IDENTIFICATION OF HIGHLY GIFTED 5- AND 6-YEAR-OLD CHILDREN:
MEASURES TO PREDICT ACADEMIC ACHIEVEMENT
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Studies indicate the educational needs of highly gifted students are best met through accelerated learning. It is difficult to recognize very young children that are suited for an accelerated curriculum because younger students frequently lack school records or portfolios used to identify gifted students. This study examined the accuracy of cognitive ability and achievement tests in predicting academic achievement by the end of second grade, correlating test results and final grade averages collected from sixteen children ages five to six who entered a public school program for high-ability learners in kindergarten. A multiple regression analysis indicated the Wechsler Preschool and Primary Scale of Intelligence produced the highest mean IQ score and a strong correlation with reading achievement. The Wechsler Individual Achievement Test contributed in small part to the prediction of academic achievement. The Naglieri Nonverbal Ability Test and the Kaufman Brief Intelligence Test-Second Edition had negative correlations with final grade averages, indicating they are not predictors of academic achievement for these students.
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# TABLE OF CONTENTS

ACKNOWLEDGEMENTS ........................................................................................................ iii

LIST OF TABLES ...................................................................................................................... v

LIST OF ILLUSTRATIONS .................................................................................................... vii

Chapter

1. INTRODUCTION ............................................................................................................. 1
   Statement of the Problem
   Research Question
   Hypothesis
   Definitions

2. REVIEW OF RELATED LITERATURE ........................................................................ 12
   Characteristics of Average Children
   Characteristics of Gifted Children
   Characteristics of Highly Gifted Children
   Assessment Procedures for Identification of Highly Gifted
   5- and 6-Year-Old Children

3. METHOD ....................................................................................................................... 28
   Instruments
   Participants
   Procedure

4. RESULTS ....................................................................................................................... 33
   Analysis of Data

5. DISCUSSION ................................................................................................................. 47
   Interpretation of Findings
   Limitations
   Recommendations for Further Study
   Conclusion

APPENDICES .......................................................................................................................... 54

REFERENCES ......................................................................................................................... 67
Table 1: Explanation of Variables .................................................................................................................. 32
Table 2: Independent Variables Ceiling Scores, Mean Scores, Standard Deviations, Skewness, and Kurtosis .................................................................................................................................................. 33
Table 3: Dependent Variables Ceiling Scores, Mean Scores, Standard Deviations, Skewness, and Kurtosis .................................................................................................................................................. 33
Table 4: Regression Summary of Predictor Variables on Stanford-10 Reading Percentiles .................................................................................................................................................. 34
Table 5: Regression Summary of Predictor Variables on Stanford-10 Math Percentiles .................................................................................................................................................. 34
Table 6: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Stanford-10 Math Percentiles .................................................................................................................................................. 35
Table 7: Regression Summary of Predictor Variables on Grade 1 Reading Final Grade Average .................................................................................................................................................. 36
Table 8: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 1 Reading Final Grade Average .................................................................................................................................................. 36
Table 9: Regression Summary of Predictor Variables on Grade 1 Math Final Grade Average .................................................................................................................................................. 37
Table 10: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 1 Math Final Grade Average .................................................................................................................................................. 38
Table 11: Regression Summary of Predictor Variables on Grade 1 Science Final Grade Average .................................................................................................................................................. 38
Table 12: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 1 Science Final Grade Average .................................................................................................................................................. 39
Table 13: Regression Summary of Predictor Variables on Grade 1 Social Studies

Final Grade Average

Table 14: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 1 Social Studies Final Grade Average

Table 15: Regression Summary of Predictor Variables on Grade 2 Reading

Final Grade Average

Table 16: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 2 Reading Final Grade Average

Table 17: Regression Summary of Predictor Variables on Grade 2 Math

Final Grade Average

Table 18: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 2 Math Final Grade Average

Table 19: Regression Summary of Predictor Variables on Grade 2 Science

Final Grade Average

Table 20: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 2 Science Final Grade Average

Table 21: Regression Summary of Predictor Variables on Grade 2 Social Studies

Final Grade Average

Table 22: Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 2 Social Studies Final Grade Average
LIST OF ILLUSTRATIONS

Figure 1: Federal appropriation for Javits Gifted and Talented Education.................................. 3

Figure 2: A sequential strategy model for the identification of exceptionally gifted students .............................................................................................................. 25

Figure 3: The relationship between effort and outcome ............................................................ 27
CHAPTER 1
INTRODUCTION

Bobby was a happy, well adjusted 5-year-old until he entered public kindergarten. His mother read to him since he was 6 months old, noticing how attentive and observant he was. It was easy to interact with Bobby since he was so verbal at such an early age, easily uttering complex sentences when he was 2. His mother described Bobby to his preschool teachers as a “late walker, early talker.” In a class for 3-year-old children, the teacher noticed that Bobby could read picture books fluently and understand what he had read, not to mention that he could add, subtract, and multiply one-digit numbers. Bobby’s mother could only say that although she taught him letters and their sounds, and basic number symbols, it was like Bobby taught himself the rest. In public kindergarten, Bobby’s abilities were not noted and he was simply one of 22 students who were “taught” the letters of the alphabet and numbers 1-10. Soon Bobby was getting into trouble for not paying attention. It wasn’t long before Bobby didn’t want to go to school. Why is this scenario important? It illustrates an all too common problem for our youngest gifted and highly gifted students in classrooms today – the lack of identification leading to a differentiated curriculum.

The vast majority of teachers have little knowledge about appropriate strategies and behavior management for the gifted (Westberg & Daoust, 2003). Further complicating the situation is the impact of the law enacted in 2002 known as No Child Left Behind (NCLB). This law mandates that public school districts are responsible for all students reaching 100% proficiency levels on academic content within 12 years (No Child Left Behind Act, 2004). Furthermore, NCLB requires schools to close achievement gaps between economically
advantaged students and those of low socio-economic status (SES), those with ethnic or racial differences, and those with disabilities (Yell, 2006).

State education agencies (SEAs) were recently surveyed by the National Association for Gifted Children (NAGC) to determine the effect of NCLB on gifted education. Twenty-eight out of forty-one SEAs (68%) claimed that NCLB had a negative impact on gifted education due to the law’s focus on underachieving students and a lack of funding for gifted programs (Plucker, Burroughs, & Song, 2010). In 2003, the federal education expenditures for education were $124.7 billion. In adjusted dollars for 2003, this reflects an increase of 79% between 1990 and 2003. Elementary and secondary programs received the largest share of funds, consuming $59.7 billion in 2003, an increase of 48%. Special education programs showed the second largest increase in elementary and secondary expenditures, increasing 290% from 1990 to 2003 (Sonnenberg, 2004).

According to the U.S. Department of Education (2009a), an estimated $1.1 trillion will be spent nationwide on education at all levels for the 2009-2010 school year. Of this, 10.5% will be contributed by the federal government to elementary and secondary public schools through six targeted programs to support the goals of NCLB: Title I, Part A; Reading First; Comprehensive School Reform (CSR); Title II, Part A; Title III, Part A; and Perkins Vocational Education State Grants. Unlike NCLB, there is no federal mandate for gifted education. Since NCLB, the only federal program addressing gifted education, the Jacob Javits Gifted and Talented Students Education Act, has seen declining federal funding (Figure 1). The purpose of the Javits Act is to award grants for scientific research and the development of innovative strategies to help schools meet the needs of gifted and talented students, especially underrepresented populations (U.S. Department of Education, 2009a). Without support or mandates for gifted education from the
Since there are no federally mandated expectations or programs for gifted children, there is no need to focus on them as long as they remain proficient (Golden, 2003). There is no federal mandate to differentiate curriculum for a child like Bobby.

After a 10-year longitudinal study, Hotulainen & Schofield (2003) determined that children identified as academically gifted at preschool, but who received no specific support did excel in academic endeavors. However, they strongly note that this result is due to the high academic achievement of the girls. The boys in the study did not excel nor realize their academic
potential. The students who were identified as academically gifted in preschool did show significantly higher academic self-concept than their average peers. Since the gifted students did not see their academic ability as useful or valuable, Hotulainen & Schofield (2003) suggested that these students did not value their exceptional ability. Highly gifted students may experience behavior problems especially when they are not continually challenged academically due to their giftedness not being recognized, or if they feel pressure to conform (deny “gifted” label), or if they are with adults who are insecure around highly gifted children (Heller, 2004).

Statement of the Problem

Not all highly gifted students can be easily identified (Heller, 2004). Not understanding how exceptional abilities may appear and develop, or holding untrue assumptions or prejudices may limit identification of children. Heller also recognizes particularly difficult groups to identify as highly gifted including those children and youth with behavior problems, handicaps, females, underachievers, economically disadvantaged, minorities, and immigrants.

To meet the academic and social/emotional needs of highly gifted children, one suburban school district in Texas has developed a program known as Leading Exceptional Academic Producers (LEAP). Students in elementary school are placed in self-contained classrooms with master teachers in gifted education. Middle school students are offered pre-Advanced Placement (pre-AP) courses modified for LEAP students. In high school, LEAP students usually attend one of nine academies in the district and enroll in Advanced Placement (AP) classes, many of which are further modified for LEAP students.

Developing a student profile to be used for LEAP placement involves extensive district resources, both in terms of personnel and expenses. With current budget shortfalls, examination of this process is wise. Children are administered multiple intelligence and achievement tests.
Ceiling effects can be encountered when using normed tests to identify highly gifted students (Heller, 2004). Ceiling effects occur when the child reaches the ceiling - the highest score possible on an intelligence or achievement test or subtest due to the limited number of difficult items available to distinguish among those with above average abilities. The child’s score may reflect the upper limit of the test, not the child’s true abilities (Sattler, 2001). Identifying 5- and 6-year-old children who will be academically successful in the LEAP program is further complicated because students are so young that they lack school records or portfolios to support academic achievement. This study examined the correlation between the children’s performance on quantitative measures used for identification as highly gifted and their academic achievement in the LEAP program to gain insight into the accuracy of identification procedures in predicting academic achievement in reading, math, science, and social studies by the end of second grade.

**Research Question**

Do the school district's measures for identifying highly gifted 5- and 6-year-old children accurately predict academic achievement (grades of 80 and above) in reading, math, science, and social studies by the end of second grade for those students who participated in the LEAP program since kindergarten?

