased when the REACS was used in conjunction with a measure of cognitive ability (RIAS). Although past research has found that measures of typical ability aid in the prediction of academic achievement (Durbrow et al., 2001; McDermott, 1999; Schaefer & McDermott, 1999; Yen et al., 2004), previous studies have not found typical performance to predict academic achievement better than cognitive ability. Some hypotheses may be drawn as to why this finding occurred. At this young age, differences in exposure to academic tasks may be greater than is found in school-age children. This difference may have been exacerbated in this sample due to having a sample of children with above average cognitive ability.

First, only three of the children assessed had entered kindergarten; therefore many of the children met the discontinue criteria quickly on the KTEA-II subtests. Because the skills assessed with the KTEA-II progress quickly in difficulty, typical 4 1/2 year olds may rapidly reach material to which they have not been exposed. Variations in academic achievement at this age may be more related to differences in exposure than to cognitive ability. Although intelligence partly entails the speed at which an individual gains knowledge (Jensen, 1989), the gain is also dependent on exposure. In this instance, the environmental factors related to typical performance may be a better predictor of academic achievement at this age. It is likely that if this measure were used with an older

sample, results would be more similar to those found in earlier studies (McDermott, 1999; Yen et al., 2004).

Second, these findings may have been inflated due to the composition of the sample. This study was conducted in a highly educated county, and many of the children assessed had highly educated parents. The mean CIX of children whose scores were compared to the Parent REACS was 122 (119 for Teacher REACS), and the mean BAC from the KTEA-II was 107.5 (105 for Teacher REACS). These scores help explain why the CIX was such a poor predictor of achievement when the linear regression was used. Using the model that was explained in Chapter II, these children have not yet had the opportunity to allow their higher cognitive ability to result in above average gains in academic achievement.

Contributions to the Field

Although this study built upon the work of other authors, it is unique in that it assessed typical academic and cognitive skills in a preschool sample. The REACS demonstrated high internal consistency and decent relations to other variables in measuring academic skills. The ability of the REACS to predict academic achievement at a higher level than cognitive ability provides evidence for the potential usefulness of this measure as a screening tool for children entering kindergarten.

Another contribution of this study is the inclusion of the model that incorporates typical behavior in the development of cognitive ability. This framework appears to help explain the results from this study in regards to the prediction of academic achievement.

Limitations of the Study

Several limitations existed in this study. Many of these limitations were due to the study being conducted by a graduate student with limited resources for offering incentives to secure participation. Due to difficulties obtaining participants, the sample was rather homogeneous, with an oversampling of children from highly educated parents, who had above average IQs. Because no public schools participated in data collection for Phase 3, the sample had more 4 year olds than 5 year olds, and teachers were primarily preschool teachers or daycare providers. Also, few ratings were obtained on children with clinical diagnoses. Another problem with data collection was a low return rate of forms.

Another limitation of this study is that the KTEA-II-Brief Form does not appear to differentiate well within the 4 ½ to 5 year old age group. A measure designed specifically for this age group may have produced greater differentiation between students. Finally, the REACS was not compared to a standardized measure of language. A rating scale (LDDI) was selected to make this comparison with older students, but this possibility was lost when the focus of this study was changed to the preschool sample.

Directions for Future Research

This study focused on a set number of scales, as proposed originally for this dissertation. Supplementary analyses could be attempted to combine scales that were less reliable, such as the Memory subscales and Language subtests. Additionally, further work needs to be done to develop the Memory and Language Scales. This could be guided by comparing the Language Scale to a standardized measure of language. Future

research could investigate the ability of measures of typical academic and cognitive skills to predict clinical groups among preschool samples.

Another idea for future research is to replicate this study with a more heterogeneous sample. Additionally, replacing the KTEA-II-Brief Form with a measure that shows greater ability to discriminate between preschool age children in the middle range of ability may be helpful. For example, a future study may use the REACS to predict performance on the DIAL-3 or DIBELS.

REFERENCES

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA Preschool Forms & Profiles*. Burlington, VT: University of Vermont Department of Psychiatry.

Ackerman, P. L. (1986). Individual differences in information processing: An investigation of intellectual abilities and task performance during practice. *Intelligence*, *10*, 101-139.

Ackerman, P. L. (1994). Intelligence, attention, and learning: Maximal and typical performance. In D. K. Detterman (Ed.), *Current topics in human intelligence: Vol. 4. Theories of intelligence* (pp. 1-27). Norwood, NJ: Ablex Publishing.

Ackerman, P. L. (1996). Intelligence as process and knowledge: An integration for adult development and application. In W. A. Rogers, A. D. Fisk, et al. (Eds.), *Aging and skilled performance: Advances in theory and applications* (pp. 139-156). Hillsdale, NJ: Lawrence Erlbaum Associates.

Ackerman, P. L. (2003). Aptitude complexes and trait complexes. *Educational Psychologist*, *38*, 85-93.

Ackerman, P. L., Beier, M. E., & Bowen, K. R. (2002). What we really know about our abilities and our knowledge. *Personality and Individual Differences*, *33*, 587-605.

Aday, L. A. (1989). *Designing and conducting health surveys: A comprehensive guide.* San Francisco: Jossey-Bass.

Aday, L. A. (1996). *Designing and conducting health surveys: A comprehensive guide* (2nd ed.). San Francisco: Jossey-Bass.

Alexander, K. L., Entwisle, D. R., & Dauber, S. L. (1993). First-grade classroom behavior: Its short- and long-term consequences for school performance. *Child Development, 64*, 801-814.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington DC: Author.

Anastasi, A., & Urbina, S. (1997). *Psychological testing* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Andrewes, D. G., Hordern, C., & Kaye, A. (1998). The everyday functioning questionnaire: A new measure of cognitive and emotional status for neurosurgical outpatients. *Neuropsychological Rehabilitation*, *8*, 377-391.

Archer, R. P. (1992). Review of Minnesota Multiphasic Personality Inventory-2 [Electronic version]. In J. J. Kramer & J. C. Conoley (Eds.), *The eleventh mental measurements yearbook*. Lincoln, NE: Buros Institute of Mental Measurements.

Atkinson, M. J. (2003). Review of the California Psychological Inventory, Third Edition [Electronic version]. In B. S. Plake (Ed.), The fifteenth mental measurements yearbook. Lincoln, NE: Buros Institute of Mental Measurements.

Attwell, A. A., Orpet, R. E., & Meyers, C. E. (1967). Kindergarten behavior ratings as a predictor of academic achievement. *Journal of School Psychology*, *6,* 43-46.

Backelman, I. L. (1988). An organizational skills teacher rating scale for elementary school students (Doctoral dissertation, University of Maryland-College Park, 1988). *Dissertation Abstracts International, 48,* 2017-2018.

Bahr, M. W., Fuchs, D., Stecker, P. M., & Fuchs, L. S. (1991). Are teachers' perceptions of difficult-to-teach students racially biased?. *School Psychology Review*, *20*, 599-608.

Baker, T. L. (1999). *Doing social research* (3rd ed.). Boston: McGraw-Hill.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Barker, L. (2001). *Learning and behavior: Biological, psychological, and sociocultural perspectives* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Barkley, R. A. (1996). Attention-deficit/hyperactivity disorder. In E. J. Mash, & R. A. Barkley (Eds.), *Child psychopathology* (pp. 63-112). New York: Guilford Press.

Barkley, R. A. (1997). *Defiant children: A clinician's manual for assessment and parent training* (2nd ed.). New York: Guilford Press.

Begeny, J. C., Eckert, T. L., Montarello, S. A., & Storie, M. S. (2008). Teachers' perceptions of students' reading abilities: An examination of the relationship between teachers' judgments and students' performance across a continuum of rating methods. *School Psychology Quarterly, 23,* 43-55.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238-246.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588-606

Bickel, R., & Milton, S. (1983). The social circumstances of illiteracy: Interpretation and exchange in a class-based society. *Urban Review*, *15*, 203-215.

Blanchard, R., Clemmensen, L. H., & Steiner, B. W. (1985). Social desirability response set and systematic distortion in the self-report of adult male gender patients. *Archives of Sexual Behavior, 14,* 505-516.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Thousand Oaks, CA: Sage.

Cadieux, A., & Boudreault, P. (2002). Psychometric properties of a kindergarten behavior rating scale to predict later academic achievement. *Psychological Reports, 90*, 687-698.

Cattell, R. B. (1936). *A guide to mental testing for psychological clinics, schools, and industrial psychologists.* London: University of London Press.

Cattell, R. B. (1966). *The scientific analysis of personality.* Chicago: ALDINE.

Cattell, R. B. (1971). *Abilities: Their structure, growth, and action.* Boston: Houghton Mifflin.

Center for Academic and Reading Skills. (1998). *Texas Primary Reading Inventory (1998 edition).* Retrieved May 26, 2008, from http://www.tpri.org/Documents/19971998TechnicalManual.pdf

Channon, S. (2004). Frontal lobe dysfunction and everyday problem-solving: Social and non-social contributions. *Acta Psychologica, 115*, 235-254.

Colligan, R. C. (1976). Prediction of kindergarten reading success from preschool report of parents. *Psychology in the Schools*, *13*, 304-308.

Cooperating School Districts. (1999). *MO REAP*. Retrieved April 23, 2008, from http://www.moreap.net/schoolinfo.php

Cox, E. A., & Bell, S. M. (2002). Test reviews: Learning Disabilities Diagnostic Inventory. *Journal of Psychoeducational Assessment*, *20*, 90-98.

Cronbach, L. J. (1949). *Essentials of psychological testing*. New York: Harper & Brothers.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.

Cronbach, L. J. (1960). *Essentials of psychological testing* (2nd ed.). New York: Harper & Brothers.

Cronbach, L. J. (1984). *Essentials of psychological testing* (4th ed.). New York: Harper & Row.

Demaray, M. K., & Elliott, S. N. (1998). Teachers' judgments of students' academic functioning: A comparison of actual and predicted performances. *School Psychology Quarterly, 13*, 8-24.

Dennis, M. J., Sternberg, R. J., & Beatty, P. (2000). The construction of "user-friendly" tests of cognitive functioning: A synthesis of maximal- and typical-performance measurement philosophies. *Intelligence*, *28*, 193-211.

Dewey, D., Crawford, S. G., Creighton, D. E., & Sauve, R. S. (2000). Parents' ratings of everyday cognitive abilities in very low birth weight children. *Developmental and Behavioral Pediatrics*, *21*, 37-43.

Dewey, D., Crawford, S. G., & Kaplan, B. J. (2003). Clinical importance of parent ratings of everyday cognitive abilities in children with learning and attention problems. *Journal of Learning Disabilities*, *36*, 87-95.

Diamond, K. E., & Squires, J. (1993). The role of parental report in the screening and assessment of young children. *Journal of Early Intervention*, *17*, 107-115.

Dickens, W. T., & Flynn, J. R. (2001). Heritability estimates versus large environmental effects: The IQ paradox resolved. *Psychological Review, 108*, 346-369.

Driver, J. (2001). A selective review of selective attention research from the past century. *British Journal of Psychology, 92,* 53-78.

Durbrow, E. H., Schaefer, B. A., & Jimerson, S. R. (2001). Learning-related behaviours versus cognitive ability in the academic performance of Vincentian children. *British Journal of Educational Psychology, 71*, 471-483.

Elliott, C. D. (1990). *Differential Ability Scales*. San Antonio, TX: The Psychological Corporation.

Elliott, R. W., (2004). Test review: Reynolds Intellectual Assessment Scales. *Archives of Clinical Neuropsychology, 19,* 325-328.

Ewert, J. C., & Green, M. W. (1957). Conditions associated with the mother's estimate of the ability of her retarded child. *American Journal of Mental Deficiency, 62*, 521-533.

Fazio, R. H. (1986). How do attitudes guide behavior?. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 204-243). New York: Guilford Press.

Fazio, R. H., & Roskos-Ewoldsen, D. R. (2005). Acting as we feel: When and how attitudes guide behavior. In T. C. Brock & M. C. Green (Eds.), *Persuasion: Psychological insights and perspectives* (2nd ed., pp. 41-62). Thousand Oaks, CA: Sage.

Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.

Fiske, D. W., & Butler, J. M. (1963). The experimental conditions for measuring individual differences. *Educational and Psychological Measurement*, *23*, 249-266.

Flynn, J. R. (1984). The mean IQ of Americans: Massive gains 1932 to 1978. *Psychological Bulletin, 95,* 29-51.

Flynn, J. R. (1987). Massive IQ gains in 14 nations: What IQ tests really measure. *Psychological Bulletin, 101,* 171-191.

Flynn, J. R. (1996). What environmental factors affect intelligence: The relevance of IQ gains over time. In D. K. Detterman (Ed.), *The environment: Current topics in human intelligence, Vol. 5* (pp. 17-29). Westport, CT: Ablex.

Flynn, J. R. (1998). IQ gains over time: Toward finding the causes. In U. Neisser (Ed.), *The rising curve: Long-term gains in IQ and related measures* (pp. 25-66). Washington, DC: American Psychological Association.

Forehand, R., Lautenschlager, G. J., Faust, J., & Graziano, W. G. (1986). Parent perceptions and parent-child interactions in clinic-referred children: A preliminary investigation of the effects of maternal depressive moods. *Behaviour Research & Therapy*, *24*, 73-75.

Frazier, T. W., Demaree, H. A., & Youngstrom, E. A. (2004). Meta-anlysis of intellectual and neuropsychological test performance in attention-deficit/hyperactivity disorder. *Neuropsychology, 18*, 543-555.

Fritzsche, B. A., McIntire, S. A., & Yost, A. P. (2002). Holland type as a moderator of personality-performance predictions. *Journal of Vocational Behavior*, *60*, 422-436.

Fuchs, D., Fuchs, L. S., Power, M. H., & Dailey, A. M. (1985). Bias in the assessment of handicapped children. *American Educational Research Journal*, *22*, 185-198.

Furnham, A., & Chamorro-Premuzic, T. (2004). Personality and intelligence as predictors of statistics examination grades. *Personality and Individual Differences, 37*, 943-955.

Garner, A. M., & Smith, G. M. (1976). An experimental videotape technique for evaluating trainee approaches to clinical judging. *Journal of Consulting and Clinical Psychology, 44,* 945-950.

Gilbert, T. F. (1978). *Human competence: Engineering worthy performance*. New York: McGraw-Hill.

Gilliam, J. E. (1995). *Gilliam Autism Rating Scale*. Austin, TX: Pro-ed.

Gilliam, J. E. (2001). *Gilliam Asperger's Disorder Scale*. Austin, TX: Pro-ed.