**Hypotheses**

1. The school district’s measures for identifying highly gifted 5- and 6-year-old children who then participated in the LEAP program for advanced learners beginning in kindergarten positively correlates with the student’s academic achievement in reading by the end of second grade.

2. The school district’s measures for identifying highly gifted 5- and 6-year-old children who then participated in the LEAP program for advanced learners beginning in kindergarten
positively correlates with the student’s academic achievement in math by the end of second grade.

3. The school district’s measures for identifying highly gifted 5- and 6-year-old children who then participated in the LEAP program for advanced learners beginning in kindergarten positively correlates with the student’s academic achievement in science by the end of second grade.

4. The school district’s measures for identifying highly gifted 5- and 6-year-old children who then participated in the LEAP program for advanced learners beginning in kindergarten positively correlates with the student’s academic achievement in social studies by the end of second grade.

Definitions

Characteristics of Giftedness Scale – a scale for parents to describe characteristics of their child using checklists and open-ended responses (Silverman, ND-b).

Cognitive Abilities Test (CogAT) Form 6 – a group intelligence test to measure abilities in reasoning and problem solving using verbal, quantitative, and nonverbal (spatial) symbols for children ages 5:0 through 18:0 (Taylor, 2006).

Ekwall/Shanker Reading Inventory – an individual reading inventory measuring comprehension, language, decoding, letter knowledge, phonological awareness, and other skills using passages for Grade 1 and higher (SEDL, 2010).

Gifted – The definition of this term varies widely. The current federal definition of gifted students reads:

Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic
fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities (No Child Left Behind Act, P.L. 107-110 (Title IX, Part A, Definitions (22) (2002); 20 U.S.C. Sec. 7802 (22) (2004))).

While the federal definition for giftedness is clear, states and school districts are not required to follow the federal definition (National Association for Gifted Children, 2008). The result is a plethora of definitions among the states. Twenty-five states follow a definition passed by their state’s legislature, 21 states follow a definition determined by a state agency, and 4 states have no definition (Education Commission of the States, 2004). Most state definitions include identification of diverse students. Thirty states recognize intellectual giftedness; 29 states recognize academic giftedness; 19 states recognize creative giftedness; 13 recognize leadership giftedness; and 20 recognize performing/visual arts giftedness (NAGC & Council of State Directors of Programs for the Gifted, 2005).

The definition stated in the Texas Education Code (1995) reads:

[G]ifted and talented student means a child or youth who performs at or shows the potential for performing at a remarkably high level of accomplishment when compared to others of the same age, experience, or environment and who:

(1) exhibits high performance capability in an intellectual, creative, or artistic area;

(2) possesses an unusual capacity for leadership; or

(3) excels in a specific academic field.

Academians have expanded the definitions of giftedness. For example, the Theory of Multiple Intelligences (Gardner, 1983) describes seven intellectual domains: linguistic (verbal) intelligence, logical-mathematical intelligence, spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, interpersonal intelligence, and intrapersonal intelligence. Educators have
come to see the different intelligences as intellectual gifts, found either alone or in various combinations (Davis & Rimm, 1998). Renzulli (1978) presented a different concept of giftedness through his Three-Ring Model, showing giftedness as the interaction of above average ability, task commitment, and creativity. Individuals who have or are able to develop these three traits and apply them to any valuable area of performance are said to have gifted behavior (Reis & Renzulli, 2004). These examples are just a sampling of the various theories of giftedness and talent. In a survey of 64 authorities in the gifted field, Pfeiffer (2003) reported that 60 out of 64 experts (94%) ranked their Number 1 concern as “lack of consensus on how to conceptualize or define the gifted and talented.” The lack of a consistent definition had lead to confusion over whether giftedness refers to potential or actual production, and whether creativity or multiple intelligences are components of giftedness (Pfeiffer, 2003).

Gifted and Talented Evaluation Scale, Second Edition (GATES) – a rating scale used by parents and teachers that measures characteristics of giftedness seen in school settings. GATES is appropriate for children ages 5:0 through 18:0 (Brody, 2007).

Gifted Evaluation Scale, Second Edition (GES-2) – a scale for teachers to identify characteristics of giftedness in five areas: intellectual ability, creativity, specific academic ability, leadership ability, performing and visual arts skills, and motivation. The GES-2 is appropriate for children ages 4:5 through 19 (Smith, 2001).

Gifted Rating Scales – Preschool/Kindergarten Form (GRS-P) – a teacher rating scale used to screen children for characteristics of giftedness while in preschool or kindergarten. The GRS-P is designed for children ages 4:0 to 6:11 (Pfeiffer & Petscher, 2008).

Highly gifted - A definition for highly gifted children created by a federal or state legislature was not found in this literature review. Ranges of giftedness are often referred to
through levels of IQ scores. An IQ range of 115-129 (+1 - 2SD) is thought of as mildly gifted; an IQ range of 130-144 (+2 - 3SD) is deemed moderately gifted; an IQ range of 145-159 (+3 - 4) is highly gifted, and an IQ range of 160+ (> + 4SD) is called extraordinarily gifted (Silverman, 1981). Gagne (1998) recognizes giftedness in levels of intelligence with the top 10% of the population described as mildly gifted. Other subgroups of giftedness include moderately gifted (top 1%), highly gifted (top 1:1,000), exceptionally gifted (top 1:10,000), and extremely gifted (top 1:100,000).

Kaufman Brief Intelligence Test-Second Edition (KBIT-2) – an individually administered intelligence test designed to quickly measure verbal and nonverbal abilities in children and adults ages 4:0 through 90:0 (Sattler, 2001).

KeyMath R/NU – an individual assessment designed to measure understanding and applications of mathematics concepts and skills in children ages 4:6 through 21:11 (Taylor, 2006).

Leading Exceptional Academic Producers (LEAP) – The LEAP program is offered by a suburban school district in Texas to serve the academic and social/emotional needs of highly gifted students from kindergarten through twelfth grade. LEAP students in elementary school are in a self-contained classrooms instructed by master teachers in gifted education. Middle school students are offered pre-AP courses modified for LEAP students. In high school, LEAP students usually attend one of nine academies in the district and enroll in AP classes, many of which are further modified for LEAP students.

Naglieri Nonverbal Ability Test (NNAT) – a group or individually administered test used for screening children ages 5:0 through 17:0. The NNAT measures nonverbal reasoning and general problem solving abilities (Taylor, 2006).
Otis-Lennon School Ability Test (OLSAT) – a group administered intelligence test designed to measure verbal, quantitative, and figural reasoning skills. The OLSAT is appropriate for children in kindergarten through 12th grade (Taylor, 2006).

Raven Advanced or Standard Progressive Matrices (Raven) – a group or individually administered test that nonverbally assesses reasoning ability in children and adults ages 8:0 through 65:0 (Sattler, 2001).

Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS) – teacher rating scales for evaluating an individual in learning characteristics, creativity, motivation, leadership, art, music, dramatics, communication, and planning (Jarosewich, Pfeiffer, & Morris, 2002).

Stanford-Binet Intelligence Scale, Fifth Edition (SB5) – an individually administered assessment of intelligence measuring fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and working memory. Appropriate for ages 2:0 through adult (Taylor, 2006).

Stanford-Binet Intelligence Scale, Form L-M (SBL-M) – an individually administered intelligence test measuring verbal and nonverbal abilities for children ages 2:0 through 18:0 (Sattler, 2001).

Stanford-Binet Intelligence Scale, Fourth Edition (SB:IV) – an individually administered intelligence test measuring verbal and nonverbal abilities of children and adults ages 2:0 to 23:0 (Sattler, 2001).

Things My Child Has Done – a Likert-style checklist for parents to rate gifted characteristics of their child (Sayler, 1992).

Wechsler Preschool and Primary Scale of Intelligence, Third Edition (WPPSI-III) – an individually administered test to assess cognitive ability of children ages 3:0 to 7:3 (Sattler, 2001).
CHAPTER 2

REVIEW OF RELATED LITERATURE

With the lack of consensus on a definition of giftedness by scholars, states, and the federal government, what can teachers do to recognize children who may be gifted or highly gifted and need a differentiated curriculum? An understanding of different abilities of these students can be the first step in identification of highly gifted 5- and 6-year-old children.

Characteristics of Average Children

Berk (2007) notes milestones in the physical, cognitive, language, and social/emotional development of average 5- and 6-year-old children. Physically, 5- and 6-year-old children are longer-legged and more streamlined than younger children, allowing a smoother style of running and true skipping. Five- and 6-year-old children show more mature abilities in catching and throwing. They should also be drawing more complex pictures and be able to copy some numbers and simple words.

Cognitively, average 5- and 6-year-old children should be aware that make-believe is representational and understand that magical beliefs in fairies and the like are not plausible explanations for events. In addition, attention span is increasing. There is an improvement in memory for recognition and recall, as well as scripted memory and autobiographical memory. Children of this age should be able to recall events with basic details and have the sequence in the correct order. Math skills include counting up and counting down plus simple addition and subtraction. When speaking, children will usually be grammatically correct, using imbedded sentences, asking questions, and referring to indirect objects. Five- and 6-year-old children will understand that letters have sounds and together can make words. At this stage, invented spellings are observed (Berk, 2007).
Emotionally and socially, average 5- and 6-year-old children’s ability to interpret and predict others’ reactions is improving. These children are more able than younger children to verbally express empathy towards others. Additionally, these children have acquired a rigid sense of morality but are not concerned with social conventions (Berk, 2007).

Characteristics of Gifted Children

Each child’s development is unique, but often gifted children will demonstrate differences from an average ability child in some combination of physical, cognitive, language, and social/emotional characteristics (Manning, 2006). Parents and researchers have noted accelerated physical development in some, but not all, gifted children as far back as infancy. In a longitudinal study of 40 highly gifted Australian children, Gross (1993) reported that the mean age for a gifted child sitting up unsupported was 6.2 months as compared to 7 to 8 months for the average infant. Gifted children were frequency found to crawl earlier – 7.65 months on average as compared to 10 months for children in general. In addition, some gifted children walked earlier and had better than expected fine motor control. Hall and Skinner (1980) suggest that gifted children are those whose development is 30% more advanced than the normal population.

When children are intellectually gifted, their advanced cognitive skills are often observed from infancy through their alertness, curiosity, and intense, focused observations and interaction with their environment (Porter, 2005). Using an inquiry approach and qualitative research method when observing identified gifted preschoolers in a half-day program, Kitano (1985) reported several cognitive traits that were frequently, but not consistently, different from average preschool children. Gifted preschool students often demonstrated high levels of acquired knowledge in specific academic areas such as reading and math. Gifted children also displayed high levels of general knowledge, advanced thinking skills, and conceptual knowledge.
However, Porter (2005) states that intellectually gifted children are not always academically gifted. Few gifted children are reading prior to school age. Likewise, few will interact with numbers in advanced ways. Ability to read and demonstrate advanced mathematical thinking is often a trait of highly gifted children.

Kitano (1985) also found that gifted children showed a concern with conforming to the rules, frequently enforcing the rules on others. For the most part, the students showed task perseverance and tendencies toward perfectionism. Competitiveness was demonstrated through behaviors such as being the first to finish, having more, winning, and knowing the answers. On occasion though, children were willing to admit they didn’t know the answer or have a skill others possessed, like tying shoes or snapping fingers. Perhaps this competitiveness explains one teacher’s observation – unlike a regular preschool class, the gifted preschool students never appeared to be a cohesive group.

Different conclusions exist when correlating giftedness with creativity. Kitano (1985) found that conversations with gifted preschoolers often contained similes and unique expressions, along with elaborative details. There were some gifted children who demonstrated a lack of creativity and risk taking. For example, children would repeat an idea or bit of news expressed by another student rather than generating a new idea. In their study of creativity and intelligence in preschoolers, Fuchs-Beauchamp, Karnes, & Johnson (1993) found that creativity correlated more with intelligence when IQs were less than 120 than with higher IQs. The researchers concluded that creativity and intelligence are independent of each other at higher intelligence levels. However, in a study comparing the play habits of gifted and nongifted preschoolers, Barnett & Fiscella (1985) found that there were significant differences in two areas. Gifted children used unconventional objects in their play indicating higher levels of creativity and imagination. The
gifted children also created more numerous and varied play activities and demonstrated more social play – interacting more cooperatively and sharing more. Gifted children also initiated play more often than non-gifted children in the study.

Advanced memory capabilities are often displayed in gifted children. Research indicates that gifted learners often store more information, organize it more efficiently, and are able to retrieve the memories faster. Their quick and accurate recall allows them to master skills more rapidly (Porter, 2005).

Characteristics of Highly Gifted Children

Research on characteristics of highly gifted 5- and 6-year-old children is sparse. Sankar-DeLeeuw (2007) cautions against applying findings from research on older gifted children to the preschool gifted, especially in areas of emotional development such as sensitivities, criticalness, and perfectionism. Silverman (1981) defines the highly gifted as “those whose advancement is significantly beyond the norm of the gifted,” scoring three standard deviations above the mean on a cognitive ability test (IQ 145 or above). Such a child would be expected to appear in the population at a ratio of approximately 1 in 1000 (Gross, 1999).

Highly gifted children can begin to sit, crawl, and walk at an even younger age than a gifted child and progresses even more rapidly, although this is not an absolute for every child. Gross (1993) describes a child who sat up by himself at 4 ½ months, ran at 11 months, and rode a bike by himself at age 3. The mean age of highly gifted children sitting unaided was 6.1 months. The mean age for walking independently was 11.7 months versus 15 months for an average child.

Highly gifted children demonstrate superior metacognitive skills which are evident earlier than children with average metacognitive skills. This metacognitive ability is more likely to be
observed when children are very interested in a task. The energy it takes to do this may cause fatigue to set in more noticeably in young children. The superior memory of the highly gifted child permits very quick learning, complex problem solving, and recall of intricate details, while leaving room for processing higher order tasks (Porter, 2005). In a survey of parents who had children identified as highly gifted, Silverman (1981) reported exceptional memory was the most prevalent indicator of early giftedness followed by insatiable curiosity. Parents noted that their children asked complex, probing questions.

Highly gifted children often display an early command of language, even more so than gifted children. In a study of 40 highly gifted children, Gross (1993) reported their first words were uttered at 9.1 months. If two outliers were removed from the group (two brothers who spoke at 18 and 21 months), then the mean dropped to 8.63 months. Early speech is also marked by extraordinary fluency and sentence complexity. This early command of the language linked with precocious cognitive abilities, gives rise to the highly gifted child’s love of word play. An excellent sense of humor is frequently seen through their love of puns (Silverman, 1981). It is important to note that delayed speech is not an indicator that the child is not gifted (Gross, 1999). There have been occurrences, although atypical, of silent highly gifted children. These children proceed normally through the babbling stage, but then become quiet until the child decides to speak in complete sentences. Some highly gifted children do not speak until they are four (Silverman, 1981). Highly gifted young children have been known to camouflage their verbal abilities in order to gain acceptance from their classmates, perhaps by moderating their vocabulary or by appearing inarticulate. They may go so far as to develop a vocabulary for use at school and a richer vocabulary for home (Gross, 1989).
An additional, powerful indicator of exceptional giftedness is early reading (Terman, 1926; Gross, 1999). Staintorp & Hughes (2004) define precocious readers as children who are able to read fluently and with understanding at an unusually young age before attending school and without having received any direct instruction in reading. Precocious readers appear to have taught themselves to read.

In a study of 270 highly gifted 13- and 14-year olds who placed above the 90th percentile on the SAT tests, VanTassel-Baska (1983) reported that 80% of this group was reading by age 5 and 55% read by age 4. In the study by Gross (1993), 36 out of 40 highly gifted children were reading before the age of 5. These children displayed reading comprehension skills and reading accuracy of children who were at least three years older.

Some highly gifted children display mathematical precocity. Research in cognitive neuroscience suggests that the brains of mathematically gifted children have more neural exchange of information between the right and left hemispheres of the brain. The enhanced development of the right hemisphere points to a reliance on mental imagery when engaged in thinking (O’Boyle, 2008). Gender differences were apparent when analyzing math precocity in preschool and kindergarten. Boys reportedly scored higher in 8 out of 11 mathematical domains on psychometric tests and several other analyses of the data (Robinson, Abbott, Berninger, & Busse, 1996).

Much of the research on social/emotional characteristics of the highly gifted supports the presence of asynchronous development. This means that children will have substantial variations in abilities within themselves. The asynchrony grows more pronounced as intelligence increases, though as children grow older, the abilities that once lagged behind may catch up (Webb, Amend, Webb, Goerss, Beljan, & Olenchak, 2005). For example, from a very early age, many
gifted children have a tendency to question rules they feel are unfair or unjust, no matter whether it is with a peer or an adult (Lovecky, 1997). Von Karolyi (2006) tested 7- to 9-year old children to see if they had a greater awareness of issues than children with average ability. After collecting data from parent reports, child self reports, and Slosson Intelligence Test scores, the results showed that highly gifted children showed earlier issue awareness than typical children. Having greater access to information about issues in the home was not necessary for this ability to appear. The children were able to identify a major issue in society, cultures, environment, physical circumstances, or philosophical or psychological constructs and make generalizations beyond their immediate experience. The greater the moral sensitivity and asynchrony of the gifted, the greater the chance that the child will become overwhelmed by the pain of the injustice since they do not have the maturity to cope with their strong emotions (Silverman, 1994). It should be noted, however, that some highly gifted children will not exhibit above-average moral sensitivity, ideas of fairness, justice, or compassion until they reach adolescence (Lovecky, 1997). By establishing emotional bonds with caring adults, children will begin to put the needs of others ahead of their own, leading to high moral development (Roeper & Silverman, 2009).

Very young highly gifted children show differences in their play. Terman (1926) noted that highly gifted child tended to have more intellectual play versus physical play. They were also less boisterous and less interested in competition. Sankar-DeLeeuw (2007) found that highly gifted children had a preference for older friends and adult company. Preference for dramatic play with fantasy themes about dragons, mythology, space exploration, jungle wildlife, or fairy tales was observed twice as often as constructive play in highly gifted preschool children who were playing with their true intellectual and age peers (Wright, 1990). When a true peer was not
present, these children preferred solitary play as a means of cultivating their unique abilities and interests.

Assessment Procedures for Identification of Highly Gifted

5- and 6-Year-Old Children

The recommended best practice for identifying gifted children falls into three phases: the nomination phase, the screening or identification phase, and the selection and placement phase (Johnsen, 2009). Information gathered during each phase is evaluated to determine if the child meets the criteria established by the district to progress to the next phase.

The purpose of the nomination phase is to gather information on all students, including minorities, students from low-income backgrounds, and those with disabilities, or from rurally isolated areas (Johnsen, 2009). The nomination phase should include educating parents and teachers of preschoolers and kindergarten children on the characteristics of gifted children, program options, and the identification process. Silverman (2009) concluded that most parents were able to identify giftedness in their children. Eighty-four percent of 1000 children whose parents felt they exhibited at least 75% of the traits in the Characteristics of Giftedness Scale tested above 120 IQ. Another 11% had superior abilities in some areas but had weaknesses that rendered IQ scores below 120. Early attainment of developmental milestones within the first three years should be documented and treated as evidence of giftedness. If parents fail to see giftedness in their children, it is likely that teachers will not see those traits (Dickinson, 1970).

An alternative tool to gather parent information on their child’s development, readily available on the Internet, is the Things My Child Has Done checklist (Sayler, 1992).

In the nomination phase, teachers should conduct differentiated lessons to observe student’s performance on challenging activities. Products for portfolios should be collected
Information on a child’s abilities can be collected through a teacher rating scale. The Gifted Rating Scales – Preschool/Kindergarten Form (GRS-P) is appropriate for children ages 4:0 to 6:11 and is standardized with the WPPSI-III and the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV). Research on the GRS-P indicates a high degree of accuracy in identifying intellectual giftedness in preschoolers or kindergarteners (Pfeiffer & Petscher, 2008). Reviews of three popular teacher rating scales, the Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS), the Gifted and Talented Evaluation Scale, Second Edition (GATES), and the Gifted Evaluation Scale, Second Edition (GES-2) were found to have technical flaws that limit their diagnostic usefulness. Concerns included nonrepresentative standardization samples, low interrater reliability, and lack of evidence for diagnostic accuracy (Jarosewich, Pfeiffer, & Morris, 2002).