Glascoe, F. P. (1991). Can clinical judgment detect children with speech-language problems? *Pediatrics*, *87*, 317-322.

Glascoe, F. P. (2001). Can teachers' global ratings identify children with academic problems?. *Developmental and Behavioral Pediatrics*, *22*, 163-168.

Glascoe, F. P., Altemeier, W. A., & MacLean, W. E. (1989). The importance of parents' concerns about their child's development. *American Journal of Diseases of Children, 143*, 955-958.

Glascoe, F. P., & Dworkin, P. H. (1995). The role of parents in the detection of developmental and behavioral problems. *Pediatrics*, *95*, 829-836.

Glascoe, F. P., & MacLean, W. E. (1990). How parents appraise their child's development. *Family Relations: Journal of Applied Family & Child Studies, 39,* 280-283.

Glascoe, F. P., MacLean, W. E., & Stone, W. L. (1991). The importance of parents' concerns about their child's behavior. *Clinical Pediatrics, 30*, 8-11.

Glascoe, F. P., & Sandler, H. (1995). Value of parents' estimates of children's developmental ages. *The Journal of Pediatrics*, *127*, 831-835.

Goff, M., & Ackerman, P. L. (1992). Personality-intelligence relations: Assessment of typical intellectual engagement. *Journal of Educational Psychology*, *84*, 537-552.

Goldstein, S., & Reynolds, C. R. (1999). Introduction. In S. Goldstein, & Reynolds (Eds.), *Handbook of neurodevelopmental and genetic disorders in children* (pp. 3-8). New York: Guilford Press.

Golomb, V. A. (1999). *Cognitive and psychological sequelae of pediatric bone marrow transplantation*. Unpublished doctoral dissertation, MCP Hahnemann University.

Gutkin, T. B. (1998). Review of Learning Disabilities Diagnostic Inventory [Electronic version]. In B. S. Plake & J. C. Impara (Eds.), *The fourteenth mental measurements yearbook*. Lincoln, NE: Buros Institute of Mental Measurements.

Halpin, G., Halpin, G., & Schaer, B. B. (1981). Relative effectiveness of the California Achievement Tests in comparison with the ACT Assessment, College Board Scholastic Aptitude Test, and high school grade point average in predicting college grade point average. *Educational and Psychological Measurement, 41*, 821-827.

Hammill, D. D., & Bryant, B. R. (1998). *Learning Disabilities Diagnostic Inventory*. Austin, TX: PRO-ED.

Hart, E. L., & Lahey, B. B. (1999). General child behavior rating scales. In D. Shaffer & C. P. Lucas (Eds.), *Diagnostic assessment in child and adolescent psychopathology* (pp. 65-87). New York: Guilford Press.

Harter, S. (1998). The development of self-representations. In W. Damon (Ed.), *Handbook of child psychology* (5th ed., Vol. 3, pp. 553-617). New York: John Wiley & Sons.

Hathaway, S. R., & McKinley, J. C. (1989). *MMPI-2 (Minnesota Multiphasic Personality Inventory-2) Manual for Administration and Scoring.* Minneapolis, MN: University of Minnesota Press.

Hecht, S. A., & Greenfield, D. B. (2001). Comparing the predictive validity of first grade teacher ratings and reading-related tests on third grade levels of reading skills in young children exposed to poverty. *School Psychology Review, 30*, 50-69.

Heppner, P. P., & Petersen, C. H. (1982). The development and implications of a personal problem-solving inventory. *Journal of Counseling Psychology, 29,* 66-75.

Hoover, J. J. (1989). Study skills and the education of students with learning disabilities. *Journal of Learning Disabilities, 22*, 452-455.

Horn, J. L., Donaldson, G., & Engstrom, R. (1981). Apprehension, memory, and fluid intelligence decline in adulthood. *Research on Aging, 3*, 33-84.

Huck, S. W. (2000). *Reading statistics and research* (3rd ed.). New York: Longman.

Hunt, J. M., & Paraskevopoulos, J. (1980). Children's psychological development as a function of the inaccuracy of their mothers' knowledge of their abilities. *The Journal of Genetic Psychology*, *136*, 285-298.

Jensen, A. R. (1973). The differences are real. *Psychology Today, 7*, 80-86.

Jensen, A. R. (1989). The relationship between learning and intelligence. *Learning and Individual Differences*, *1*, 37-62.

Jensen, A. R. (1998). The *g* factor and the design of education. In R. J. Sternberg & W. M. Williams (Eds.), *Intelligence, instruction, and assessment: Theory into practice* (pp. 111-131). Mahwah, NJ: Lawrence Erlbaum Associates.

Kamphaus, R. W., & Frick, P. J. (2002). *Clinical assessment of child and adolescent personality and behavior* (2nd ed.). Boston, MA: Allyn and Bacon.

Kanfer, R., & Ackerman, P. L. (2005). Work competence: A person-oriented perspective. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 336-353). New York: Guilford Press.

Kaplan, R. M., & Saccuzzo, D. P. (2001). *Psychological testing: Principles, applications, and issues* (5th ed.). Belmont, CA: Wadsworth/Thomson Learning.

Kaufman, A. S., & Kaufman, N. L. (1998). Comprehensive Form Manual. *Kaufman Test of Educational Achievement – Normative Update*. Circle Pines, MN: American Guidance Services.

Kaufman, A. S., & Kaufman, N. L. (2005). *Kaufman Test of Educational Achievement, Second Edition, Brief Form: Manual*. Circle Pines, MN: American Guidance Services.

Kaufman, A. S., & Lichtenberger, E. O. (1999). *Essentials of WAIS-III Assessment.* New York: John Wiley & Sons.

Kelly, T. J., Bullock, L. M., & Dykes, M. K. (1977). Behavioral disorders: Teachers' perceptions. *Exceptional Children, 43*, 316-318.

Kim, Y. M., Sugawara, A. I., & Kim, G. (2000). Parents' perception of and satisfaction with the eligibility assessment of their children with special needs. *Early Child Development and Care*, *160*, 133-142.

Kirk, A. K., & Brown, D. F. (2003). Latent constructs of proximal and distal motivation predicting performance under maximum test conditions. *Journal of Applied Psychology, 88*, 40-49.

Kovach, K., & Wilgosh, L. R. (1999). Learning and study strategies, and performance anxiety in postsecondary students with learning disabilities: A preliminary study. *Developmental Disabilities Bulletin, 27*, 47-57.

Kratochwill, T. R., Sheridan, S. M., Carlson, J., & Lasecki, K. L. (1999). Advances in behavioral assessment. In C. R. Reynolds & T. B. Gutkin (Eds.), *The handbook of school psychology* (3rd ed., pp. 350-382). New York: John Wiley & Sons.

Kruger, J. (1999). Lake Wobegon be gone! The "below-average effect" and the egocentric nature of comparative ability judgments. *Journal of Personality and Social Psychology, 77*, 221-232.

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology, 77*, 1121-1134.

Lazar, I., & Darlington, R. B. (1982). Lasting effects of early education: A report from the Consortium for Longitudinal Studies. *Monographs of the Society for Research in Child Development, 47*(2-3, Serial No. 195).

Lichtenstein, R. (1984). Predicting school performance of preschool children from parent reports. *Journal of Abnormal Child Psychology, 12*, 79-94.

Liu, J. H., & Sibley, C. G. (2004). Attitudes and behavior in social space: Public good interventions based on shared representations and environmental influences. *Journal of Environmental Psychology, 24*, 373-384.

Livingston, R. B., Jennings, E., Reynolds, C. R., & Gray, R. M. (2003). Multivariate analyses of the profile stability of intelligence tests: High for IQs, low to very low for subtest analyses. *Archives of Clinical Neuropsychology*, *18*, 487-507.

Loeber, R., Green, S. M., & Lahey, B. B. (1990). Mental health professionals' perception of the utility of children, mothers, and teachers as informants on childhood psychopathology. *Journal of Clinical Child Psychology, 19*, 136-143.

Loeber, R., Green, S. M., Lahey, B. B., & Stouthamer-Loeber, M. (1991). Differences and similarities between children, mothers, and teachers as informants on disruptive child behavior. *Journal of Abnormal Child Psychology, 19,* 75-95.

Lorge, I. (1940). Intelligence and personality as revealed in questionnaires and inventories. In G. M. Whipple (Ed.), *Thirty-ninth yearbook: National society for study of education: Part 1* (pp. 275-281). Bloomington, IL: Public School.

MacDonald, J. (1998). Review of Learning Disabilities Diagnostic Inventory [Electronic version]. In B. S. Plake & J. C. Impara (Eds.), *The fourteenth mental measurements yearbook*. Lincoln, NE: Buros Institute of Mental Measurements.

Mackworth, N. H. (1965). Originality. *The American Psychologist*, *20¸51-66.*

Macmann, G. M., & Barnett, D. W. (1997). Myth of the master detective: Reliability of interpretations for Kaufman's "Intelligent Testing" approach to the WISC-III. *School Psychology Quarterly*, *11*, 137-148.

Mather, N., & Woodcock, R. W. (2001). Examiners Manual. *Woodcock-Johnson III Tests of Achievement*. Itasca, IL: Riverside Publishing.

McCaul, R. L. (1944). The effect of attitudes upon reading interpretation. *Journal of Educational Research, 37,* 451-457.

McDermott, P. A. (1984). Comparative functions of preschool learning style and IQ in predicting future academic performance. *Contemporary Educational Psychology, 9*, 38-47.

McDermott, P. A. (1999). National scales of differential learning behaviors among American children and adolescents. *School Psychology Review, 28*, 280-291.

McDermott, P. A., & Beitman, B. S. (1984). Standardization of a scale for the study of children's learning styles: Structure, stability, and criterion validity. *Psychology in the Schools, 21*, 5-14.

McDermott, P. A., & Glutting, J. J. (1997). Informing stylistic learning behavior, disposition, and achievement through ability subtests—or, more illusions of meaning?. *School Psychology Review, 26*, 163-175.

McDermott, P. A., Green, L. F., Francis, J. M., & Stott, D. H. (1999). *Learning Behaviors Scale.* Philadelphia: Edumetric and Clinical Science.

McGuire, J. M., Hall, D., & Litt, A. V. (1991). A field-based study of the direct service needs of college students with learning disabilities. *Journal of college Student Development, 32*, 101-108.

McKinney, J. D., Mason, J., Perkerson, K., & Clifford, M. (1975). Relationship between classroom behavior and academic achievement. *Journal of Educational Psychology, 67,* 198-203.

Menius, L. R. (1985). An analysis of a causal model explaining learning disabled students' organizational skills and school performance (Doctoral dissertation, University of Houston, 1985). *Dissertation Abstracts International, 46,* 1595.

Myers, D. G. (1999). *Social psychology* (6th ed.). Boston: McGraw-Hill College.

National Center for Education Statistics. (n.d.). *School District Demographics System. Data set P.L.94-171 (Race & Ethnicity).* Retrieved April 23, 2008, from http://nces.ed.gov/surveys/sdds/singlechoicepage.asp?state1=29

National Council of Teachers of Mathematics. (2000-2004). *Table of Standards and Expectations.* Retrieved May 26, 2008, from http://standards.nctm.org/document/appendix/numb.htm

Neisser, U. (1998). Introduction: Rising test scores and what they mean. In U. Neisser (Ed.), *The rising curve: Long-term gains in IQ and related measures* (pp. 3 – 22). Washington, DC: American Psychological Association.

Neisser, U., Boodoo, G., Bouchard, T. J., Boykin, A. W., Brody, N., Ceci, S. J., et al. (1996). Intelligence: Knowns and unknowns. *American Psychologist*, *51*, 77-101.

Norton, L. M. (1990). *Inaccuracy in perceived scholastic competence: Beliefs, values and perceptions of children and parents.* Unpublished doctoral dissertation, University of Denver.

Ohio Department of Education. (n.d.). *Model competency-based mathematics program.* Retrieved May 26, 2008, from https://www.educ.kent.edu/community/DOCWHIZ/Math.pdf

Okagaki, L., & Sternberg, R. J. (1993). Parental beliefs and children's school performance. *Child Development*, *64*, 36-56.

Olson, W. C. (1936). The waiver of signature in personal reports. *Journal of Applied Psychology, 20,* 442-450.

Oregon Child Care Resource & Referral Network. (2008). *Find child care resource and referral*. Retrieved April 23, 2008, from http://www.oregonchildcare.org

Papalia, D. E., Olds, S. W., & Feldman, R. D. (1998). *Human development* (7th ed.). Boston: McGraw-Hill.

Pethick, S. J. (2002). Development and validation of an attention-deficit/hyperactivity disorder measure for college students (Doctoral dissertation, California School of Professional Psychology-San Diego, 2002). *Dissertation Abstracts International, 62,* 4800.

The Psychological Corporation. (2002). *Examiner's Manual for the Wechsler Individual Achievement Test* (2nd ed.). San Antonio, TX: Author.

Rayfield, A., Eyberg, S. M. & Foote, R. (1998). Revision of the Sutter-Eyberg Student Behavior Inventory: Teacher ratings of conduct problem behavior. *Educational and Psychological Measurement, 58,* 88-98.

Reitan, R. M. (1992). *Trail Making Test: Manual for administration and scoring*. Tucson, AZ: Reitan Neuropsychology Laboratory.

Reynolds, C. R. (2000). Methods for detecting and evaluating cultural bias in neuropsychological tests. In E. Fletcher-Janzen, T. L. Strickland, & Reynolds (Eds.), *Handbook of cross-cultural neuropsychology: Critical issues in neuropsychology* (pp. 249-285). New York: Plenum Press.

Reynolds, C. R., & Kamphaus, R. W. (2003). *Reynolds Intellectual Assessment Scales and the Reynolds Intellectual Screening Test: Professional manual*. Lutz, FL: Psychological Assessment Resources.

Reynolds, C. R., & Kamphaus, R. W. (2004). *Manual for the Behavior Assessment System for Children, Second Edition*. Circle Pines, MN: American Guidance Service.

Reynolds, C. R., Livingston, R., & Wilson, V. C. (2006). *Measurement and Assessment in Education*. Boston: Allyn & Bacon.

Robinson, E. A., Eyberg, S. M. & Ross, A. W. (1980). The standardization of an inventory of child conduct problem behaviors. *Journal of Clinical Child Psychology, 9,* 22-29.

Rolfhus, E. L., & Ackerman, P L. (1999). Assessing individual differences in knowledge: Knowledge, intelligence, and related traits. *Journal of Educational Psychology, 91*, 511-526.