During the nomination phase, additional information about children can be gathered through group intelligence and achievement tests. Identifying academically gifted English-language learners (ELLs) can be challenging as evidenced by the underrepresentation of ELLs in gifted programs (Lohman, Korb, & Lakin, 2008). As a means of assessing academic ability for placement decisions, English speaking students and ELL students are often given non-verbal tests such as the Raven Advanced or Standard Progressive Matrices (Raven), the Naglieri Nonverbal Ability Test (NNAT), or Form 6 of the Cognitive Abilities Test (CogAT) (Lohman et al., 2008). It is a widely held belief that nonverbal tests such as the Raven, NNAT, or Form 6 of the CogAT should be administered to ELL students as a culturally fair measure of ability. This assumption is not supported by some research, in part because the norms for the Raven are not based on a random sampling but rather a compilation of test scores submitted to the author since 1970. The inadequate norms of the Raven result in higher test scores and possibly an inaccurate
placement (Lohman, 2008). Lewis, DeCamp-Fritson, Ramage, McFarland, & Archwamety, (2007) found that the Raven identified more ethnically diverse students that would qualify for gifted programs than the NNAT. The Raven may have been more effective in identifying more minority students than the NNAT since its questions are progressive in nature, meaning that students can learn from previous questions.

Another concern with using nonverbal tests for identifying giftedness lays in the construct the nonverbal tests measure – fluid reasoning. This one construct alone is not a good predictor of academic success. A better method of identification would incorporate an assessment of verbal and quantitative skills, which are good indicators of academic talent (Lohman et al, 2008). This leads to the second phase of identification, screening.

During the second phase, children are administered individual or small group assessments to determine aptitudes and cognitive abilities (Johnsen, 2009). Identification tools should match the program for which students are being placed (Lohman, 2005). While children may be assessed at any age, Silverman (2009) recommends testing children between 5 and 8½ years of age. It is possible that by nine years of age, children will hit the ceiling on cognitive ability tests. Older gifted girls may begin hiding their abilities or be reluctant to guess if they feel they can’t answer correctly on tests, thereby lowering their IQ score (Silverman, 2009).

Common instruments for assessing intelligence of 4- and 5-year-old children include the Kaufman Brief Intelligence Test-Second Edition (KBIT-2), Wechsler Pre-school & Primary Scale of Intelligence-Third Edition (WPPSI-III), the Stanford-Binet Intelligence Scale, Fifth Edition (SB5), or the Otis-Lennon School Ability Test (OLSAT). It should be noted that scores cannot be evenly compared across various tests. For example, the same students scored lower on the OLSAT than on the Stanford Binet L-M or the Stanford Binet Fourth Edition. Their scores
on the Stanford Binet Fourth Edition were lower than those on the Stanford Binet L-M (Tyler-Wood & Carri, 1991). The Stanford Binet L-M has outdated norms, but because of its high ceiling, the SBL-M may used as a supplemental test when individuals attain at least two subtest scores at the 99th percentile (Silverman, ND-a). Further testing should include individually-administered achievement tests, such as the Wechsler Individual Achievement Test–Third Edition (WIAT-III) and subject specific tests such as the Ekwall/Shanker Reading Inventory and the KeyMath 3 Diagnostic Assessment, a measure of essential math concepts and skills. Measuring what students currently know and can do should be a requirement for acceleration, yet for very young children, greater emphasis should be given to reasoning abilities (Lohman, 2005).

VanTassel-Baska, Feng, & Evans (2007) found that adding a new dimension for identification based on performance tasks increased the number of students identified as gifted, with some unexpected results. Over the three year study, the percentage of African American and low-SES students increased by 5% and 3% respectively when compared to identification through traditional means. Also more Caucasian students with strong nonverbal skills were identified. A follow-up study suggested that some of these students may have learning problems due to an imbalance between verbal and nonverbal skills. Overall, the majority of students identified through the performance-based assessments were not minority/low SES as expected, but rather higher SES Caucasian students.

In the final phase of identification, the selection or placement phase, a committee of teachers, counselors, administrators, and gifted specialists meet to evaluate the data gathered for children who have been referred through the process (Johnsen, 2009). Johnsen recommends that assessments should be equally weighted with consideration to errors in testing. Comparisons
should be made between quantitative scores. Best performance can be regarded as an indicator of future potential as well as performance over time. In contrast, Lohman (2005) believes the primary criteria for identifying academic giftedness should be measures of academic accomplishment, including norm-referenced achievement tests. When identifying minority students, Lohman recommends using uncommon cutoff scores, such as rank within the group. Verbal and quantitative reasoning are better predictors of academic success rather than non-verbal measures for minority and non-minority students. According to Lohman, overall, the most critical issue for the committee to consider is the child’s readiness for the educational opportunity being considered.

Using a multi-phased approach to identification of highly gifted students does include risks (Heller, 2004). It is possible, though not probable, to identify a child as highly gifted when, in fact, he or she is not highly gifted (type I or alpha error). This may occur when a child is identified using only one test that focuses on only one construct of intelligence, such as the NNAT, which evaluates only fluid reasoning. In a test-retest of 161 gifted Israeli children over a 3-year period, Cahan and Gejman (1993) reported an 8 to 10 point change in IQ, resulting in 34% of those children being disqualified from the gifted program. Overall, performance scores were consistent, but verbal scores tended to decline. Type I errors may also result from diagnostic errors made by unqualified persons conducting the evaluation. Educational diagnostician certification/licensure standards are nonexistent in 46 states and the District of Columbia (Zweback & Mortenson, 2002). Arkansas, Louisiana, New Mexico, and Texas require certification/license of educational diagnosticians. Conversely, it is possible that a highly gifted child is not identified as such (type II or beta error). A student may be gifted but have a learning disability that masks their abilities (Ruban & Reis, 2005). Historically, certain populations have
been under-represented in gifted populations due to unfamiliar cultural values and interests found in standardized tests. Until alternative identification methods are accepted, economically disadvantaged students, students from ethnic minorities, and those with limited English will not be identified in the same proportion as their White peers (Borland, 2004). An alpha error can be corrected by increasing IQ cutoffs; a beta error can be corrected by lowering IQ cutoffs. It would not be feasible to correct for both errors at the same time. While there may be a tendency for educators to reduce alpha error, Heller (2004) suggests it is in the best interest of individual students to reduce the risk of beta error.

Identification of highly gifted students should lead to educational services designed to meet the needs of high ability learners, or “nurturing” as Heller (2004) describes it in his sequential strategy model for the identification of exceptionally gifted students at school level (Figure 2). Curriculum services could include acceleration programs such as early admission to kindergarten or first grade, grade skipping, curriculum compacting, pull-out programs, enrichment courses, or competitions (Heller, 2004; Colangelo, Assouline, & Gross, 2004).

The LEAP program meets the academic and social/emotional needs of highly gifted students through a school-within-a-school model. In this model, the educational program is housed within an existing school, sharing administrators, “specials” teachers for art, music, and P.E., and facilities such as the library, computer lab, cafeteria, and playground, but is otherwise autonomous (Borland, 1989). The program has its own faculty, responsible for instruction in all subject areas.

Borland (1989) notes several advantages and disadvantages to this type of program. One of the strongest aspects of the school-within-a-school model is the opportunity for high ability students to be in constant contact with their true peers while experiencing an appropriate,
differentiated curriculum. In addition, gifted students still have contact with students of all
different ability levels through their specials, lunch, and recess. This helps gifted students feel
less isolated as a group. The cost of the program is reduced by sharing an existing school versus
a separate school for this population.

Interestingly, some of the advantages of this model can also be disadvantages. The
competition between the highly gifted students can turn into a liability for some (Borland, 1989).
In a classroom filled with their intellectual peers, some children may not have an understanding
of their own competence, which may lead to or reinforce underachievement (Rimm, 2008).
While exposure to the mainstream population has its benefits, there can be friction between the
groups of students leading to teasing and taunting (Borland, 1989). Due to their intense
emotional sensitivity, highly gifted students may doubt themselves or believe there is something

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*Figure 2.* Identification of exceptionally gifted students begins by examining the entire student population and narrows through nominations (1), field-specific tests of giftedness (2), and selection interviews (3). The process results in identification of exceptionally gifted students followed by assignment to nurturing programs (4). Reproduced from Heller et al. (2000, p.252) with permission from Pergamon.
wrong with them. They may try to hide their emotions in an effort to conform (Davis & Rimm, 1998). Finally, the program may become a stepchild of the school if there is confusion among administrators over the day-to-day operations of the school (Borland, 1989). They should provide monies and facilities earmarked for the program, along with proper training for faculty. Administrators should facilitate cooperation between teachers, counselor, and parents in order to best meet the needs of the students (Davis & Rimm, 1998). Without the support of administrators, teachers can feel isolated from the regular faculty and unsure of their role in the school (Borland, 1989).

In the LEAP program, math is compacted and accelerated in primary grades leading to instruction two years above grade level. In reading, students are presented with more difficult texts to comprehend. Their instructional reading levels are generally two or more years above grade level. While investigating the same science and social studies topics as regular education students in the school, LEAP students explore these subjects in greater depth.

Curriculum that is *predominately* too easy or too hard can lead to underachievement, harming the child’s self-efficacy. Figure 3 shows the importance of the relationship between effort made in the learning process and its outcomes. Quadrant 1 shows that children will achieve if they experience both the intrinsic joy from learning and the extrinsic rewards from receiving good grades and praise from parents and teachers (Rimm, 2008). Children will continue to achieve when they learn that strong effort will bring meaningful intrinsic and extrinsic results. Even if at times there is little effort, the student will still achieve overall because they will view the poor outcome as a learning experience. Conversely, Quadrant 4 represents underachievers who do not experience a connection between effort and outcome. These students may feel lucky if they succeeded instead of seeing the connection to effort.
Quadrant 2 and 3 represent underachievement that results from ongoing, inappropriate curriculum. Students in Quadrant 2 may make the effort to learn but they have poor outcomes. The twice-exceptional student is often represented in this quadrant. Dyslexia, handwriting problems, processing speed delays, or overly competitive classrooms may cause children to feel inept even though with an appropriate curriculum and interventions they could experience higher achievement. Quadrant 3 represents gifted students who are not challenged by the curriculum, but receive good grades and praise without real effort. The difficulty arises when the child encounters academic challenge at some point and has not built resiliency. While some may work harder, others will avoid difficult work, falling further behind in their skills. Parent and teacher consequences may reverse the trend for some, but others will have lost their self-efficacy, no longer seeing the connection between effort and success (Rimm, 2008).

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**Figure 3.** The relationship between effort and outcome may produce achievers or underachievers. Reproduced from Rimm (2008, p. 141), with permission from Great Potential Press.

<table>
<thead>
<tr>
<th></th>
<th>+ OUTCOME</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ EFFORT</td>
<td>+ +</td>
<td>-</td>
</tr>
<tr>
<td>Achievers</td>
<td>Quadrant 1</td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Underachievers</td>
<td>Quadrant 2</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Underachievers</td>
<td>Quadrant 3</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Underachievers</td>
<td>Quadrant 4</td>
<td></td>
</tr>
</tbody>
</table>

---

Quadrant 2 and 3 represent underachievement that results from ongoing, inappropriate curriculum. Students in Quadrant 2 may make the effort to learn but they have poor outcomes. The twice-exceptional student is often represented in this quadrant. Dyslexia, handwriting problems, processing speed delays, or overly competitive classrooms may cause children to feel inept even though with an appropriate curriculum and interventions they could experience higher achievement. Quadrant 3 represents gifted students who are not challenged by the curriculum, but receive good grades and praise without real effort. The difficulty arises when the child encounters academic challenge at some point and has not built resiliency. While some may work harder, others will avoid difficult work, falling further behind in their skills. Parent and teacher consequences may reverse the trend for some, but others will have lost their self-efficacy, no longer seeing the connection between effort and success (Rimm, 2008).
CHAPTER 3

METHOD

Instruments

This study examined historical qualitative and quantitative data collected as part of the identification process to place students in the LEAP program in a suburban Texas school district. The data used to build the student profile bear examination since they are used by the district’s Admissions, Review, and Exit (ARE) committee to predict if LEAP placement would be a “good fit” for the student. This committee is composed of an administrator, counselor, specialist in gifted education assigned to the LEAP program, and at least two LEAP teachers.

It was hypothesized that all measures used in identification would predict student achievement in reading, math, science, and social studies. Only by examining students academic achievement data could it be determined if the measures used to identify a student for LEAP were predictors of achievement. An improper placement in the LEAP program may cause a child to develop low self-esteem, poor self-efficacy, and underachievement.

Qualitative variables employed in this process included a teacher recommendation (Appendix A), parent inventory (Appendix B), portfolio evaluation (Appendix C), and an interview of the child by a gifted specialist. The results were expressed normatively as Highly Recommend, Recommend, Recommend with Reservations, or Do Not Recommend. The quantitative independent variables used as part of the identification process included the child’s full-scale IQ scores on the KBIT-2, the WPPSI-III, and the NNAT. The percentile scores were reported for the WIAT-II in the areas of reading, language, and math, as well as the percentile achieved on the KeyMath-R/NU test. The child’s instructional reading level (in years) was
evaluated with the Ekwall/Shanker Reading Inventory. This data became part of the student profile (Appendix D) which was reviewed by the ARE committee.

Quantitative dependent variables to predict academic achievement included percentile ranks in reading and math based on the administration of the Stanford-10 Achievement Test, Primary 1 Level C in the fall of second grade, plus year-end grade averages for first and second grade in reading, math, science, and social studies.

Participants

The sample participants included 16 children ($N = 16$; male $n = 5$, female $n = 11$) identified and placed in the LEAP program in kindergarten and who had completed the second grade. The sample was composed of two kindergarten LEAP classes. The first group of children placed in kindergarten LEAP during the 2005-2006 school year is currently in fourth grade ($n = 6$). The second group of children placed in kindergarten LEAP during the 2006-2007 school year is currently in the third grade ($n = 10$). The following ethnicities were represented in the sample: Asian ($n = 8$), White ($n = 7$), Hispanic ($n = 1$), Native American ($n = 0$), and African American ($n = 0$). Primary languages reported by parents included English ($n = 11$), Gujarati ($n = 2$), Chinese ($n = 1$), Oriya ($n = 1$), and Spanish ($n = 1$). Secondary languages included English ($n = 5$), Chinese ($n = 1$), and Mandarin ($n = 1$). Overall, nine students spoke English only, two students spoke English as their primary language but had command of a second language and five students had other languages as their primary language with English as their second language. The majority of referrals for testing came from parents ($n = 12$), followed by teachers ($n = 3$), and self-referral ($n = 1$). Instructional reading levels were reported for some children ($n = 11$). The reading levels were Not Reading ($n = 1$), 1st Grade Instructional Level ($n = 1$), 2nd Grade Instructional Level ($n = 5$), and 3rd Grade Instructional Level ($n = 4$).
Procedure

A multiple regression analysis was performed between the independent and dependent variables using Statistical Package for the Social Sciences (SPSS) statistical analysis software. For a regression model to generalize to a population, some assumptions must be evaluated (Field, 2009). For example, the independent variable (predictor) should be quantitative or categorical and the dependent variable (outcome) should be quantitative, categorical, and far from normal distribution. The predictors should have some variation in the values. There should be no perfect linear relationship between two or more predictors. Multiple regression also assumes that the data are homoscedastic.

The American Psychological Association (APA) Task Force on Statistical Inference (Wilkinson & APA Task Force on Statistical Inference, 1999) stated that researchers should always provide some effect-size estimate when reporting a \( p \)-value. When using multiple regression, Cohen’s \( f^2 \) is an appropriate measure of effect size when evaluating the impact of a set of predictors on an outcome. Cohen (1992) suggests \( f^2 \) values of 0.02, 0.15, and 0.35 represent small, medium, and large effect sizes respectively. Most effect size indices can be grouped into two categories: a) measures of standard differences, such as Cohen’s \( f^2 \) or Pearson’s \( r \), and b) variance-accounted-for-measures, such as \( R^2 \) (Leach & Henson, 2007). \( R^2 \) is a common effect size index; however, \( R^2 \) overestimates the ratio of explained variance to total variance in the population or future samples. Adjustments in \( R^2 \) can correct the overestimation by using factors that affect sampling error. In theory, sampling error increases as the sample size decreases, or if the number of variables and predictors increases, and as the population effect decreases. Results can be misinterpreted if adjustments in effect sizes are not considered and reported. (Leach & Henson, 2007).
Upon careful review of the data, the decision was made to exclude the qualitative data from the multiple regression analysis. There were six children without teacher recommendations (n = 10). Out of the 10 teacher recommendations (Appendix A), six children were rated as Highly Recommend and four were rated as Recommend. Since there was no real difference in the ratings, teacher recommendations would not be useful as predictors for academic success. Values for Parent Inventory (Appendix B) was complete (n = 16), however this data was excluded because there was no variance. Fifteen children received ratings of Recommend and one child was rated as Highly Recommend. Portfolio recommendations (Appendix C) were available for all children (N = 16), but this data was excluded because the results were almost identical. Thirteen children received With Reservations ratings, and three children received Recommend ratings. The data for child interviews was complete (N = 16), however it was excluded for lack of variance in recommendations. Twelve children received With Reservations ratings, three received Recommend ratings, and one received Highly Recommend rating. Ratings for Teacher Evaluations (N = 16) were also too similar and therefore excluded from the analysis. Four students received a Recommend rating and six received a Highly Recommend rating. Because there was no variance in the qualitative measures, there was no value in using them as predictors in the multiple regression analysis.

All quantitative variables (Table 1) were screened for missing values. The KBIT-2 total IQ score was found to be missing four values (n = 12), the KeyMath-R/NU was missing eight values (n = 8), and the instructional reading level was missing five values (n = 11). It was decided to delete the KeyMath-R/NU scores due to the small sample (n = 8) and communicate the known instructional reading levels in the description of the sample population.
Descriptive statistics for the independent variables revealed a negative skew with positive kurtosis. Descriptive statistics for the dependent variables also have a negative skew with a predominately negative kurtosis. Homoscedasticity was examined through several scatterplots and these indicated reasonable distribution.

Table 1

*Explanation of Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBITtotal</td>
<td>Independent</td>
<td>KBIT-2 Full Scale IQ Score</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>Independent</td>
<td>WPPSI-III Full Scale IQ Score</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>Independent</td>
<td>NNAT Full Scale IQ Score</td>
</tr>
<tr>
<td>WIATread</td>
<td>Independent</td>
<td>WIAT-II Reading Percentile</td>
</tr>
<tr>
<td>WIATlang</td>
<td>Independent</td>
<td>WIAT-II Oral Language Percentile</td>
</tr>
<tr>
<td>WIATmath</td>
<td>Independent</td>
<td>WIAT-II Math Percentile</td>
</tr>
<tr>
<td>StanReadTot</td>
<td>Dependent</td>
<td>Stanford-10 Reading Percentile</td>
</tr>
<tr>
<td>StanMathTot</td>
<td>Dependent</td>
<td>Stanford-10 Math Percentile</td>
</tr>
<tr>
<td>Gr1ReadFin</td>
<td>Dependent</td>
<td>Grade 1 Reading Final Average</td>
</tr>
<tr>
<td>Gr1MathFin</td>
<td>Dependent</td>
<td>Grade 1 Math Final Average</td>
</tr>
<tr>
<td>Gr1SciFin</td>
<td>Dependent</td>
<td>Grade 1 Science Final Average</td>
</tr>
<tr>
<td>Gr1SSFin</td>
<td>Dependent</td>
<td>Grade 1 Social Studies Final Average</td>
</tr>
<tr>
<td>Gr2ReadFin</td>
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<td>Grade 2 Reading Final Average</td>
</tr>
<tr>
<td>Gr2MathFin</td>
<td>Dependent</td>
<td>Grade 2 Math Final Average</td>
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<tr>
<td>Gr2SciFin</td>
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<td>Grade 2 Science Final Average</td>
</tr>
<tr>
<td>Gr2SSFin</td>
<td>Dependent</td>
<td>Grade 2 Social Studies Final Average</td>
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</table>
CHAPTER 4

RESULTS

Analysis of Data

The ceiling scores, mean scores ($M$), standard deviations ($SD$), skewness, and kurtosis of the independent and dependent variables are shown in Table 2 and Table 3.