Sattler, J. M. (1998). *Clinical and forensic interviewing of children and families: Guidelines for the mental health, education, pediatric, and child maltreatment fields*. San Diego, CA: Jerome M. Sattler, Publisher.

Saudino, K. J., Dale, P. S., Oliver, B., Petrill, S. A., Richardson, V., Rutter, M., et al. (1998). The validity of parent-based assessment of the cognitive abilities of 2-year-olds. *British Journal of Developmental Psychology*, *16*, 349-363.

Scarr, S., & McCartney, K. (1983). How people make their own environments: A theory of genotype → Environmental effects. *Child Development, 54,* 424-435.

Schaefer, B. A., & McDermott, P. A. (1999). Learning behavior and intelligence as explanations for children's scholastic achievement. *Journal of School Psychology, 37*, 299-313.

Schroeder, C. S., & Gordon, B. N. (2002). *Assessment and treatment of childhood problems*: *A clinician's guide* (2nd ed.). New York: Guilford Press.

Schuerger, J. M. (2003). Review of 16PF Adolescent Personality Questionnaire [Electronic version]. In B. S. Plake (Ed.). *The Fifteenth Mental Measurements Yearbook*. Lincoln, NE: Buros Institute of Mental Measurements.

Shohamy, E., Gordon, C. M., & Kraemer, R. A. (1992). The effect of raters' background and training on the reliability of direct writing tests. *The Modern Language Journal, 76*, 27-33.

Smith-Spark, J. H., Fawcett, A. J., Nicolson, R. I., & Fisk, J. E. (2004). Dyslexic students have more everyday cognitive lapses. *Memory*, 12, 174-182.

Sommer, B., & Sommer, R. (1997). *A practical guide to behavioral research*. New York: Oxford University Press.

Steiger, J. H., & Lind, J. C. (1980, May). *Statistically-based tests for the number of common factors.* Paper presented at the Annual Spring Meeting of the Psychometric Society, Iowa City, IA.

Stone, C. A., & May, A. L. (2002). The accuracy of academic self-evaluations in adolescents with learning disabilities. *Journal of Learning Disabilities*, *35*, 370-383.

Texas Education Agency. (2007). *Texas Essential Knowledge and Skills: Kindergarten.* Retrieved May 26, 2008, from http://www.tea.state.tx.us/teks/index.html#teksbygrade

Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications.* Washington, DC: American Psychological Association.

Thorndike, R. L. (1940). "Constancy" of the IQ. *Psychological Bulletin*, *37*, 167-186.

Turkheimer, E. (2004). Spinach and ice cream: Why social science is so difficult. In L. F. DiLalla (Ed.), *Behavior genetics principles: Perspectives in development, personality, and psychopathology* (pp. 161-189). Washington, DC: American Psychological Association.

Turkheimer, E., & Gottesman, I. I. (1996). Simulating the dynamics of genes and environment in development. *Development and Psychopathology, 8*, 667-677.

U. S. Census Bureau. (n.d.). State and county quickfacts. Retrieved March 22, 2004, from http://quickfacts.census.gov/qfd/states/00000.html

Wechsler, D. (1997). *Administration and scoring manual for the Wechsler Adult Intelligence Scale-Third Edition.* San Antonio, TX: Psychological Corporation.

Weiner, B. (1986). *An attributional theory of motivation and emotion.* New York: Springer-Verlag.

Wentzel, K. R. (1989). Adolescent classroom goals, standards for performance, and academic achievement: An interactionist perspective. *Journal of Educational Psychology, 81,* 131-142.

Williams, J. M., Klein, K., Little, M., & Haban, G. (1986). Family observations of everyday cognitive impairment in dementia. *Archives of Clinical Neuropsychology*, *1*, 103-109.

Williams, K. S., Ochs, J., Williams, J. M., & Mulhern, R. K. (1991). Parental report of everyday cognitive abilities among children treated for acute lymphoblastic leukemia. *Journal of Pediatric Psychology*, *16*, 13-26.

Wills, T. A. (1978). Perceptions of clients by professional helpers. *Psychological Bulletin, 85,* 968-1000.

Wittmann, W. W., & Süβ, H.-M. (1999). Investigating the paths between working memory, intelligence, knowledge, and complex problem-solving performances via Brunswik symmetry. In P. L. Ackerman, P. C. Kyllonen, et al. (Eds.), *Learning and individual differences: Process, trait, and content determinants* (pp. 77-108). Washington, DC: American Psychological Association.

Wolfensberger, W., & Kurtz, R. A. (1971). Measurement of parents' perceptions of their children's development. *Genetic Psychology Monographs, 83*, 3-92.

Worrell, F. C., & Schaefer, B. A. (2004). Reliability and validity of Learning Behaviors Scale (LBS) scores with academically talented students: A comparative perspective. *Gifted Child Quarterly, 48*, 287-308.

Worrell, F. C., Vandiver, B. J., & Watkins, M. W. (2001). Construct validity of the Learning Behavior Scale with an independent sample of students. *Psychology in the Schools, 38,* 207-215.

Xie, H., Mahoney, J. L., & Cairns, R. B. (1999). Through a looking glass or a hall of mirrors?: Self-ratings and teacher-ratings of academic competence over development. *International Journal of Behavioral Development, 23*, 163-183.

Yen, C.-J., Konold, T. R., & McDermott, P. A. (2004). Does learning behavior augment cognitive ability as an indicator of academic achievement?. *Journal of School Psychology, 42*, 157-169.

Zucker, S. H., & Prieto, A. G. (1977). Ethnicity and teacher bias in educational decisions. *Journal of Instructional Psychology, 4,* 2-5.

APPENDIX A

ITEMS REMAINING ON THE PARENT REACS AFTER DIF ANALYSES

Academic Skills

Math

1 Continues a pattern (a, b, a, b, a, …)
2 Completes simple connect-the-dots pictures (up to 20 dots)
3 Counts to 50
4 Has difficulty counting backwards from 10
5 Identifies coins by name
6 Makes a whole from two halves
7 Mistakes one number for another (e.g., thinks 2 is a 5)
8 Places events in order using “before” and “after”
9 Reads math signs (+, –, =) correctly
10 Recognizes numbers (0-10)
11 Recognizes numbers (11-20)
12 Recognizes the greater of two numbers
13 States if two objects are the same or different
14 States which of two objects is heavier
15 Turns to the correct page number in a book when asked

Reading

1 Answers a question about a story read to him/her
2 Comprehends what he/she reads
3 Correctly points out most lowercase letters
4 Correctly points out most uppercase letters
5 Identifies first letter of own first name
6 Knows letters in own first name
7 Listens to a story
8 Names most lowercase letters
9 Names most uppercase letters
10 Reads from left to right
11 Reads letters backwards (e.g., mistakes “b” for “d”)

12 Reads sentences of five words or less
13 Recites alphabet without mistakes
14 Recognizes own name in print
15 Recognizes signs of favorite stores or restaurants (e.g., McDonald's)
16 Reads consonant blends correctly (e.g., sh)

Writing

1 Copies letters correctly
2 Copies single words legibly
3 Cuts along the lines of simple shapes when using scissors
4 Draws simple shapes freehand (e.g., circle)
5 Ends sentences with a period
6 Grasps the crayon/pencil correctly
7 Holds scissors correctly
8 Spells own first name correctly
9 Spells words phonetically (i.e., like they sound)
10 Stays in the lines when coloring
11 Stays on the line when tracing
12 Writes all lowercase letters correctly
13 Writes all uppercase letters correctly
14 Writes complete sentences
15 Writes from left to right
16 Writes own name correctly

Cognitive Skills

Language

<u>Symbolic expressive language</u>

1 Draws recognizable pictures of shapes
2 Draws symbols to express ideas (e.g., "heart" to mean love)
3 Expresses emotion through body language
4 Facial expressions match tone of voice
5 Has difficulty using gestures
6 Imitates animal movements during play
7 Looks when his/her name is called
8 Makes eye contact when speaking to someone

9 Uses common hand gestures (e.g., “thumbs up”)
10 Mimics facial expressions
11 Nods to show agreement
12 Points to indicate what he/she wants
13 Uses closed posture when talking to someone (e.g., arms folded)

Symbolic receptive language

1 Has difficulty understanding body language
2 Identifies feelings based on body language
3 Understands facial expressions
4 Knows which bathroom to use by the symbol on the door
5 Recognizes feelings of individuals in a photograph or painting
6 Recognizes objects from a line drawing
7 Recognizes symbols of his/her government (e.g., flag, eagle)
8 Understands common gestures
9 Understands the symbols at a crossing light

Verbal expressive language

1 Asks for clarification when directions are unclear
2 Asks for help appropriately
3 Conveys a point clearly
4 Effectively expresses feelings verbally
5 Has difficulty expressing ideas verbally
6 Has difficulty talking to someone for more than a few minutes
7 Has problems finding the right word to say
8 Begins conversations appropriately
9 It is difficult to understand what he/she says
10 Pronounces words correctly when talking to others
11 Speaks too slowly
12 Uses good grammar when speaking
13 Speech is easy to understand
14 Uses the wrong word (e.g., asks for a fork when a spoon is wanted)

Verbal receptive language

1 Asks what common words mean
2 Commands must be simple to be followed

3 Follows one-step verbal directions
4 Has difficulty following spoken directions
5 Knows the general topic of the conversation
6 Misinterprets what people say
7 Misses the important information from a conversation
8 Picks up on small details of conversations
9 Understands implied meanings in conversations
10 Understands what is said to him/her
11 When asked to get an item, brings back the correct item

Learning

1 Adapts well to change
2 Has difficulty learning new tasks
3 Has to practice longer than peers to learn new tasks
4 Has to try very hard to get things right
5 Is quick to catch on to new things
6 Learns new motor skills quickly (e.g., jumping, dribbling a ball)
7 Needs repeated demonstrations to perform a new task
8 Quality of work improves with practice
9 Repeats mistakes

Memory

Memory for events

1 Mixes up the order of when things happened at events within the past week
2 Mixes up who did what at an event six months ago
3 Recalls conversations within the past week
4 Recalls events within the past week
5 Recalls how he/she felt during a notable event one month ago
6 Remembers the main details of personal events that happened six months ago
7 Remembers what happened at a special event/holiday six months ago
8 Remembers what he/she ate for lunch yesterday
9 Remembers when he/she got specific gifts
10 Remembers who came to a special occasion six months ago
11 Remembers who gave him/her specific gifts
12 Summarizes the content of a movie

Memory for schedules

1 Forgets to do chores
2 Forgets what to bring for a special activity
3 Forgets where she/he is supposed to be
4 Has difficulty remembering activities that are part of his/her regular schedule
5 Has difficulty remembering activities that occur infrequently
6 Has difficulty remembering schedule changes
7 Has difficulty remembering the order in which to do things
8 Keeps track of when he/she needs to be somewhere
9 Knows the schedule of other members of his/her immediate family
10 Remembers day and time of television/radio shows
11 Remembers scheduled activities that he/she enjoys

Personal memory

1 Forgets household rules
2 Forgets the full names of his/her parents
3 Forgets to put away clothing
4 Gets lost easily
5 Has difficulty remembering to do tasks of personal hygiene (e.g., comb hair)
6 Has problems connecting names with faces
7 Knows where things go in the house/personal room
8 Loses things
9 Objects must be in the same place in order for him/her to remember where they are
10 Recalls his/her own birth date
11 Recalls own phone number
12 Recalls own street address
13 Remembers emergency phone numbers
14 Remembers names of favorite book characters
15 Remembers names well
16 Remembers several requests given at one time
17 Remembers the names of things
18 Remembers the seating arrangement at the dinner table
19 Remembers where he/she was born

Academic-related memory

1 Brings homework assignments home
2 Forgets permission slips
3 Forgets school rules

4 Forgets the names of classmates
5 Forgets to bring home notes from school
6 Forgets to put name on paper
7 Remembers directions for class activities
8 Remembers teacher's name
9 Remembers where to put personal belongings in the classroom (e.g., backpack, jacket)
10 Remembers where to sit in the classroom

Problem solving

1 Asks complex questions
2 Chooses difficult or challenging problems or assignments
3 Correctly identifies a problem
4 Enjoys figuring out how things work
5 Finds creative ways to solve problems
6 Finds effective shortcuts to get things done
7 Finds new ways to do things
8 Has difficulty understanding abstract concepts (e.g., fairness)
9 If loses a game, will use a different strategy next time
10 Loves a challenge
11 Tries different ways of doing things
12 Problem solving strategies are immature
13 Uses trial and error to solve problems
14 Wants to figure things out on his/her own

APPENDIX B

ITEMS REMAINING ON THE TEACHER REACS AFTER DIF ANALYSES

Academic Skills

Math

1 Continues a pattern (a, b, a, b, a, …)
2 Correctly lines up objects according to size
3 Counts 10 items correctly
4 Counts backwards from 20 accurately
5 Counts to 50
6 Gets “on” and “under” mixed up
7 Groups objects according to shape
8 Identifies coins by name
9 Makes a whole from two halves
10 Makes mistakes when counting to 10 out loud
11 Points correctly to first and last items in a line
12 Points to smaller of two objects
13 Reads math signs (+, –, =) correctly
14 Recognizes numbers (0-10)
15 Recognizes numbers (11-20)
16 Recognizes shapes (square, rectangle, triangle, circle)
17 Recognizes the greater of two numbers
18 Reverses numbers when writing
19 States if two objects are the same or different
20 Turns to the correct page number in a book when asked

Reading

1 Answers a question about a story read to him/her
2 Comprehends what he/she reads
3 Correctly points out most lowercase letters
4 Correctly points out most uppercase letters
5 Divides words into syllables correctly
6 Listens to a story

7 Names most lowercase letters
8 Names most uppercase letters
9 Reads from left to right
10 Reads sentences of five words or less
11 Recognizes own name in print
12 Recognizes signs of favorite stores or restaurants (e.g., McDonald's)
13 Sounds out one-syllable words correctly (e.g., cat, run)
14 States words that start with a particular sound (e.g., ball, bird, book)
15 Thinks of a word to rhyme with another word
16 Turns book pages from right to left
17 Reads consonant blends correctly (e.g., sh)

Writing

1 Capitalizes own first name
2 Capitalizes proper nouns (i.e., names or places)
3 Copies letters correctly
4 Copies single words legibly
5 Cuts along the lines of simple shapes when using scissors
6 Draws simple shapes freehand (e.g., circle)
7 Grasps the crayon/pencil correctly
8 Holds scissors correctly
9 Puts simple puzzles together (up to 25 pieces)
10 Spells own first name correctly
11 Spells words phonetically (i.e., like they sound)
12 Stays in the lines when coloring
13 Stays on the line when tracing
14 Writes all lowercase letters correctly
15 Writes all uppercase letters correctly
16 Writes complete sentences
17 Writes from left to right
18 Writes own name correctly

Cognitive Skills

Language

Symbolic expressive language

1 Depicts different moods in drawings
2 Draws recognizable pictures of shapes
3 Draws pictures to express ideas
4 Draws pictures to illustrate a story
5 Draws symbols to express ideas (e.g., “heart” to mean love)
6 Exaggerates facial expressions to be understood from far away
7 Expresses emotion through body language
8 Facial expressions match tone of voice
9 Has difficulty using gestures
10 Makes eye contact when speaking to someone
11 Uses common hand gestures (e.g., “thumbs up”)
12 Nods to show agreement
13 Shows interest when someone is talking
14 Smiles at appropriate times
15 Gives directions clearly using gestures

Symbolic receptive language

1 Aware of the feelings of others
2 Correctly completes a color-by-number picture
3 Has difficulty understanding body language
4 Identifies occupation based on uniform (e.g., postal worker, police officer)
5 Knows which bathroom to use by the symbol on the door
6 Looks at an object when someone points to it
7 Recognizes feelings of individuals in a photograph or painting
8 Recognizes nonverbal signs (e.g., finger to mouth for quiet)
9 Understands common gestures
10 Understands safety symbols (e.g., poison, biohazard)

Verbal expressive language

1 Answers questions appropriately (i.e., answer relates to question)
2 Conveys a point clearly
3 Speech appears to begin in the middle of a thought
4 Effectively expresses feelings verbally
5 Begins conversations appropriately
6 Has problems finding the right word to say
7 It is difficult to understand what he/she says
8 Speaks in partial sentences

9 Speaks too slowly
10 Speech is easy to understand
11 Uses a small vocabulary relative to age
12 Uses the wrong word (e.g., asks for a fork when a spoon is wanted)

Verbal receptive language

1 Appears confused when things are said a different way than originally taught
2 Commands must be simple to be followed
3 Follows multiple-step verbal directions
4 Knows the general topic of the conversation
5 Looks when his/her name is called
6 Picks up on small details of conversations
7 Understands implied meanings in conversations
8 Understands jokes
9 Understands what is said to him/her
10 When asked to get an item, brings back the correct item

Learning

1 Adapts well to change
2 After being told how to do something, needs to be told again
3 Becomes faster at doing tasks with practice
4 Completes tasks of increasing difficulty with practice
5 Has to practice longer than peers to learn new tasks
6 Has to try very hard to get things right
7 Is quick to catch on to new things
8 Needs repeated demonstrations to perform a new task
9 Picks up new skills quickly
10 Quality of work improves with practice
11 Repeats mistakes
12 Takes longer than others to grasp a new concept

Memory

Memory for events

1 Recalls conversations within the past week
2 Recalls events within the past week

3 Recalls how he/she felt during a notable event one month ago
4 Recites steps for completing a task observed earlier in the day
5 Remembers what happened at a special event/holiday earlier in the school year
6 Remembers what he/she ate for lunch yesterday
7 Summarizes the content of a movie

Memory for schedules

1 Forgets where she/he is supposed to be
2 Has difficulty remembering the order in which to do things
3 Needs reminding of changes in the schedule
4 Remembers events scheduled for the week, but in the wrong order
5 Repeatedly asks what day it is
6 Repeatedly asks when an anticipated activity will be (e.g., field trip)

Personal memory

1 Forgets the full names of his/her parents
2 Recalls his/her own birth date
3 Recalls own phone number
4 Recalls own street address
5 Remembers several requests given at one time

Academic-related memory

1 Forgets the names of classmates
2 Forgets to return notes from home
3 Needs to be reminded of eating procedures
4 Remembers directions for class assignments
5 Remembers teacher's name
6 Remembers where things go in the classroom

Problem Solving

1 Asks complex questions
2 Asks for help on a task before trying to solve it, after directions have been given
3 Chooses difficult or challenging problems or assignments
4 Correctly identifies a problem
5 Enjoys figuring out how things work

6 Enjoys playing games that require thought (e.g., Memory, Go Fish)
7 Finds creative ways to solve problems
8 Finds effective shortcuts to get things done
9 Finds new ways to do things
10 Finds unintended uses for items (e.g., uses toy as a stencil)
11 Is inventive
12 Loves a challenge
13 Problem solving strategies are immature
14 Resolves arguments without adult intervention
15 Takes longer than peers to solve simple problems
16 Tries different ways of doing things

APPENDIX C

PHASE 1, EXPERT PANEL FORMS

Expert Panel Cover Letter

May 28, 2005

Dear Panelist:

I am writing to invite you to serve on a panel of experts to evaluate a series of rating scales that I am developing with Dr. Cecil R. Reynolds. I selected you for this invitation based on your expertise in the areas of psychology and/or education. This set of rating scales is entitled Ratings of Everyday Academic and Cognitive Skills (REACS). Its goal is to be a research-based measure of behaviors and skills that are predictive of academic performance in children ages 4 to18.

This study is being conducted for my dissertation project, one of the requirements for the doctorate degree in school psychology at Texas A&M University. Although I would be grateful for your participation, you will not be compensated for your time. If you choose to help, you will receive acknowledgement for your services in my dissertation paper, as well as in the test manual, if the REACS is published for commercial use. If you do not want your name mentioned, please indicate this preference on the informed consent, by signing your name on the appropriate line. In this case, your participation will be kept confidential.

If you agree to participate, you will be asked to provide your judgments regarding the breadth of content covered in the REACS scales. You will also be asked to evaluate items for potential offensiveness to individuals from culturally diverse groups. You will record your evaluations on the form provided and directly on the REACS rating scales. The version of the REACS you will receive has been modified to assist you in your evaluation. These modifications include grouping the items by subject matter, removing the likert scale from each item, and double-spacing the form to provide adequate space for comments. In addition, to save time for teachers filling out multiple forms, the demographic information about the teachers is on a separate page, instead of the top of each form.

If you are willing to participate in this study, please complete both copies of the informed consent form. Keep one copy for your records and place the second copy in the enclosed envelope. Then proceed with the REACS Evaluation Form and follow the instructions.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Angelia Raines, Director of Research Compliance, Office of Vice President for Research at (979) 458-4067 (araines@vprmail.tamu.edu).

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

Thank you for your time and participation.

Sincerely,

Gordon D. Lamb
3706 Valley Oaks Dr.
Bryan, TX 77802
979-846-1207
REACSstudy@yahoo.com

Ratings of Everyday Academic and Cognitive Skills (REACS)
Evaluation Form

Instructions: Begin by reading through this evaluation form to get a general idea of the information requested of you. Then read the Scale Definitions form. Go through each of the six REACS forms, making comments on the rating scale and/or the evaluation form as you go. When writing on the rating scales, please use red ink so your comments are easy to see. After reading the REACS forms in their entirety, please complete this evaluation form. When you are finished, place all forms in the enclosed envelope and return to Gordon D. Lamb.

In order to obtain information about our reviewers, please complete the following:

Your Name (Optional) _____

Ethnicity (check all that apply)
___ White/Non-Hispanic
___ African-American
___ Hispanic
___ Asian/Pacific Islander
___ Other; please specify
_____

Primary Occupation?
___ Teacher
___ Psychologist
___ Student
Years at present position ___
Job Title _____

Highest level of education?
___ Bachelors (Major) _____
___ Masters (Major) _____
___ Specialist (Major) _____
___ Doctorate (Major) _____

1) Are there any items you feel would be offensive to the reader or to members of particular culturally diverse groups? Please suggest how to reword such items, or indicate items that should be deleted altogether. Make these comments directly on the scale, in the space below each item. Please cite your reason for making the change (e.g., *co* for culturally offensive.)

2) Are there any items that appear ambiguous or difficult to understand for the intended reader? Please suggest how to reword such items, or indicate items that should be deleted altogether. Make these comments directly on the scale, in the space below each item. Please cite your reason for making the change (e.g., *am* for ambiguous.)

3) Conceptually do you have any reservations and/or concerns about any part of the rating scale? Yes / No
If yes, please explain:
_____
_____
_____
_____

4) Do you believe the information from the REACS will provide valuable information and intervention ideas to professionals who work with students? Yes / No
If no, please comment:
_____
_____
_____
_____

5) Are there any additional items that need to be included to improve the measurement of the constructs in this rating scale? Please indicate any additional items for each scale and indicate the age group(s) affected.

Math – Yes / No
If yes, items and age group(s):
_____
_____

Reading– Yes / No
If yes, items and age group(s):
_____
_____

Writing – Yes / No
If yes, items and age group(s):
_____
_____

Symbolic Expressive Language – Yes / No
If yes, items and age group(s):
_____
_____

Symbolic Receptive Language – Yes / No
If yes, items and age group(s):
_____
_____

Verbal Expressive Language – Yes / No
If yes, items and age group(s):
_____
_____

Verbal Receptive Language – Yes / No
If yes, items and age group(s):
_____
_____

Learning – Yes / No
If yes, items and age group(s):
_____
_____

Memory for Events – Yes / No
If yes, items and age group(s):
_____
_____

Memory for Schedules – Yes / No
If yes, items and age group(s):
_____
_____

Personal Memory – Yes / No
If yes, items and age group(s):
_____
_____

Academic Related Memory – Yes / No
If yes, items and age group(s):
_____
_____

Problem Solving – Yes / No
If yes, items and age group(s):
_____
_____

Attention – Yes / No
If yes, items and age group(s):
_____
_____

Hyperactivity – Yes / No
If yes, items and age group(s):
_____
_____

Impulse Control – Yes / No
If yes, items and age group(s):
_____
_____

Organization – Yes / No
If yes, items and age group(s):
_____
_____

6) Please indicate any other suggestions, reactions, or concerns that you believe will be helpful to this research endeavor.
Comments:
_____
_____
_____
_____
_____
_____
_____

Feel free to provide additional comments on the REACS forms themselves, or on additional sheets of paper.

Thank you for completing the evaluation form.

Please place this evaluation form and the REACS forms in the enclosed envelope, and return to Gordon D. Lamb.

Expert Panel Scale Definitions

Below are the names and definitions of each scale:

1) Math - The ability to use numbers to measure, add, subtract, multiply, or divide

2) Reading - The ability to interpret accurately the written word

3) Writing - The ability to transmit knowledge and ideas through an agreed upon system of written symbols

4) Symbolic Expressive Language - Communicating through symbols or gestures in a way that is understandable by others

5) Symbolic Receptive Language –The ability to understand the symbols or gestures communicated by others

6) Verbal Expressive Language - Communicating through the spoken word in a way that is understandable by others

7) Verbal Receptive Language - The ability to understand the verbal communication of others

8) Learning - The acquisition of knowledge or skills

9) Memory for Events - Memory of the details surrounding an event

10) Memory for Schedules - Memory for the time and location of upcoming events

11) Personal Memory - Memory of information relative to the individual

12) Academic-related Memory - Memory for things pertaining directly to the school setting

13) Problem Solving - Logically thinking one's way through a problem to arrive at a reasonable and acceptable solution

14) Attention - The ability to sustain concentration or "respond to tasks or play activities as long as others of the same age" (Barkley, 1996, p. 67)

15) Hyperactivity - When one's activity level is in excess of what is appropriate in a given situation (Schroeder & Gordon, 2002)

16) Impulse control - The ability to regulate inappropriate urges (Schroeder & Gordon, 2002)

17) Organization - The ability to arrange things, ideas, or time in a coherent, systematic manner

APPENDIX D

PHASE 2, PILOT STUDY FORMS

Pilot Study Superintendent Cover Letter

1907 Birchwood Dr.
Barnhart, MO 63012
June 6, 2006

Dear Superintendent:

I am a doctoral student in the School Psychology program at Texas A&M University. For my dissertation, I have created a series of parent and teacher rating scales of academic- related behaviors. The rating scale is called the Ratings of Everyday Academic and Cognitive Skills or REACS. To come up with the final list of items and determine the quality of this instrument, I need parents and teachers to actually rate children. I also need to see how the REACS compares to other measures that are used to identify children in need of special education services.

I would like to send parent questionnaires home with some of the students in your school and have willing teachers complete a teacher rating scale for several of their students.

This packet includes more specific information about my dissertation project and what it would entail for your school. I have enclosed a brief summary of the study, an outline of the data collection plan, a tentative timeline, and a copy of the materials I will be using.

The REACS is made from the findings of recent research that suggest that teacher and parent ratings of school-related behaviors can be predictive of academic achievement. Past research emphasizes the importance of a child's typical or normal academic performance and its relationship to ability, or best possible performance. The purpose of the REACS is to measure the typical or "everyday" academic and cognitive behaviors of children 4 to 18 years of age, with an emphasis on daily problem solving. It is my hypothesis that utilizing this scale in combination with a measure of intelligence will predict school achievement better than using an intelligence measure alone.

In addition to the REACS' potential predictive value, it also offers an integration of three major facets of school performance: academic, cognitive, and self-regulatory skills. Although many formulas have been developed to assess the relationship between cognitive abilities and academic achievement, the REACS provides a unique opportunity to assess the effect of self-regulation (i.e., activity level, attention, control of impulse, and organization) on academic and cognitive performance.

The items for the REACS were developed after an extensive review of literature. The original items were reviewed by a panel of experts, and changes were made to reflect their suggestions. Currently the scale is too long for practical use. I have divided each scale into two alternate forms. The present study will determine the quality of each item on the split REACS forms, so that the best items can be combined into a shorter form. To do this, I need parents and teachers to complete these forms. This will allow me to see how each item performs in real life. In a later phase of this study, I will collect additional data to assess the reliability and validity of the combined scale. This study is under the direction of Dr. Cecil Reynolds, a professor in the Department of Educational Psychology at Texas A&M University, and is conducted as part of my training to obtain a Ph.D. in school psychology.

I need to collect 300 parent/guardian ratings and 300 teacher ratings for a diverse group of children age 6 to 18. I would like all or a random sample of the parents/guardians and teachers in the district to have the opportunity to participate. Those who choose to help will be asked to complete a paper and pencil rating scale about their child's/student's academic-related behaviors. Questions will cover topics such as reading, writing, math, organization, and attention. It will take about 20 minutes to complete one rating scale. All participants will also be asked to complete a form asking for demographic information, such as ethnicity, gender, and education level, so that I can report the demographic makeup of the sample in general. The risks associated with participating in the study are expected to be no greater than taking a paper and pencil test at school.