Table 2

*Independent Variables Ceiling Scores, Mean Scores, Standard Deviations, Skewness, and Kurtosis*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Ceiling Scores</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBITtotal (full scale IQ)</td>
<td>160</td>
<td>128.08</td>
<td>10.426</td>
<td>-.492</td>
<td>-.988</td>
</tr>
<tr>
<td>WPPSItotal (full scale IQ)</td>
<td>160</td>
<td>136.12</td>
<td>12.055</td>
<td>-.334</td>
<td>-.488</td>
</tr>
<tr>
<td>NNATtotal (full scale IQ)</td>
<td>160</td>
<td>131.08</td>
<td>12.997</td>
<td>-.913</td>
<td>1.245</td>
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<tr>
<td>WIATread (percentile)</td>
<td>99</td>
<td>98.088</td>
<td>2.4703</td>
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<td>1.993</td>
</tr>
<tr>
<td>WIATlang (percentile)</td>
<td>99</td>
<td>87.125</td>
<td>14.3289</td>
<td>-1.462</td>
<td>1.124</td>
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<tr>
<td>WIATmath (percentile)</td>
<td>99</td>
<td>97.319</td>
<td>3.379</td>
<td>-1.754</td>
<td>2.891</td>
</tr>
</tbody>
</table>

Table 3

*Dependent Variables Ceiling Scores, Mean Scores, Standard Deviations, Skewness, and Kurtosis*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Ceiling Scores</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
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<tbody>
<tr>
<td>StanReadTot (percentile)</td>
<td>99</td>
<td>91.69</td>
<td>11.568</td>
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<td>4.868</td>
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<td>StanMathTot (percentile)</td>
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<td>Gr1MathFin (percent)</td>
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<tr>
<td>Gr1SciFin (percent)</td>
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<td>2.720</td>
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<td>-.794</td>
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<tr>
<td>Gr1SSFin (percent)</td>
<td>100</td>
<td>91.38</td>
<td>2.553</td>
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<td>.480</td>
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<tr>
<td>Gr2ReadFin (percent)</td>
<td>100</td>
<td>93.50</td>
<td>2.898</td>
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<tr>
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<td>1.922</td>
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<td>-.921</td>
</tr>
<tr>
<td>Gr2SSFin (percent)</td>
<td>100</td>
<td>96.88</td>
<td>1.586</td>
<td>-.225</td>
<td>-.994</td>
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Multiple regression was conducted to test the relationship of the six predictor variables with Stanford-10 Reading percentiles. The regression summary indicates there is not a significant relationship between the predictor variables and the Stanford-10 Reading percentiles. The model accounts for 7.2% of the variance in the Stanford-10 Reading percentile (Table 4).

Table 4

<table>
<thead>
<tr>
<th>Model</th>
<th>$f^2$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$F$</th>
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<td>0.268</td>
<td>0.072</td>
<td>-1.042</td>
<td>0.065</td>
<td>0.998</td>
</tr>
</tbody>
</table>

The relationship of all predictor variables on the Stanford-10 Math percentiles was examined. The regression summary indicates there is no significant relationship between the predictor variables and the Stanford-10 Math percentiles. The model accounts for 52.3% of the variance in the Stanford-10 Math percentiles (Table 5). Since the overall effect was large, although not statistically significant, the model was interpreted for significant variables.

Table 5

<table>
<thead>
<tr>
<th>Model</th>
<th>$f^2$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1.09</td>
<td>0.723</td>
<td>0.523</td>
<td>-0.049</td>
<td>0.914</td>
<td>0.550</td>
</tr>
</tbody>
</table>

Beta weights and structure coefficients were examined. Both WIAT reading and WIAT language contributed the most to variance explained in Stanford-10 Math percentiles. WIAT reading ($r = .796$, $p < .01$) explained 63.4% of the variation in Stanford-10 Math percentiles. WIAT language ($r = .674$, $p < .05$) explained 41.9% of the variation in Stanford-10 Math percentiles.
percentiles. Large effect sizes were observed for WIAT reading \((f^2 = 1.73)\) and WIAT language \((f^2 = 0.72)\). The KBIT total had a medium effect size \((f^2 = 0.20)\). The other predictor variables had small effect sizes (Table 6).

Table 6

*Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Stanford-10 Math Percentiles*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>β</th>
<th>(f^2)</th>
<th>(r)</th>
<th>(r^2)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>252.390</td>
<td>.519</td>
<td>.413</td>
<td>.171</td>
<td>.413</td>
<td></td>
</tr>
<tr>
<td>KBITtotal</td>
<td>-.801</td>
<td>-1.184</td>
<td>.20</td>
<td>-.413</td>
<td>.171</td>
<td>.413</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>-.140</td>
<td>-.223</td>
<td>.02</td>
<td>-.164</td>
<td>.027</td>
<td>.593</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>.555</td>
<td>.962</td>
<td>.03</td>
<td>-.196</td>
<td>.038</td>
<td>.464</td>
</tr>
<tr>
<td>WIATread</td>
<td>.412</td>
<td>.155</td>
<td>1.73</td>
<td>.796**</td>
<td>.634</td>
<td>.767</td>
</tr>
<tr>
<td>WIATlang</td>
<td>.338</td>
<td>.735</td>
<td>.72</td>
<td>.647*</td>
<td>.419</td>
<td>.274</td>
</tr>
<tr>
<td>WIATmath</td>
<td>-1.829</td>
<td>-.950</td>
<td>.05</td>
<td>.226</td>
<td>.051</td>
<td>.498</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)**

*Correlation is significant at the 0.05 level (2-tailed)*

The influence of predictor variables on the Grade 1 Reading Final Grade Average was tested with multiple regression. The regression summary indicates there is no significant relationship between the predictor variables and the Grade 1 Reading Final Grade Average. The model accounts for 58.4% of the variance in the Grade 1 Reading Final Grade Average (Table 7). Since the overall effect was large, although not statistically significant, the model was interpreted for significant variables.
Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 1 Reading Final Grade Averages indicate the WPPSI-III total has a strong positive correlation with the Grade 1 Reading Final Grade Averages \((r = .803, p < .01)\) and accounts for 64.5% of the variance explained. WIAT language, WIAT math, and the NNAT total contribute little, if any, to the variance explained. A large effect size was observed for the WPPSI total \((f^2 = 1.81)\). The KBIT total had a medium effect size \((f^2 = 0.16)\). The other predictor variables had small, if any, effect sizes (Table 8).

Table 8

*Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 1 Reading Final Grade Average*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>(B)</th>
<th>(\beta)</th>
<th>(f^2)</th>
<th>(r)</th>
<th>(r^2)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>64.864</td>
<td></td>
<td></td>
<td>.715</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KBITtotal</td>
<td>-.067</td>
<td>-.202</td>
<td>0.16</td>
<td>-.376</td>
<td>.141</td>
<td>.877</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>.239</td>
<td>.772</td>
<td>1.81</td>
<td>.803**</td>
<td>.645</td>
<td>.089</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>-.100</td>
<td>-.349</td>
<td>0.04</td>
<td>-.200</td>
<td>.040</td>
<td>.770</td>
</tr>
<tr>
<td>WIATread</td>
<td>-.008</td>
<td>-.006</td>
<td>0.09</td>
<td>.289</td>
<td>.084</td>
<td>.989</td>
</tr>
<tr>
<td>WIATlang</td>
<td>.024</td>
<td>.107</td>
<td>0.00</td>
<td>.001</td>
<td>.000</td>
<td>.855</td>
</tr>
<tr>
<td>WIATmath</td>
<td>.152</td>
<td>.160</td>
<td>0.00</td>
<td>.000</td>
<td>.000</td>
<td>.900</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)**
Multiple regression was used to determine the relationship of predictor variables on Grade 1 Math Final Grade Average. The regression summary indicates there is a significant relationship between the predictor variables and the Grade 1 Math Final Grade Average. The model accounts for 86.9% of the variance in the Grade 1 Math Final Grade Average (Table 9). Since the overall effect was large, the model was interpreted for significant variables.

Table 9

Regression Summary of Predictor Variables on Grade 1 Math Final Grade Average

<table>
<thead>
<tr>
<th>Model</th>
<th>$f^2$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>6.63</td>
<td>.932</td>
<td>.869</td>
<td>.711</td>
<td>5.508</td>
<td>.041*</td>
</tr>
</tbody>
</table>

*p < .05

Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 1 Math Final Grade Averages indicate the KBIT total has a strong negative correlation with the Grade 1 Math Final Grade Average ($r = -.855, p < .01$) and accounts for 73.1% of the variance explained. WIAT math has a moderate positive correlation with Grade 1 Math Final Grade Average ($r = .538$) and accounts for 28.9% of the variance explained. A large effect size was observed for the KBIT total ($f^2 = 2.71$) and WIAT math ($f^2 = 0.40$). The other predictor variables had small, if any, effect sizes (Table 10).
Table 10

*Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 1 Math Final Grade Average*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$f^2$</th>
<th>$r$</th>
<th>$r^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>249.193</td>
<td>.033</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KBITtotal</td>
<td>-.591</td>
<td>-1.956</td>
<td>2.71</td>
<td>-.855**</td>
<td>.731</td>
<td>.038</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>.054</td>
<td>.193</td>
<td>0.03</td>
<td>.188</td>
<td>.035</td>
<td>.390</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>.248</td>
<td>.961</td>
<td>0.02</td>
<td>-.165</td>
<td>.027</td>
<td>.192</td>
</tr>
<tr>
<td>WIATread</td>
<td>-.586</td>
<td>-.494</td>
<td>0.04</td>
<td>.212</td>
<td>.045</td>
<td>.116</td>
</tr>
<tr>
<td>WIATlang</td>
<td>.131</td>
<td>.636</td>
<td>0.00</td>
<td>-.031</td>
<td>.001</td>
<td>.099</td>
</tr>
<tr>
<td>WIATmath</td>
<td>-.789</td>
<td>-.918</td>
<td>0.40</td>
<td>.538</td>
<td>.289</td>
<td>.237</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.01 level (2-tailed)*

The relationship of all predictor variables on the Grade 1 Science Final Grade Average was tested with multiple regression. The regression summary indicates there is no significant relationship between the predictor variables and the Grade 1 Science Final Grade Average. The model accounts for 79.4% of the variance in the Grade 1 Science Final Grade Average (Table 11). Since the overall effect was large, although not statistically significant, the model was interpreted for significant variables.