This study is confidential. All records will be kept private. No information about individuals' participation or their ratings will be shared with the school. Results will be reported as group data. No identifiers linking individuals to the study will be included in any report that might be published. Records will be stored securely. Only Cecil Reynolds, myself, and those under our supervision will have access to them. The decision whether or not to participate will not effect potential participants' current or future relations with Texas A&M University nor should it affect their standing with the school. Those who decide to participate may refuse to answer any question that makes them uncomfortable. Individuals can withdraw at any time without their relations with the university being affected. The decision to withdraw should not affect their relations with the school.

Parent/guardian packets will be handed out by willing teachers to students. Students should take the packet home to their parents and then return it to their teacher. The packet should be returned, completed or not. Classrooms will compete for a lunch party. I will provide a lunch party for the class that has the highest return rate of envelopes. Teachers who participate in this study will be entered in a drawing for a $20 gift card to a local fast food restaurant.

If your school agrees to participate, I need the following:

1. A brief letter to principals stating that I have the school district's approval to conduct the study
2. A contact person for each building
3. A designated location for teachers to return the packets they collect (e.g., a copy paper box by the teacher mail boxes)
4. Permission to provide a brief explanation about the study to the teachers. Ideally, I want to hold a short meeting with all teachers where I describe the study, answer questions, and obtain signed informed consent forms from teachers willing to participate.
5. Willing teachers to send REACS packets home with students to give their parents
6. Willing teachers to collect returned packets and place them in a designated place
7. Willing teachers to complete REACS forms on up to 10 of their students

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Angelia Raines, Director of Research Compliance, Office of the Vice President for Research at (979) 458-4067 (araines@vprmail.tamu.edu).

If you have any questions, please contact me (636-464-0690, gdl041s@tamu.edu. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

Thank you for your time.

Sincerely,

Gordon D. Lamb
Doctoral Student
Texas A&M University

Pilot Study Principal Cover Letter

1907 Birchwood Dr.
Barnhart, MO 63012
June 6, 2006

Dear Principal:

I am a doctoral student in the School Psychology program at Texas A&M University. I have received approval from Dr. Duran to conduct a study in your school district for my dissertation. I am contacting you to find out if your school would be willing to participate.

For my dissertation I have developed a series of ratings scales called the Ratings of Everyday Academic and Cognitive Skills (REACS). The REACS is made from the findings of recent research that suggest that teacher and parent ratings of school-related behaviors can be predictive of academic achievement. Past research emphasizes the importance of a child's typical or normal academic performance and its relationship to ability, or best possible performance. The purpose of the REACS is to measure the typical or "everyday" academic and cognitive behaviors of children 4 to 18 years of age, with an emphasis on daily problem solving. It is my hypothesis that utilizing this scale in combination with a measure of intelligence will predict school achievement better than using an intelligence measure alone.

In addition to the REACS' potential predictive value, it also offers an integration of three major facets of school performance: academic, cognitive, and self-regulatory skills. Although many formulas have been developed to assess the relationship between cognitive abilities and academic achievement, the REACS provides a unique opportunity to assess the effect of self-regulation (i.e., activity level, attention, control of impulse, and organization) on academic and cognitive performance.

The items for the REACS were developed after an extensive review of literature. The original items were reviewed by a panel of experts, and changes were made to reflect their suggestions. Currently the scale is too long for practical use. I have randomly divided each scale into two alternate forms. The present study will determine the quality of each item on the split REACS forms, so that the best items can be combined into a shorter form. To do this, I need parents and teachers to complete these forms. This will allow me to see how each item performs in real life. In a later phase of this study, I will collect additional data to assess the reliability and validity of the combined scale. This study is under the direction of Dr. Cecil Reynolds, a professor in the Department of Educational Psychology at Texas A&M University, and is conducted as part of my training to obtain a Ph.D. in school psychology.

I need to collect 100 parent/guardian ratings and 100 teacher ratings for a diverse group of children age 6 to 11. I would like all or a random sample of the parents/guardians and teachers in the building to have the opportunity to participate. Those who choose to help will be asked to complete a paper and pencil rating scale about their child's/student's academic-related behaviors. Questions will cover topics such as reading, writing, math, organization, and attention. It will take about 20 minutes to complete one rating scale. All participants will also be asked to complete a form asking for demographic information, such as ethnicity, gender, and education level, so that I can report the demographic makeup of the sample in general. The risks associated with participating in the study are expected to be no greater than taking a paper and pencil test at school.

This study is confidential. All records will be kept private. No information about individuals' participation or their ratings will be shared with the school. Results will be reported as group data. No identifiers linking individuals to the study will be included in any report that might be published. Records will be stored securely. Only Cecil Reynolds, myself, and those under our supervision will have access to them. The decision whether or not to participate will not effect potential participants' current or future relations with Texas A&M University nor should it affect their standing with the school. Those who decide to participate may refuse to answer any question that makes them uncomfortable. Individuals can withdraw at any time without their relations with the university being affected. The decision to withdraw should not affect their relations with the school.

Parent/guardian packets will be handed out by willing teachers to students. Students should take the packet home to their parents and then return it to their teacher. The packet should be returned, completed or not. Classrooms will compete for a lunch party. I will provide a lunch party for the class that has the highest return rate of envelopes. Teachers who participate in this study will be entered in a drawing for a $20 gift card to a local fast food restaurant.

If your school agrees to participate, I need the following:

1. A contact person from your building
2. A designated location for teachers to return the packets they collect (e.g., a copy paper box by the teacher mail boxes)
3. Willing teachers to send REACS packets home with students to give their parents
4. Willing teachers to collect returned packets and place them in the designated place
5. Willing teachers to complete REACS forms on up to 10 of their students

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board

through Ms. Angelia Raines, Director of Research Compliance, Office of the Vice President for Research at (979) 458-4067 (araines@vprmail.tamu.edu).

If you have any questions, please contact me (636-464-0690, REACSStudy@yahoo.com). You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

Thank you for your time.

Sincerely,

Gordon D. Lamb
Doctoral Student
Texas A&M University

Pilot Study Data Collection Plan/Timeline Given to Building Principal

Ratings of Everyday Academic and Cognitive Skills in Evaluation of School Learning and Learning Problems: Initial Scale Development and Validation

Researcher Visit 1

A. Hand out parent packets to teachers for distribution
    1. Parent packets in envelope
        a. Cover letter
        b. Rating scale form
        c. Return envelope with label
    2. Teacher instructions for handing out packets
    3. Box to collect returned forms
B. Hand out teacher packets to willing teachers
    1. Teacher packets in folder
        a. Demographic form
        b. Copies of rating scale
        c. Teacher instructions for completing rating scales
    2. Teachers have 2 weeks to complete forms

Interim

A. Teachers send home packets to parents during the next week
    1. Collect forms as they are returned (2 week deadline)
    2. Keep track of who returned an envelope for the lunch party competition
B. Teachers complete forms on their students

Researcher Visit 2 (approximately 2 weeks after the first visit)

A. Pick up parent and teacher forms

Pilot Study Parent Cover Letter

1907 Birchwood Dr.
Barnhart, MO 63012
October 6, 2006

Dear Parent:

Research suggests that parents can provide valuable information about their children's school-related behaviors. This information could help professionals assist children who have difficulty in school. Currently there is not a standard way of getting this information. For my dissertation, I created a set of rating scales called the Ratings of Everyday Academic and Cognitive Skills (REACS). My goal is to make these scales available to school personnel across the country. The information from the scales may help school personnel better serve each student.

The REACS was created after a review of research about signs of school success and failure. It was then reviewed by an expert panel of psychologists and school teachers. The REACS has never been used by parents to rate their children. The purpose of this study is to assess the quality of the REACS questions when completed by parents. This study is under the direction of Dr. Cecil Reynolds, a professor in the Department of Educational Psychology at Texas A&M University, and is conducted as part of my training to obtain a Ph.D. in school psychology. Your school agreed to help with this study by sending and collecting forms.

I need to obtain the ratings of a diverse group of children age 4-18. I would like 300 parents/guardians to participate. All or a random sample of parents/guardians of children in your child's classroom received the opportunity to participate. If you choose to help, you will be asked to complete a paper and pencil rating scale about your child's academic-related behaviors. Questions will cover topics such as reading, writing, math, organization, and attention. It will take about 20 minutes to answer these questions. The risks associated with participating in the study are expected to be no greater than taking a paper and pencil test at school.

This study is confidential. All records will be kept private. No information about your participation or your ratings will be shared with your child's school. Results will be reported as group data. No identifiers linking you to the study will be included in any report that might be published. Records will be stored securely. Only Cecil Reynolds, myself, and those under our supervision will have access to them. Your decision whether or not to participate will not affect your current or future relations with Texas A&M University or your child's school. If you decide to participate, you may refuse to answer any question that makes you uncomfortable. You can withdraw at any time without your relations with the university or your child's school being affected.

If you are willing to help, please complete the rating scale, place it in the enclosed envelope, and return it to your child's teacher. Your consent to participate is indicated by your completion and return of the rating scale. If you choose not to participate, please leave the forms blank, place them in the enclosed envelope, and return the envelope to your child's teacher. This allows the uncompleted forms to be reused. Returning the envelope, forms completed or not, will help your child's class earn a lunch party. The class with the highest percentage of forms returned will receive the party. In the event of a tie, a drawing will be used to determine the winner.
If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Angelia Raines, Director of Research Compliance, Office of the Vice President for Research at (979) 458-4067 (araines@vprmail.tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon Lamb

Gordon D. Lamb
636-464-0690
REACSstudy@yahoo.com

Instructions

If you are participating

1. Complete the REACS parent rating scale form.
2. Place the rating scale in the enclosed envelope.
3. Seal the envelope and return it to your child's teacher.
4. Your child's class will receive a lunch party if they have the highest percentage of forms returned.

If you are not participating

1. Do not write on any of the forms.
2. Place all forms in the enclosed envelope.
3. Seal the envelope and return it to your child's teacher.
4. Your child's class will receive a lunch party if they have the highest percentage of forms returned.

Pilot Study Parent Cover Letter—Flyer Version

1907 Birchwood Dr.
Barnhart, MO 63012
July 28, 2006

Dear Parent:

Research suggests that parents can provide valuable information about their children's school-related behaviors. This information could help professionals assist children who have difficulty in school. Currently there is not a standard way of getting this information. For my dissertation, I created a set of rating scales called the Ratings of Everyday Academic and Cognitive Skills (REACS). My goal is to make these scales available to school personnel across the country. The information from the scales may help school personnel better serve each student.

The REACS was created after a review of research about signs of school success and failure. It was then reviewed by an expert panel of psychologists and school teachers. The REACS has never been used by parents to rate their children. The purpose of this study is to assess the quality of the REACS questions when completed by parents. This study is under the direction of Dr. Cecil Reynolds, a professor in the Department of Educational Psychology at Texas A&M University, and is conducted as part of my training to obtain a Ph.D. in school psychology. You received this letter based on your response to a flyer or personal solicitation.

I need to obtain the ratings of a diverse group of children age 4-18. I would like 300 parents/guardians to participate. If you choose to help, you will be asked to complete a paper and pencil rating scale about your child's academic-related behaviors. Questions will cover topics such as reading, writing, math, organization, and attention. It will take about 15 minutes to answer these questions. The risks associated with participating in the study are expected to be no greater than taking a paper and pencil test at school.

This study is confidential. All records will be kept private. Results will be reported as group data. No identifiers linking you to the study will be included in any report that might be published. Records will be stored securely. Only Cecil Reynolds, myself, and those under our supervision will have access to them. Your decision whether or not to participate will not affect your current or future relations with Texas A&M University. If you decide to participate, you may refuse to answer any question that makes you uncomfortable. You can withdraw at any time without your relations with the university being affected.

If you are willing to help, please complete the rating scale, place it in the enclosed envelope, and return it as instructed. Your consent to participate is indicated by your completion and return of the rating scale. If you choose not to participate, please leave

the rating scale blank, place it in the enclosed envelope, and return it as instructed. This allows the uncompleted forms to be reused. If you prefer, you may place your envelope in the mail.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Angelia Raines, Director of Research Compliance, Office of the Vice President for Research at (979) 458-4067 (araines@vprmail.tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon Lamb

Gordon D. Lamb
636-464-0690
REACSstudy@yahoo.com

Summary of Instructions

If you are participating:	**If you are not participating:**
1. Complete the REACS parent rating scale form.	1. Do not write on any of the forms.
2. Place the rating scale in the enclosed envelope.	2. Place them in the enclosed envelope.
3. Seal the envelope. Return as instructed or mail it.	3. Seal the envelope. Return as instructed or mail it.

Pilot Study Teacher Cover Letter

1907 Birchwood Dr.
Barnhart, MO 63012
October 10, 2006

Dear Teacher:

Research suggests that teachers can provide valuable information about their students' everyday academic behaviors, leading to personalized interventions for students with academic difficulties. Although there are many teacher rating scales, there is not a scale that integrates information regarding a student's academic, cognitive, and self-regulatory skills. I believe integrating these areas into one measure would allow professionals to better understand how these areas interact, thereby leading to better interventions. For my dissertation, I created a set of rating scales called the Ratings of Everyday Academic and Cognitive Skills (REACS). My dissertation project is under the direction of Cecil R. Reynolds, Ph.D. in the Department of Educational Psychology at Texas A&M University. The purpose of this study is to assess the quality of the items on this scale. My goal is to make the REACS available to school professionals across the country.

Your school has allowed me to ask for your help. I need teachers to coordinate the distribution and collection of parent forms to students in their classrooms. This will involve sending home packets with students and collecting the forms when returned. I also need teachers to participate by rating their students. If you agree, you will be asked to complete a paper and pencil rating scale about the academic-related behaviors of 1 to 10 of your students. The REACS covers the academic areas of math, reading, and writing; cognitive areas of language, learning, memory, and problem solving; and the self-regulatory areas of attention, hyperactivity, impulse control, and organization. It is estimated to take 20 minutes to complete one REACS form. As is common in many studies, I will also ask for information about you, such as your gender and ethnicity, so that I can report the demographic makeup of participating teachers.

Because this is for my dissertation and I have no outside funding, no compensation is available to you nor are there any anticipated benefits for participating. As a thank you for participating, you will be entered in a drawing for a $20 gift card to a local fast food restaurant. The classroom with the highest return rate of parent forms, completed or not, will receive a lunch party.

If you choose to participate, please complete both copies of the informed consent. Keep one copy for your records. Place the other copy in the enclosed envelope, and return it to the place designated by your school. If you choose not to participate, please return the packet to the place designated by your school, without marking on the forms. This will allow the forms to be reused.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Angelia Raines, Director of Research Compliance, Office of the Vice President for Research at (979) 458-4067 (araines@vprmail.tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon D. Lamb
636-464-0690
REACSstudy@yahoo.com

Pilot Study Teacher Informed Consent

Ratings of Everyday Academic and Cognitive Skills in Evaluation of School Learning and Learning Problems: Initial Scale Development and Validation

I have been asked to participate in a study about school-related behaviors of students age 4 to 18. Approximately 300 teachers will participate. My school was asked to participate based on proximity to the researcher's home and/or its diverse or unique demographic makeup. All or a random sample of teachers in my school were asked to participate. The purpose of this study is to assess the quality of the questions on the Ratings of Everyday Academic and Cognitive Skills (REACS). This study is the dissertation project for Gordon Lamb. He is under the direction of Cecil R. Reynolds, Ph.D. in the Department of Educational Psychology at Texas A&M University. The goal is to make these scales available to school professionals across the country.

I have been asked to coordinate the distribution and collection of parent forms to students in my classroom. This will involve sending home packets with my students and collecting the forms when returned. I understand that this process will take 2 to 3 weeks. The initial explanation and distribution to students may take 10 minutes of class time. The collection of forms may take up to 3 minutes each day students return forms.

I have been asked to complete a paper and pencil rating scale about the classroom behaviors of one to ten students in my class(es). These behaviors include reading, writing, math, organization, and attention. Completing the rating scale for one student will take about 20-30 minutes of my time. The risks associated with participation are expected to be no greater than taking a paper and pencil test at school. I will receive no compensation for my participation. There are no expected benefits to me as a result of my participation; however, I will be entered in a drawing for a $20 gift card to a local fast food restaurant. The classroom with the highest return rate, forms completed or not, will receive a lunch party.

This study is confidential. All consent forms will be stored in a locked filing cabinet for three years, in a separate location from the protocols. The records of this study will be kept private. Results of this study will be reported as group data. No identifiers linking me to the study will be included in any report that might be published. Research records will be stored securely and only Gordon D. Lamb, Cecil R. Reynolds, and those under their supervision will have access to them. No comparisons will be made between individual classrooms. I will not be given access to the ratings of any parent. My decision whether or not to participate will not affect my current or future relations with Texas A&M University or my school. If I decide to participate, I may refuse to answer any question that makes me uncomfortable. I can withdraw at any time without my relations with the university or my school being affected. I can contact Gordon D. Lamb or Cecil R. Reynolds with any questions about this study.

My initials below indicate my willingness to participate in this study. I will initial all that apply.

_____ I agree to coordinate the distribution and collection of parent forms to students in my classroom.

_____ I agree to complete rating scales on 1 to 5 of my students.

_____ I agree to complete rating scales on 6 to 10 of my students.

I may be chosen at random to provide help from the list I selected above. If chosen, I will be contacted within 2 months. At any time I can choose not to participate without explanation.

I understand that this research study has been reviewed and approved by the Institutional Review Board- Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, I can contact the Institutional Review Board through Ms. Angelia Raines, Director of Research Compliance, Office of the Vice President for Research at (979) 458-4067 (araines@vprmail.tamu.edu).

I have read and understand the explanation provided me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study. I have been given a copy of this consent form. By signing this document, I consent to participate in this study.

Signature: _____ Date: _____

Printed Name: _____

Signature of Investigator: _____ Date: _____

Printed Name: _____

Gordon D. Lamb
1907 Birchwood Dr.
Barnhart, MO 63012
636-464-0690
REACSstudy@yahoo.com

Cecil R. Reynolds
Department of Educational Psychology, TAMU
College Station, TX 77843-4225
512-656-5075
crrh@earthlink.net

Pilot Study Teacher Instructions for Distributing and Collecting Forms

Thank you for agreeing to participate in this study. Listed below are some suggestions for handing out and collecting the forms. Because you know your students best, I ask you to also use your own judgment and ideas for making this process as successful and easy as possible.

Handing Out Forms

1. Choose the appropriate time to hand out the forms.
    a. The best time may be at the very end of the day or class period.
    b. If you have a regular day on which communication from the school is sent home, send the packets home on that day.
    c. Give out the packets at the beginning or middle of the week so they are not forgotten over a weekend (especially over a long weekend).
2. Tell the students about the study.
    a. Our school has decided to participate in a research study to help a student with his dissertation.
    b. Your parents will be asked to complete a questionnaire about things they commonly see you do. This study is trying to learn how the things you do at home and school relate to how well you do in school.
    c. Your parent's answers will not be shown to me or any school staff.
    d. Participation in this study is completely voluntary. Participation by your parents will not affect your grades or standing in the school in any way
    e. The classroom that has the most people return the forms will win a lunch party.
3. Tell students the deadline for returning the forms (approximately 2 weeks later; deadline should coincide with researcher's next visit).
4. Inform students of procedure for returning forms.

Collecting Forms

1. Designate a specific time (e.g., at the beginning of class) to collect the packets.
2. Have students get out envelopes and make sure their teacher's name and school are written on the envelope. If not, have the students write it on the envelope themselves. (In case the collection box spills, this will help me regroup the forms. Once the envelopes are opened and an ID number placed on the forms, the envelopes will be discarded.)
3. Collect envelopes from the students, double check that each envelope has your name and school.
4. Keep a list of who returns an envelope (mark in grade book, keep a list of names, etc.).
    a. Will help you know who to remind to return forms
    b. Will provide a count of returned forms for the lunch party competition

5. Encourage and remind your students to bring back the forms, so they can win the party.
6. At the end of the one week period, count the number of students who returned an envelope. Write this number on a piece of paper, along with your name and total number of students in your classroom.
7. Return the forms and the paper with your numbers to the designated location for your building.
8. Continue to collect forms that are returned after the deadline.

If there are any questions regarding what to do or any concerns that you feel should be brought to my attention, please contact me (REACSstudy@yahoo.com, (636-464-0690). You may also contact Dr. Reynolds, my advisor, if needed (crrh@earthlink.net, 512-656-5075).

Gordon D. Lamb
Doctoral Candidate
Texas A&M University

Pilot Study Teacher Instructions for Completing Rating Scales

Thank you for your participation.

Listed below are your instructions. Please read through the instructions and follow them carefully. If there are any questions regarding what to do or any concerns that you feel should be brought to my attention, please contact me (REACSstudy@yahoo.com, 636-464-0690). You may also contact Dr. Reynolds, my advisor, if needed (crrh@earthlink.net, 512-656-5075).

a. This packet contains a teacher demographic form, up to 10 REACS teacher rating scales, and a list of random numbers.

b. Do not put your name on any form in the packet. The pre-printed number will be used instead of your name.

c. Complete the Teacher Demographic Form. You only need to complete this form one time.

d. For each of these forms, randomly choose one of your students to rate, keeping track of which students you rated to avoid rating the same student twice. Feel free to mark the forms with a fake name or a number, for your convenience, but do not place the student's real name on the rating scale. If you choose to mark the forms with a fake name or number, keep your key. Do not put it in the packet.

5) General guidelines for providing ratings:

a. To randomly select students to rate, use the list of random numbers provided in the packet. Detailed instructions on how to use the list is included with the list of random numbers.

b. Thoroughly read the instructions on the REACS form before completing the scale.

c. Do not complete more than a few forms in one sitting. Spreading out your ratings will keep you from becoming tired, which could affect your ratings. Use your own judgment to decide when to take breaks.

d. If you need replacement forms for any reason, do not borrow a form from another participating teacher. Contact me with the number that was pre-printed on your other forms, so I can send you a replacement.

If you do not have time to complete all the scales included in the packet, please complete as many as you can. Any help you provide is welcome and greatly appreciated. Please return the unused forms with the completed forms. The unused forms can then be reused.

Thank you again for your participation. If you have any questions, please contact me.

Gordon D. Lamb
Doctoral Candidate
Texas A&M University

Pilot Study Instructions for Randomly Selecting Students

This page has lists of random numbers for different class sizes: class size 1-30, class size 31-50, and class size 51-100.

1. Find the list of numbers that matches your class size.

2. Go down the list of numbers in order, starting on the left and going down an entire column before moving to the next column. Match the number from the list to the row numbers next to student names listed in your grade book. If you do not use a grade book, use a class roster and number the students' names in order.

3. If you come to a number that does not have a corresponding student's name, skip that number and go to the next number on the list.

4. Continue in this manner until you have identified all the students you need to rate.

Use the example given below to clarify the instructions:

Example List of Random Numbers, Class Size 1-10

7	3
1	10
9	6
2	4
8	5

Example Class Roster

1 Abernathy, Theresa
~~2 Brown, Justin~~ (moved away)
3 Rodriguez, Manuel
4 Smith, David
5 Johnson, Stephanie (new student added to roster)

Steps Teacher Would Follow in this Example

1. Use the list of numbers for Class Size 1-10.
2. Start with 7. No student exists for that number. Skip it and go to the next number, 1.
3. Find the student in the grade book corresponding to row number 1, Theresa Abernathy. Rate this student.
4. Skip number 9, no student match.
5. Skip number 2, student is no longer in class.

6. Skip number 8, no student match.
7. Go on to the next column, starting with 3. This corresponds to Manuel Rodriquez. Rate this student.
9. Continue through the rest of the numbers until you have all the names you need.

Random Number Tables

Class size 1-30

2	29	22	10	5
15	13	20	21	11
14	7	18	17	4
24	26	25	23	6
30	16	19	1	27
3	12	9	8	28

Class size 31-50

45	23	26	9	37
34	33	18	3	5
48	43	10	20	1
13	22	21	16	31
46	30	36	40	49
15	27	32	50	28
14	29	42	11	24
25	12	38	47	44
7	41	8	19	4
35	2	39	6	17

Class size 51-100

36	26	89	62	83	58
84	79	57	94	39	19
31	81	47	11	18	29
21	35	61	4	8	10
71	69	49	59	15	85
20	78	96	41	6	67
34	64	23	70	27	52
76	7	24	5	88	3
65	91	66	30	77	53
44	92	74	68	80	72
90	32	17	22	37	
14	73	50	43	97	
51	46	9	98	42	
33	28	82	12	1	
13	55	38	99	48	
45	40	86	95	93	
54	2	63	100	16	
60	75	87	25	56	

APPENDIX E

PHASE 3, VALIDATION STUDY FORMS

Validation Study Preschool Director Cover Letter

20251 SW Midline St.
Aloha, OR 97006
November 13, 2007

Dear Preschool Director:

Thank you for agreeing to consider participating in my dissertation study. I am trying to measure everyday academic and cognitive skills in preschool children. To do this, I created a parent and teacher rating scale. Now I need to fine tune the list of questions and understand the quality of the rating scale as a whole.

To accomplish this goal, I need individuals to participate in several ways. Primarily, I need parents and teachers to complete the rating scale on their child or student. This will be the bulk of my data, approximately 150 completed parent and teacher forms.

In addition, I also need several smaller groups of 30 individuals each. I need forms completed by a second parent and teacher. I need parents and teachers to complete the form again a few weeks later. Finally, I need to test 30 children. This would require the parent and teacher to complete an additional rating scale on the child. The child would participate in 60-90 minutes of testing. Testing would include a measure of cognitive ability, memory, and academic achievement. The tests being used are geared toward preschool children.

You can decide the level of participation of your facility. To help you make this decision, I am enclosing a copy of the informed consent, cover letter, and rating scale for both parents and teachers. More information about the study is found on these forms, including incentives for participation. Your participation at any level is both needed and welcome.

Someone from my study will contact you in a few days to answer your questions and provide any other information you might need. At that time, we will discuss when to begin and the details of how the forms will be given and collected.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon Lamb

Gordon D. Lamb
Doctoral Candidate
Texas A&M University
503-629-8696
REACSstudy@yahoo.com

Validation Study Principal Cover Letter

20251 SW Midline St.
Aloha, OR 97006
November 5, 2007

Dear Principal:

I am a graduate student at Texas A&M University working on my Ph.D. in School Psychology. My family and I recently moved to the area so I can complete my internship. For my dissertation, I am trying to measure everyday academic and cognitive skills through parent and teacher report. So far, I have written the initial scale and conducted a pilot study. Now I need to see how well the scale fulfills its intended purpose.

To accomplish this goal, I need your help. I need parents and teachers to complete the rating scale on their child or student. This will be the bulk of my data (about 150 parent and teacher forms across the participating schools). Classes will compete for a lunch party, based on percentage of forms returned. Teachers who participate will be entered in a drawing for a $20 gift card to a fast food restaurant.

I also need several groups of 30 (across participating schools). I need forms completed by a second parent and teacher. I need parents and teachers to complete the form again a few weeks later. Finally, I need to test 30 children. This would require an additional form from the parent and teacher, and 60-90 minutes of testing with the child. The tests are geared toward preschool children. For those who help with the testing, teachers would receive $10. Parents would receive $10 if the testing occurred at school, and $20 if the testing occurred at another location (such as a public library). All incentives are given only if allowed by the school.

As the administrator, you can decide the level of participation of your school. Any help you could give would be greatly appreciated. To help you make this decision, I am enclosing a copy of the teacher and parent forms, as they will receive them. I have also provided a list of ways confidentiality will be safeguarded during the study.

Either I or someone from my study will contact you in a few days to answer your questions and provide any other information you might need. At that time, we will discuss when to begin and the details of how the forms will be given and collected.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon D. Lamb
Doctoral Candidate
Texas A&M University
503-629-8696
REACSstudy@yahoo.com

Validation Study Parent Cover Letter

20251 SW Midline St.
Aloha, OR 97006
November 13, 2007

Dear Parent:

Research suggests that parents can provide valuable information about their children's school-related behaviors. This information could help professionals assist children who have difficulty in school. Currently there is not a standard way of getting this information. For my dissertation, I created a set of rating scales called the Ratings of Everyday Academic and Cognitive Skills (REACS). My goal is to make these scales available to school personnel across the country. The information from the scales may help school personnel better serve each student.

The original questions for the REACS were created after a review of research about signs of school success and failure. These questions were reviewed by an expert panel of psychologists and school teachers. Following this review, there were over 340 items. To shorten the length of the REACS, these items were originally split into two separate forms as part of an initial study. Based on that study, the best half of the items were kept for the current version.

The purpose of this study is to assess the quality of the REACS questions to come up with a finalized version. This study is under the direction of Dr. Cecil Reynolds, a professor in the Department of Educational Psychology at Texas A&M University, and is conducted as part of my training to obtain a Ph.D. in school psychology. Your school agreed to help with this study by sending and collecting forms.