Table 11

*Regression Summary of Predictor Variables on Grade 1 Science Final Grade Average*

<table>
<thead>
<tr>
<th>Model</th>
<th>$f^2$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3.85</td>
<td>.891</td>
<td>.794</td>
<td>.547</td>
<td>3.217</td>
<td>.110</td>
</tr>
</tbody>
</table>
Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 1 Science Final Grade Averages indicate the WPPSI-III is contributing the most to the variance explained in Grade 1 Science Final Grade Averages. WPPSI-III total has a moderate positive correlation with the Grade 1 Science Final Grade Average ($r = .434$) and accounts for 18.8% of the variance explained. WIAT language and WIAT reading contribute little, if any, to the variance explained. A medium effect size was observed for the KBIT total ($f^2 = 0.16$) and the WPPSI total ($f^2 = 0.23$). The other predictor variables had small, if any, effect sizes (Table 12).

Table 12

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>$\beta$</th>
<th>$f^2$</th>
<th>$r$</th>
<th>$r^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>266.551</td>
<td>.008</td>
<td></td>
<td></td>
<td></td>
<td>.008</td>
</tr>
<tr>
<td>KBITtotal</td>
<td>-.536</td>
<td>-3.047</td>
<td>0.16</td>
<td>-.372</td>
<td>.138</td>
<td>.017</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>.002</td>
<td>.014</td>
<td>0.23</td>
<td>.434</td>
<td>.188</td>
<td>.959</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>.388</td>
<td>2.582</td>
<td>0.08</td>
<td>.281</td>
<td>.079</td>
<td>.023</td>
</tr>
<tr>
<td>WIATread</td>
<td>-.510</td>
<td>-.739</td>
<td>0.00</td>
<td>.088</td>
<td>.008</td>
<td>.072</td>
</tr>
<tr>
<td>WIATlang</td>
<td>.134</td>
<td>1.119</td>
<td>0.00</td>
<td>-.028</td>
<td>.000</td>
<td>.036</td>
</tr>
<tr>
<td>WIATmath</td>
<td>-1.234</td>
<td>-2.466</td>
<td>0.14</td>
<td>.355</td>
<td>.126</td>
<td>.034</td>
</tr>
</tbody>
</table>

Multiple regression was conducted to test the relationship of the six predictor variables with Grade 1 Social Studies Final Grade Average. The regression summary indicates there is not a significant relationship between the predictor variables and the Grade 1 Social Studies Final Grade Average. The model accounts for 47.9% of the variance in the Grade 1 Social Studies Final Grade Average (Table 13). Since the overall effect was large, although not statistically significant, the model was interpreted for significant variables.
Table 13

Regression Summary of Predictor Variables on Grade 1 Social Studies Final Grade Average

<table>
<thead>
<tr>
<th>Model</th>
<th>( f^2 )</th>
<th>( R )</th>
<th>( R^2 )</th>
<th>Adj. ( R^2 )</th>
<th>( F )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>0.91</td>
<td>0.692</td>
<td>0.479</td>
<td>-0.146</td>
<td>0.766</td>
<td>0.627</td>
</tr>
</tbody>
</table>

Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 1 Social Studies Grade Average indicate the KBIT total and the NNAT total are contributing most to variance explained. The KBIT total has a negative correlation with the Grade 1 Social Studies Final Grade Average (\( r = -0.677, p < .05 \)) and accounts for 45.8% of the variance explained. The NNAT total also has a negative correlation with Grade 1 Social Studies Final Grade Average (\( r = -0.609, p < .05 \)) and accounts for 37.1% of the variance explained. A large effect size was observed for the KBIT total (\( f^2 = 0.84 \)) and the NNAT total (\( f^2 = 0.58 \)). The WPPSI total had a medium effect size (\( f^2 = 0.16 \)). The other predictor variables had small, if any, effect sizes (Table 14).

Table 14

Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 1 Social Studies Final Grade Average

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( B )</th>
<th>( \beta )</th>
<th>( f^2 )</th>
<th>( r )</th>
<th>( r^2 )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>40.485</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.762</td>
</tr>
<tr>
<td>KBITtotal</td>
<td>.074</td>
<td>.327</td>
<td>0.84</td>
<td>-0.677*</td>
<td>0.458</td>
<td>0.823</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>.115</td>
<td>.554</td>
<td>0.16</td>
<td>0.375</td>
<td>0.141</td>
<td>0.234</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>-.204</td>
<td>-1.063</td>
<td>0.58</td>
<td>-0.609*</td>
<td>0.371</td>
<td>0.440</td>
</tr>
<tr>
<td>WIATread</td>
<td>.082</td>
<td>.093</td>
<td>0.08</td>
<td>0.281</td>
<td>0.079</td>
<td>0.865</td>
</tr>
<tr>
<td>WIATlang</td>
<td>-.037</td>
<td>-.242</td>
<td>0.02</td>
<td>-0.146</td>
<td>0.021</td>
<td>0.715</td>
</tr>
<tr>
<td>WIATmath</td>
<td>.484</td>
<td>.757</td>
<td>0.00</td>
<td>-0.004</td>
<td>0.000</td>
<td>0.602</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)
The relationship of all predictor variables on the Grade 2 Reading Final Grade Average was tested with multiple regression. The regression summary indicates there is no significant relationship between the predictor variables and the Grade 2 Reading Final Grade Average. The model accounts for 60.4% of the variance in the Grade 2 Reading Final Grade Average (Table 15). Since the overall effect was large, although not statistically significant, the model was interpreted for significant variables.

Table 15

Regression Summary of Predictor Variables on Grade 2 Reading Final Grade Average

<table>
<thead>
<tr>
<th>Model</th>
<th>$f^2$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1.52</td>
<td>.777</td>
<td>.604</td>
<td>.129</td>
<td>1.271</td>
<td>.405</td>
</tr>
</tbody>
</table>

Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 2 Reading Final Grade Average indicate the WPPSI-III total has a strong positive correlation with the Grade 2 Reading Final Grade Average ($r = .756$, $p < .01$) and accounts for 57.2% of the variance explained. WIAT reading has a moderate positive correlation with Grade 2 Reading Final Grade Average ($r = .452$) and accounts for 20.4% of the variance explained. A large effect size was observed for the WPPSI total ($f^2 = 1.33$) and WIAT math ($f^2 = 1.09$). WIAT reading had a medium effect size ($f^2 = 0.25$). The other predictor variables had small, if any, effect sizes (Table 16).
Table 16

Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 2 Reading Final Grade Average

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$f^2$</th>
<th>$r$</th>
<th>$r^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-42.315</td>
<td>.778</td>
<td></td>
<td></td>
<td></td>
<td>.778</td>
</tr>
<tr>
<td>KBITtotal</td>
<td>.119</td>
<td>.411</td>
<td>.12</td>
<td>-.335</td>
<td>.112</td>
<td>.748</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>.180</td>
<td>.670</td>
<td>1.33</td>
<td>.756**</td>
<td>.572</td>
<td>.119</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>-.101</td>
<td>-.410</td>
<td>0.06</td>
<td>.245</td>
<td>.060</td>
<td>.726</td>
</tr>
<tr>
<td>WIATread</td>
<td>.560</td>
<td>.493</td>
<td>0.25</td>
<td>.452</td>
<td>.204</td>
<td>.324</td>
</tr>
<tr>
<td>WIATlang</td>
<td>-.068</td>
<td>-.344</td>
<td>0.00</td>
<td>-.142</td>
<td>.004</td>
<td>.556</td>
</tr>
<tr>
<td>WIATmath</td>
<td>.621</td>
<td>.753</td>
<td>1.09</td>
<td>.315</td>
<td>.099</td>
<td>.553</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.01 level (2-tailed)

The relationship of all predictor variables on the Grade 2 Math Final Grade Average was tested with multiple regression. The regression summary indicates there is no significant relationship between the predictor variables and the Grade 2 Math Final Grade Average. The model accounts for 71.2% of the variance in the Grade 2 Math Final Grade Average (Table 17). Since the overall effect was large, although not statistically significant, the model was interpreted for significant variables.

Table 17

Regression Summary of Predictor Variables on Grade 2 Math Final Grade Average

<table>
<thead>
<tr>
<th>Model</th>
<th>$f^2$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2.47</td>
<td>.844</td>
<td>.712</td>
<td>.366</td>
<td>2.056</td>
<td>.223</td>
</tr>
</tbody>
</table>

Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 2 Math Final Grade Average indicate the KBIT total has a strong negative correlation with
the Grade 2 Math Final Grade Average \((r = -0.674, p < .05)\) and accounts for 45.4% of the variance explained. The NNAT total has a moderate negative correlation \((r = -0.493)\) and accounts for 24.3% of the variance explained. A large effect size was observed for the KBIT total \((f^2 = 0.83)\). The NNAT total had a medium effect size \((f^2 = 0.32)\). The other predictor variables had small, if any, effect sizes (Table 18).