I need to obtain the ratings of a diverse group of children age 4 to 18. If you choose to help, you will be asked to complete a paper and pencil rating scale about your child's academic-related behaviors. Questions will cover topics such as reading, writing, math, language, and problem solving. It will take about 15-20 minutes to answer these questions.

If you are willing to help, complete the rating scale, place it in the enclosed envelope, and return it to your child's teacher. If you choose not to participate, please leave the forms blank, place them in the enclosed envelope, and return the envelope to your child's teacher. This allows the uncompleted forms to be reused. Returning the envelope, forms completed or not, will help your child's class earn a lunch party. The class with the highest percentage of forms returned will receive the party. In the event of a tie, a drawing will be used to determine the winner.

In addition to completing the rating scale, there are several additional ways you could help with this study. I need individuals who are willing to complete the same rating scale at a later time, have a second parent/guardian complete a rating scale, have their child's teacher complete rating scales, and/or allow their child to be tested. If you choose to allow your child to be tested, your child will be given a measure of cognitive ability and academic achievement. It is estimated that this testing will take 60-90 minutes. Students who are tested at school will receive $10. Children who are tested at an alternate location (e.g., a public library), will receive $20. The money will be given to the parent, so the parent can decide how the money is spent or given to the child. Children who are tested will also receive a small prize (e.g., pencil or sticker). If you are willing to provide any additional help, please indicate so on the informed consent. You will be contacted later if you are needed.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon Lamb

Gordon D. Lamb
Doctoral Candidate
Texas A&M University
503-629-8696

Summary of Instructions

If you are participating

1. Complete both copies of the informed consent form.
2. Keep one copy for your records.
3. Return the other copy in the enclosed envelope.
4. Complete the REACS rating scale form.
5. Place the rating scale in the enclosed envelope, with the informed consent.
6. Seal the envelope and return it to your child's teacher.

7. Your child's class will receive a lunch party if they have the highest percentage of forms returned.

If you are NOT participating

1. Do not write on any of the forms.
2. Place all forms in the enclosed envelope.
3. Seal the envelope and return it to your child's teacher.
4. Your child's class will receive a lunch party if they have the highest percentage of forms returned.

Validation Study Parent Informed Consent

Ratings of Everyday Academic and Cognitive Skills in Evaluation of School Learning and Learning Problems: Initial Scale Development and Validation

You have been asked to participate in a study about school-related behaviors of children age 4 to 18. Approximately 450 parents/guardians will participate. You were asked to participate based on the participation of your child's school and teacher. All or a random sample of parents/guardians of children in your child's classroom were asked to participate. The purpose of this study is to assess the quality of the questions on the Ratings of Everyday Academic and Cognitive Skills (REACS). This study is the dissertation project for Gordon Lamb. He is under the direction of Cecil R. Reynolds, Ph.D. in the Department of Educational Psychology at Texas A&M University. The goal is to make these scales available to school personnel across the country.

You have been asked to complete a paper and pencil rating scale about your child's school-related behaviors. These behaviors include reading, writing, math, language, and problem solving. Completing the rating scale will take about 15-20 minutes of your time. The risks associated with participation are expected to be no greater than taking a paper and pencil test at school. Although not a requirement for participation, for part of the study you may choose to allow your child to be tested. For doing this you will be given $10, if your child is tested at school, or $20 if you bring your child to an alternate location (e.g., a public library) to be tested. Children who are tested will also receive a small prize (e.g., a pencil or sticker). No other compensation will be given for participating. There are no expected benefits for you or your child for participating; however, participating classrooms will compete for a lunch party. The class with the highest percentage of forms returned, completed or not, will receive the party. In the event of a tie, a drawing will be used to determine the winner.

This study is confidential. All consent forms will be stored in a locked filing cabinet for three years, in a separate location from the protocols. The records of this study will be kept private. Results of this study will be reported as group data. No identifiers linking you to the study will be included in any report that might be published. Research records will be stored securely and only Gordon D. Lamb, Cecil R. Reynolds, and those under their supervision will have access to them. Your decision whether or not to participate will not affect your current or future relations with Texas A&M University or your child's school. If you decide to participate, you may refuse to answer any question that makes you uncomfortable. You can withdraw at any time without your relations with the university or your child's school being affected. You can contact Gordon D. Lamb or Cecil R. Reynolds with any questions about this study.

No information regarding your child's participation status or your ratings will be shared with the school, unless you agree to participate further in this study. In this case, your ratings will be confidential, but your child's name will be available to the teacher(s) to

obtain teacher ratings and to coordinate the other aspects of your or your child's participation. If you agree to let your child be tested, no test results will be shared with your child's school.

Your consent to complete the parent rating scale is indicated by its completion and return. In addition to completing the questionnaire, you may volunteer for further participation. Your initials below indicate your willingness to participate further. Initial all that apply.

_____ 1) Repeat the same rating scale 1 to 6 weeks after the first.

_____ 2) Have your child's teacher(s) complete a teacher version of the REACS about your child.

_____ 3) Have a second parent/guardian, _____ (name), complete the rating scale.

_____ 4) Complete an additional rating scale; have your child, tested with commercially available measures of cognitive ability and academic achievement; and allow your child's teacher(s) to complete questionnaires about your child.

To assist the researcher in getting these additional forms to you, please provide your child's name, class, and teacher's name. This information will only be used to coordinate data collection.

Child's name _____
Class _____
Teacher(s) _____

You may be chosen at random to provide additional help. If chosen, you will be contacted within 2 months. At any time you can choose not to participate without explanation. If your child is chosen to be tested, he/she will be tested at school or an agreed upon alternate location. It is estimated that this testing will take 60-90 minutes.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Please be sure you have read the above information, asked questions, and received answers to your satisfaction. You will be given a copy of the consent form for your records. By signing this document, you consent to participate in the study.

Signature: _____ Date: _____

Printed Name: _____

Signature of Investigator: Gordon Lamb Date: 10/02/2007

Printed Name: Gordon D. Lamb

Audio Taping Consent

The person who gives the cognitive and achievement tests may wish to audiotape some of the answers (e.g., repeating sentences). This will help him/her record your child's responses word for word. These recordings will be erased once your child's answers are transposed. The assessor will ask your child for permission before he/she begins recording. If your child changes his/her mind about being taped during the testing session, he/she may ask for the tape to be turned off. If you do not want your child audio taped, he/she will still be allowed to participate. Please indicate below if you would allow the assessor to audio tape your child's responses.

Put an X on the line marking your answer.

_____ Yes, it's okay to tape your child. _____ No, it's not okay to tape your child.

Contact Information

Please complete the section below. Your contact information may be needed to schedule your child's testing if it cannot be done at school during school hours. This information will be kept confidential. It will be stored with the informed consent in a locked filing cabinet for three years.

Name:

_____

Complete mailing address:

_____

Phone number(s):

_____

Email address:

_____

Thank you in advance for your participation.

Gordon D. Lamb
20251 SW Midline St.
Aloha, OR 97006
503-629-8696
REACSstudy@yahoo.com

Cecil R. Reynolds
Department of Educational Psychology, TAMU
College Station, TX 77843-4225
512-656-5075
crrh@earthlink.net

Validation Study Parent Cover Letter—Flyer Version

20251 SW Midline St.
Aloha, OR 97006
October 26, 2007

Dear Parent:

Research suggests that parents can provide valuable information about their children's school-related behaviors. This information could help professionals assist children who have difficulty in school. Currently there is not a standard way of getting this information. For my dissertation, I created a set of rating scales called the Ratings of Everyday Academic and Cognitive Skills (REACS). My goal is to make these scales available to school personnel across the country. The information from the scales may help school personnel better serve each student.

The original questions for the REACS were created after a review of research about signs of school success and failure. These questions were reviewed by an expert panel of psychologists and school teachers. Following this review, there were over 340 items. To shorten the length of the REACS, these items were originally split into two separate forms as part of an initial study. Based on that study, the best half of the items were kept for the current version.

The purpose of this study is to assess the quality of the REACS questions to come up with a finalized version. This study is under the direction of Dr. Cecil Reynolds, a professor in the Department of Educational Psychology at Texas A&M University, and is conducted as part of my training to obtain a Ph.D. in school psychology. You received this letter based on your response to a flyer or personal solicitation.

I need to obtain the ratings of a diverse group of children age 4 to 18. If you choose to help, you will be asked to complete a paper and pencil rating scale about your child's academic-related behaviors. Questions will cover topics such as reading, writing, math, language, and problem solving. It will take about 15-20 minutes to answer these questions.

If you are willing to help, please the rating scale, place it in the enclosed envelope, and return it to the contact person or place it in the mail. If you choose not to participate, please leave the forms blank, place them in the enclosed envelope, and return it to the contact person or place it in the mail. This allows the uncompleted forms to be reused.

In addition to completing the rating scale, there are additional ways you could help with this study. I need individuals who are willing to complete the same rating scale at a later time and/or have a second parent/guardian complete a rating scale. If you are willing to

provide any additional help, please indicate so on the informed consent. You may be contacted later if you are needed.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon D. Lamb
Doctoral Candidate
Texas A&M University
503-629-8696
REACSstudy@yahoo.com

Summary of Instructions

If you are participating

1. Complete both copies of the informed consent form.
2. Keep one copy for your records.
3. Return the other copy in the enclosed envelope.
4. Complete the REACS rating scale form.
5. Place the rating scale in the enclosed envelope, with the informed consent.
6. Seal the envelope and return it to the contact person or place it in the mail.

If you are NOT participating

1. Do not write on any of the forms.
2. Place all forms in the enclosed envelope.
3. Seal the envelope and return it to the contact person or place it in the mail.

Validation Study Parent Informed Consent—Flyer Version

Ratings of Everyday Academic and Cognitive Skills in Evaluation of School Learning and Learning Problems: Initial Scale Development and Validation

You have been asked to participate in a study about school-related behaviors of children age 4 to 18. Approximately 450 parents/guardians will participate. You were asked to participate based on your response to a flyer or personal solicitation. The purpose of this study is to assess the quality of the questions on the Ratings of Everyday Academic and Cognitive Skills (REACS). This study is the dissertation project for Gordon Lamb. He is under the direction of Cecil R. Reynolds, Ph.D. in the Department of Educational Psychology at Texas A&M University. The goal is to make these scales available to school personnel across the country.

You have been asked to complete a paper and pencil rating scale about your child's school-related behaviors. These behaviors include reading, writing, math, language, and problem solving. Completing the rating scale will take about 15-20 minutes. The risks associated with participation are expected to be no greater than taking a test at school. You will receive no compensation for participating. There are no expected benefits for you or your child for participating.

This study is confidential. All consent forms will be stored in a locked filing cabinet for three years, in a separate location from the protocols. The records of this study will be kept private. Results of this study will be reported as group data. No identifiers linking you to the study will be included in any report that might be published. Research records will be stored securely and only Gordon D. Lamb, Cecil R. Reynolds, and those under their supervision will have access to them. Your decision whether or not to participate will not affect your current or future relations with Texas A&M University. If you decide to participate, you may refuse to answer any question that makes you uncomfortable. You can withdraw at any time without your relations with the university being affected. You can contact Gordon D. Lamb or Cecil R. Reynolds with any questions about this study.

In addition to completing the questionnaire, you may volunteer for further participation. Your initials below indicate your willingness to participate further. Initial all that apply. The following information may be collected about your child, _____ (child's name). Your consent to complete the parent rating scale is indicated by its completion and return.

_____ 1) Repeat the same rating scale 1 to 6 weeks after the first.

_____ 2) Have a second parent/guardian, _____ (name), complete the rating scale.

You may be chosen at random to provide additional help. If chosen, you will be contacted within 2 months. Please complete the contact information if you agree to provide additional help. At any time you can choose not to participate without explanation.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Please be sure you have read the above information, asked questions, and received answers to your satisfaction. You will be given a copy of the consent form for your records. By signing this document, you consent to participate in the study.

Signature: _____ Date: _____

Printed Name: _____

Signature of Investigator: Gordon Lamb Date: 10/02/2007

Printed Name: Gordon D. Lamb

Contact Information

If you agreed to provide additional help, please complete the section below. Your contact information may be needed to coordinate getting additional forms to you. This information will be kept confidential. It will be stored with the informed consent in a locked filing cabinet for three years.

Name:

_____

Complete mailing address:

_____

Phone number(s):

_____

Email address:

_____

Thank you in advance for your participation.

Gordon D. Lamb
20251 SW Midline St.
Aloha, OR 97006
503-629-8696
REACSstudy@yahoo.com

Cecil R. Reynolds
Department of Educational Psychology, TAMU
College Station, TX 77843-4225
512-656-5075
crrh@earthlink.net

Validation Study Parent Cover Letter—2nd Parent

20251 SW Midline St.
Aloha, OR 97006
November 26, 2007

Dear Parent:

As you may already know, I am conducting a study to assess the quality of the questions I developed for a rating scale of children's school-related behaviors. This project is conducted for my dissertation and is under the direction of Cecil R. Reynolds, Ph.D. in the Department of Educational Psychology at Texas A&M University.

Participants were recruited on a volunteer basis based on the participation of your child's school and teacher. All or a random sample of parents/guardians of children in your child's classroom were given the opportunity to participate. Each parent/guardian was given one copy of the rating scale and an informed consent form. On the informed consent, individuals were given the opportunity to have a second parent/guardian complete a copy of the rating scale. You received this letter because the other parent completed a rating scale and gave permission to ask you to complete one as well. Having a second parent/guardian rate the behaviors of the same child allows me to determine how two different raters respond to the same question. I hope to obtain 90 pairs of ratings from parents/guardians.

If you choose to help, you will be asked to complete a paper and pencil rating scale about your child's school-related behaviors. Questions will cover topics such as reading, writing, math, language, and problem solving. It will take about 15-20 minutes to answer these questions. The risks associated with participating in the study are expected to be no greater than taking a paper and pencil test at school. You will receive no compensation, and there are no expected benefits for you or your child as a result of participation.

This study is confidential. The records of this study will be kept private. Results of this study will be reported as group data. No identifiers linking you to the study will be included in any report that might be published. Research records will be stored securely. Only Gordon D. Lamb, Cecil R. Reynolds, and those under their supervision will have access to them. Your decision whether or not to participate will not affect your current or future relations with Texas A&M University or your child's school. If you decide to participate, you may refuse to answer any question that makes you uncomfortable. You can withdraw at any time without your relations with the university or your child's school being affected. No information regarding your participation status or your ratings will be shared with school personnel.

If you are willing to help, please complete the rating scale, place it in the enclosed envelope, and return it to your child's teacher. Your consent to participate is indicated by

your completion and return of the rating scale. If you choose not to participate, please leave the forms blank, place them in the enclosed envelope, and return the envelope to your child's teacher. This allows the uncompleted forms to be reused.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon Lamb

Gordon D. Lamb
Doctoral Candidate
Texas A&M University
503-629-8696
REACSstudy@yahoo.com

Validation Study Parent Cover Letter—Test-Retest

20251 SW Midline St.
Aloha, OR 97006
November 27, 2007

Dear Parent:

Recently you received an invitation to participate in a research study involving a new rating scale. When you completed the informed consent, you indicated that you would be willing to complete the same rating scale at a later time. I appreciate the time you spent completing and returning the first parent rating scale. Now I ask you to complete a second parent rating scale. Your answers will help me determine the stability of the behaviors measured by the REACS over time.

Please complete the enclosed rating scale within the next week. When you are finished, place the completed scale in the enclosed envelope, and return it to your child's teacher.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

Thank you for your continued participation.

Sincerely,

Gordon Lamb

Gordon D. Lamb
Doctoral Candidate
Texas A&M University
503-629-8696
REACSstudy@yahoo.com

Validation Study Parent Cover Letter—Notification of Testing

20251 SW Midline St.
Aloha, OR 97006
December 11, 2007

Dear Parent:

Recently you received an invitation to participate in a research study involving a new rating scale. When you completed the consent form, you indicated that you would allow your child to participate. Your child has been selected to participate. This includes testing your child with tests of cognitive ability and academic achievement (60-90 minutes of testing). It also involves having you complete an additional parent rating scale. Your child's teacher will also complete rating scales about your child's school behaviors.

If possible, I will visit your child's school to test your child during school hours. If this is not possible, we will need to make other arrangements to test your child. As a reminder, if your child is tested at school you will be sent $10. If your child is tested at an alternate location, you will be given $20. The money will be given to you, so you can decide how the money is spent or given to the child. Also, as a thank you for participating, your child will receive a small gift (e.g., coloring book or key chain).

Please contact me as soon as possible to schedule your child's testing. You may email me at REACSstudy@yahoo.com or call me at 503-629-8696.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

Thank you for your continued participation.

Sincerely,

Gordon D. Lamb
Doctoral Candidate
Texas A&M University

Validation Study Teacher Cover Letter

20251 SW Midline St.
Aloha, OR 97006
December 4, 2007

Dear Teacher:

Research suggests that teachers can provide valuable information about their students' everyday academic behaviors, leading to personalized interventions for students with academic difficulties. For my dissertation, I created a set of rating scales called the Ratings of Everyday Academic and Cognitive Skills (REACS). My dissertation project is under the direction of Cecil R. Reynolds, Ph.D. in the Department of Educational Psychology at Texas A&M University. The purpose of this study is to assess the quality of the items on this scale. My goal is to make the REACS available to school professionals across the country.

The original questions for the REACS were created after a review of research about signs of school success and failure. These questions were reviewed by an expert panel of psychologists and school teachers. Following this review, there were over 340 items. To shorten the length of the REACS, these items were originally split into two separate forms as part of an initial study. Based on that study, the best half of the items were kept for the current version.

Your school has allowed me to ask for your help. I need teachers to coordinate the distribution and collection of parent forms to students in their classrooms. This will involve sending home packets with students and collecting the forms when returned. I also need teachers to participate by rating their students. If you agree, you will be asked to complete a paper and pencil rating scale about the academic-related behaviors of 1 to 10 of your students. The REACS covers the academic areas of math, reading, and writing and the cognitive areas of language, learning, memory, and problem solving. It is estimated to take 15 to 20 minutes to complete one REACS form. You may also be asked to repeat the REACS at a later time, ask a second teacher(s) (e.g., teacher's aide or teacher of another subject) to complete the rating scale(s) on student(s) you rated, and/or complete an additional rating scale (i.e., Behavior Assessment System for Children -2 Teacher Rating Scale). As is common in many studies, I will also ask for information about you, such as your gender and ethnicity, so that I can report the demographic makeup of participating teachers.

If you agree to complete an additional rating scale (BASC-2) you will receive $10 per child for completing this form, if allowed by your school. There are no other benefits to you as a result of your participation; however, you will be entered in a drawing for a $20 gift card to a local fast food restaurant. The classroom with the highest return rate, forms completed or not, will receive a lunch party.

If you choose to participate, please complete both copies of the informed consent. Keep one copy for your records. Place the other copy in the enclosed envelope, and return it to the designated person. If you choose not to participate, please return the packet to the designated person, without marking on the forms. This will allow the forms to be reused.

If you have any questions, please contact me. You can also contact my advisor, Cecil R. Reynolds, Ph.D., Department of Educational Psychology, TAMU, College Station, TX 77843-4225, 512-656-5075, crrh@earthlink.net.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Thank you in advance for your participation.

Sincerely,

Gordon Lamb

Gordon D. Lamb
Doctoral Candidate
Texas A&M University
503-629-8696
REACSstudy@yahoo.com

Validation Study Teacher Informed Consent

Ratings of Everyday Academic and Cognitive Skills in Evaluation of School Learning and Learning Problems: Initial Scale Development and Validation

You have been asked to participate in a study about school-related behaviors of students age 4 to 18. Approximately 450 teachers will participate. Your school was asked to participate based on its proximity to the researcher's home, and/or its diverse or unique demographic makeup. All or a random sample of teachers in your school were asked to participate. The purpose of this study is to assess the quality of the questions on the Ratings of Everyday Academic and Cognitive Skills (REACS). This study is the dissertation project for Gordon Lamb. He is under the direction of Cecil R. Reynolds, Ph.D. in the Department of Educational Psychology at Texas A&M University. The goal is to make these scales available to school professionals across the country.

You have been asked to coordinate the distribution and collection of parent forms to students in your classroom. This will involve sending home packets with your students and collecting the forms when returned. The majority of this process will take 2 to 3 weeks, but smaller numbers of other forms may need to be distributed and collected up to 6 months later. The initial explanation and distribution to students may take 10 minutes of class time. The collection of forms may take up to 3 minutes each day students return forms.

You have been asked to complete a paper and pencil rating scale about the classroom behaviors of one to ten students in your class(es). These behaviors include reading, writing, math, language, and problem solving. Completing the rating scale for one student will take about 15-20 minutes of your time. You may also be asked to repeat the REACS at a later time, ask a second teacher(s) (e.g., teacher's aide or teacher of another subject) to complete the rating scale(s) on student(s) you rated, and/or complete an additional rating scale (i.e., Behavior Assessment System for Children -2 Teacher Rating Scale). The risks associated with participation are expected to be no greater than taking a paper and pencil test at school. If you agree to complete an additional rating scale (BASC-2) you will receive $10 per child for completing these forms, if allowed by your school. There are no expected benefits to you as a result of your participation; however, you will be entered in a drawing for a $20 gift card to a local fast food restaurant. The classroom with the highest return rate, forms completed or not, will receive a lunch party. You will receive no other compensation for participating.

This study is confidential. All consent forms will be stored in a locked filing cabinet for three years, in a separate location from the protocols. The records of this study will be kept private. Results of this study will be reported as group data. No identifiers linking you to the study will be included in any report that might be published. Research records will be stored securely and only Gordon D. Lamb, Cecil R. Reynolds, and those under their supervision will have access to them. No comparisons will be made between

individual classrooms. You will not be given access to the results of testing for any student or the ratings of any parent. Your decision whether or not to participate will not affect your current or future relations with Texas A&M University or your school. If you decide to participate, you may refuse to answer any question that makes you uncomfortable. You can withdraw at any time without your relations with the university or your school being affected. You can contact Gordon D. Lamb or Cecil R. Reynolds with any questions about this study.

Your initials below indicate your willingness to participate in this study. Please initial all that apply.

_____ Coordinate the distribution and collection of parent forms to students in your classroom.

_____ Complete rating scales on 1 to 5 of your students.

_____ Complete rating scales on 6 to 10 of your students.

_____ Repeat the same rating scale(s) (maximum of 2) 1 to 6 weeks after the first.

_____ Ask a second teacher(s) (e.g., teacher's aide or teacher of another subject) to complete the rating scale(s) on the student(s) you rated (maximum of 2).

_____ Complete an additional rating scale (i.e., Behavior Assessment System for Children -2 Teacher Rating Scale) on the student(s) you rated (maximum of 3).

You may be chosen at random to provide help from the list you selected above. If chosen, you will be contacted within 2 months. At any time you can choose not to participate without explanation.

This research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067 (mcilhaney@tamu.edu).

Please be sure you have read the above information, asked questions, and received answers to your satisfaction. You will be given a copy of the consent form for your records. By signing this document, you consent to participate in the study.

Signature: _____ Date: _____

Printed Name: _____

Signature of Investigator: Gordon Lamb Date: 10/02/2007

Printed Name: Gordon D. Lamb

Gordon D. Lamb
20251 SW Midline St.
Aloha, OR 97006
503-629-8696
REACSstudy@yahoo.com

Cecil R. Reynolds
Department of Educational Psychology, TAMU
College Station, TX 77843-4225
512-656-5075
crrh@earthlink.net

Validation Study Teacher Instructions for Completing Rating Scales

Thank you for your participation.

Listed below are your instructions. Please read through the instructions and follow them carefully. If there are any questions regarding what to do or any concerns that you feel should be brought to my attention, please contact me (REACSstudy@yahoo.com, 503-629-8696). You may also contact Dr. Reynolds, my advisor, if needed (crrh@earthlink.net, (512) 656-5075).

1) This packet contains instructions, a teacher information form, and up to 10 REACS teacher rating scales. It may also include up to two copies of another rating scale (i.e., the BASC-2).

2) Do not put your name on any form in the packet. The teacher ID number will be used instead of your name.

3) Complete the Teacher Information Form. You only need to complete this form one time.

4) Although each REACS scale is the same, some forms in your packet may be labeled with a student's name. Other forms are not labeled.

   Forms labeled with a name: Please complete these forms first.
   Some of the forms in this group may have another form attached (i.e., the teacher rating scale of the Behavior Assessment System for Children-2 (BASC-2). If so, also complete the BASC-2 for the student, following the directions on the forms themselves.

   DO NOT complete the BASC-2 without also completing the accompanying REACS form.

   Unlabeled forms: Complete these forms after the labeled forms are completed. For each of these forms, randomly choose one of your students to rate, keeping track of which students you rated to avoid rating the same student twice. Feel free to mark the forms with a fake name or a number, for your convenience, but do not place the student's real name on the rating scale. If you choose to mark the forms with a fake name or number, keep your key. Do not put it in the packet.

5) General guidelines for providing ratings.
   a. To randomly select students to rate, use the list of random numbers provided in the packet. Detailed instructions on how to use the list is included with the list of random numbers.

b. Thoroughly read the instructions on the REACS form before completing the scale.
c. Do not complete more than a few forms in one sitting. Spreading out your ratings will keep you from becoming tired, which could affect your ratings. Use your own judgment to decide when to take breaks.
d. If you need replacement forms for any reason, do not borrow a form from another participating teacher. Contact me with your teacher ID number, so I can send you a replacement.

If you do not have time to complete all the scales included in the packet, please complete the scales in order of importance. Listed below, in order of importance, are the scales for this study. Please complete the highest ranking scales first. If you only have time to complete unlabeled forms, your help is still welcome and greatly appreciated.

1. Form labeled with a name with accompanying BASC-2 form
2. Form labeled with a name
3. Unlabeled forms

Please complete as many scales as you can, and return the unused forms with the completed forms. The unused forms can then be reused.

Thank you again for your participation.

Gordon D. Lamb
Doctoral Student
Texas A&M University

Validation Study Instructions for REACS Forms:
Teachers agreeing to repeat the REACS again, 1-6 weeks later

For the first two children randomly selected, please complete the following:

Child 1 Name _____

Child 2 Name _____

These are the children you will rate now, and again in a few weeks.

In the upper left corner of the REACS form, write *Child 1, 1st Rating* (or *Child 2, 1st Rating*) but do NOT write the child's name on the REACS form.

Save this sheet of paper for your records, so you remember which children to rate later.

When you receive the forms for the second rating, refer back to this sheet.

You will rate these same two children again.

The forms for the second rating will be prepared with some of the information already filled in for you (e.g., Teacher ID, child's gender, child's date of birth).

In the upper left corner, you will see *Child 1, 2nd Rating* or *Child 2, 2nd Rating*. You will refer back to this sheet for a reminder of which child is Child 1 and which child is Child 2. Please double check that the gender and date of birth were filled in correctly.

Remember, this sheet is for your records only. Do not turn it in with your ratings. Do not write the child's name on the REACS forms. This sheet is the only record of which children you will rate again. After you complete the second rating, please discard this form.

Thank you for your attention to these details, and for your participation.

If you have any questions about this procedure, please contact me.

Gordon D. Lamb
503-629-8696
REACSStudy@yahoo.com

Validation Study Instructions for REACS Forms:
Teacher-to-Teacher Comparison

Part of this study entails seeing how similar the ratings of two teachers are when rating the same child. This procedure tests the wording of the items on the rating scale, NOT the accuracy of the teachers completing the scale. This is one of the best ways to know if the item means the same thing to two different people, because they are rating the same child.

Instructions:

1. With a colleague, randomly select two students for both of you to rate.
2. On the rating scale for the first child, write "C1-(the other teacher's teacher ID)."
   *Your colleague will do the same with your teacher ID.
3. For the second child, do the same thing, but mark "C2" for Child 2.
   *Your colleague will do the same with your teacher ID.

See the example below for clarification.

Mrs. Jones and Mrs. Smith randomly select Bill and Sue.

Mrs. Jones' Teacher ID is 1001.
Mrs. Smith's Teacher ID is 1002.

On Bill's form, Mrs. Jones writes C1-1002. (child 1, Mrs. Smith's ID)
On Bills' form, Mrs. Smith writes C1-1001. (child 1, Mrs. Jones' ID)

On Sue's form, Mrs. Jones writes C2-1002. (child 2, Mrs. Smith's ID)
On Sue's form, Mrs. Smith writes C2-1001. (child 2, Mrs. Jones' ID)

Do not compare/discuss your ratings of the child with your colleague.

If you have any questions about this procedure, please contact me.

Gordon D. Lamb
503-629-8696
REACSStudy@yahoo.com

VITA

Name:	Gordon Dale Lamb
Address:	Department of Educational Psychology TAMU 4225 College Station, TX 77843-4225
Email Address:	REACSStudy@yahoo.com
Education:	Ph.D., School Psychology, Texas A&M University, 2008 B.S., Psychology, Missouri State University, 2002