Table 18

*Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 2 Math Final Grade Average*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>(B)</th>
<th>(β)</th>
<th>(f^2)</th>
<th>(r)</th>
<th>(r^2)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>263.789</td>
<td>0.037</td>
<td></td>
<td></td>
<td></td>
<td>.037</td>
</tr>
<tr>
<td>KBITtotal</td>
<td>-0.493</td>
<td>-2.205</td>
<td>0.83</td>
<td>-0.674*</td>
<td>.454</td>
<td>.086</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>0.032</td>
<td>0.155</td>
<td>0.11</td>
<td>-0.324</td>
<td>.105</td>
<td>.633</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>0.232</td>
<td>1.218</td>
<td>0.32</td>
<td>-0.493</td>
<td>.243</td>
<td>.253</td>
</tr>
<tr>
<td>WIATread</td>
<td>-0.418</td>
<td>-0.477</td>
<td>0.08</td>
<td>-0.277</td>
<td>.077</td>
<td>.270</td>
</tr>
<tr>
<td>WIATlang</td>
<td>0.092</td>
<td>0.608</td>
<td>0.04</td>
<td>-0.214</td>
<td>.046</td>
<td>.249</td>
</tr>
<tr>
<td>WIATmath</td>
<td>-1.109</td>
<td>-1.743</td>
<td>0.00</td>
<td>-0.097</td>
<td>.009</td>
<td>.146</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)*

The relationship of all predictor variables on the Grade 2 Science Final Grade Average was tested with multiple regression. The regression summary indicates there is no significant relationship between the predictor variables and the Grade 2 Science Final Grade Average. The model accounts for 69.8% of the variance in the Grade 2 Science Final Grade Average (Table 19). Since the overall effect was large, although not statistically significant, the model was interpreted for significant variables.
Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 2 Science Grade Average indicate the WPPSI-III total is statistically significant ($p < .05$). The WPPSI-III total has a moderate positive correlation with the Grade 2 Science Final Grade Average ($r = -.651$, $p < .05$) and accounts for 42.4% of the variance explained. The KBIT total has a moderate negative correlation with the Grade 2 Science Grade Average ($r = -.454$) and accounts for 20.6% of the variance explained. A large effect size was observed for the WPPSI total ($f^2 = 0.73$). The KBIT total had a medium effect size ($f^2 = 0.25$). The other predictor variables had small effect sizes (Table 20).

Table 20

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$f^2$</th>
<th>$r$</th>
<th>$r^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>71.313</td>
<td>.419</td>
<td></td>
<td></td>
<td></td>
<td>.419</td>
</tr>
<tr>
<td>KBITtotal</td>
<td>.032</td>
<td>.172</td>
<td>.25</td>
<td>-.454</td>
<td>.206</td>
<td>.877</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>.149</td>
<td>.848</td>
<td>.73</td>
<td>.651*</td>
<td>.424</td>
<td>.042</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>-.149</td>
<td>-.925</td>
<td>.04</td>
<td>-.213</td>
<td>.045</td>
<td>.382</td>
</tr>
<tr>
<td>WIA Tread</td>
<td>-.183</td>
<td>-.246</td>
<td>.01</td>
<td>-.099</td>
<td>.010</td>
<td>.559</td>
</tr>
<tr>
<td>WIA Tlang</td>
<td>-.018</td>
<td>-.138</td>
<td>.04</td>
<td>-.215</td>
<td>.046</td>
<td>.784</td>
</tr>
<tr>
<td>WIA Tmath</td>
<td>.411</td>
<td>.764</td>
<td>.02</td>
<td>.145</td>
<td>.021</td>
<td>.494</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed)
The relationship of all predictor variables on the Grade 2 Social Studies Final Grade Average was tested with multiple regression. The regression summary indicates there is a significant relationship between the predictor variables and the Grade 2 Social Studies Final Grade Average \((p < .05)\). The model accounts for 90.8% of the variance in the Grade 2 Social Studies Final Grade Average (Table 21). Since the overall effect was statistically significant, the model was interpreted for significant variables.

Table 21

*Regression Summary of Predictor Variables on Grade 2 Social Studies Final Grade Average*

<table>
<thead>
<tr>
<th>Model</th>
<th>(f^2)</th>
<th>(R)</th>
<th>(R^2)</th>
<th>Adj. (R^2)</th>
<th>(F)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>9.98</td>
<td>.953</td>
<td>.908</td>
<td>.799</td>
<td>8.304</td>
<td>.017*</td>
</tr>
</tbody>
</table>

*\(p < .05\)

Interpretations of the beta weights and structure coefficients of predictor variables on the Grade 2 Social Studies Grade Average indicate the KBIT total was statistically significant and has a strong negative correlation with the Grade 2 Social Studies Final Grade Average \((r = -.740, p < .001)\) and accounts for 54.8% of the variance explained. WIAT Reading has a moderate positive correlation with the Grade 2 Social Studies Grade Average \((r = .608, p < .005)\) and accounts for 37% of the variance explained. A large effect size was observed for the KBIT total \((f^2 = 1.21)\), the NNAT total \((f^2 = 0.47)\) and WIAT reading \((f^2 = 0.58)\). WIAT language had a medium effect size \((f^2 = 0.23)\). The other predictor variables had small, if any, effect sizes (Table 22).
Table 22

Report of Multiplicative Weights & Structure Coefficients of Predictor Variables with Grade 2 Social Studies Final Grade Average

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>β</th>
<th>$f^2$</th>
<th>r</th>
<th>$r^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>112.416</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.025</td>
</tr>
<tr>
<td>KBITtotal</td>
<td>-.132</td>
<td>-.881</td>
<td>1.21</td>
<td>-.740**</td>
<td>.548</td>
<td>.189</td>
</tr>
<tr>
<td>WPPSItotal</td>
<td>.033</td>
<td>.234</td>
<td>0.00</td>
<td>.014</td>
<td>.000</td>
<td>.231</td>
</tr>
<tr>
<td>NNATtotal</td>
<td>-.014</td>
<td>-.109</td>
<td>0.47</td>
<td>-.567</td>
<td>.321</td>
<td>.846</td>
</tr>
<tr>
<td>WIATread</td>
<td>.007</td>
<td>.011</td>
<td>0.58</td>
<td>.608*</td>
<td>.370</td>
<td>.961</td>
</tr>
<tr>
<td>WIATlang</td>
<td>.062</td>
<td>.611</td>
<td>0.23</td>
<td>.439</td>
<td>.193</td>
<td>.067</td>
</tr>
<tr>
<td>WIATmath</td>
<td>-.076</td>
<td>-.179</td>
<td>0.04</td>
<td>.217</td>
<td>.047</td>
<td>.766</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
CHAPTER 5
DISCUSSION

Interpretation of Findings

In this study, the sample mean scores \( M \) of the cognitive ability tests varied. The KBIT-2 total mean score \( M \) is 128.08, the NNAT total mean score \( M \) is 131.08, and the WPPSI-III total mean score \( M \) is 136.12. Validation studies with various Wechsler scales suggest lower mean IQs for the KBIT-2 (norm group mean of 115) when compared to Wechsler scales. Norm group mean IQ scores range from the low to middle 120s for gifted groups on various Wechsler scales (Madle & Shaw, 2007). In a group study conducted by Madle and Shaw to provide additional information for validity, gifted children had a mean IQ of 126.2. Although the mean score for the KBIT-2 in this study is higher than the norm group mean, the KBIT-2 full scale IQ score is 8.04 points lower than the sample mean score for the WPPSI-III full scale IQ.

The sample mean score \( M \) for the WIAT-II Oral Language percentile is 87, about 11 points lower than the sample mean scores for WIAT-II reading and math percentiles, which are at the 98th percentile and 97th percentile respectively. Oral Language consists of two subtests to evaluate the types of skills used in a classroom. Listening Comprehension measures receptive and expressive vocabulary and sentence completion. Oral Expression measures verbal abilities through sentence repetition, word fluency, visual passage retelling, and giving directions (Tindal, 2003). It is unclear why WIAT-II Oral Language percentiles would be considerably lower than WIAT-II Reading and WIAT-II Mathematics percentiles.

The Stanford-10 Reading percentiles for the sample have a mean score \( M \) of 91.69. The sample’s Stanford-10 Math percentiles have a slightly higher mean score \( M \) of 95.75. These averages seem relatively low for highly gifted students. This may be due to the tendency of some
highly gifted students to not attend well to grade level questions since they perceive the items as too easy. It is also possible that the scores are a reflection of a mismatch in state and national curriculum standards versus what is taught in LEAP classrooms.

The final grade averages in all subjects for both Grade 1 and Grade 2 ranged from a low of 91.13 (Grade 1 Math) to an overall high of 96.88 (Grade 2 Social Studies). Second grade final averages in all subjects were higher than the final averages in first grade, by as much as 5.5 points. It is not clear why the second grade averages were higher than the first grade averages in all subject areas, but one could speculate that there was a difference in the academic rigor between the two grade levels or that students had adjusted to the expectations of school.

This study indicates the predictor variables had no statistically significant effect on the Stanford-10 Reading or Stanford-10 Math percentiles. The WIAT-II Reading and Math tests explained the most variance in the Stanford-10 Math percentiles. It may seem unusual to see the influence of WIAT-II Reading in this model. However, math and language are interwoven – both are based on cognition. Math and reading demand the student to make connections, ask questions, visualize, infer and predict, determine importance, synthesize information, and monitor their cognition (Hyde, 2007).

Upon examination of Grade 1 and Grade 2 Reading Final Average, it was noted that the regression summary of predictor variables accounted for roughly the same variance explained in both grade levels (Grade 1, 58.4%; Grade 2, 60.4%). The WPPSI-III total was strongly correlated with Final Average in Reading in both grades (Grade 1, \( r = .803 \); Grade 2, \( r = .756 \)). The WPPSI-III total explained 64.5% of the variance in Grade 1 Reading Final Average and 57% of the variance explained in Grade 2 Reading Final Average.
In the regression summary, the predictor variables as a group have a strong positive correlation with Grade 1 and Grade 2 Math Final Grade Averages. For Grade 1, all predictor variables explained 86.9% of the variance, while in Grade 2, all predictor variables explained 71.2%. In both grade levels, the KBIT total has a strong negative correlation with Math Final Grade Averages (Grade 1, \( r = -0.855 \); Grade 2, \( r = -0.674 \)). This indicates the KBIT is not a good predictor of academic achievement in math.

All of the predictor variables in the regression summary have a strong positive correlations with Grade 1 and Grade 2 Science Final Grade Averages (Grade 1, \( r = 0.891 \); Grade 2, \( r = 0.826 \)). Grade 1 predictor variables explained 79.4% of the variance, and Grade 2 predictor variables explained 69.8% of the variance. WPPSI-III total has a moderate correlation with Grade 1 and Grade 2 Final Science Averages and accounts for 18.8% of the variance explained in Grade 1 and 42.4% of the variance explained in Grade 2.

Grade 1 and Grade 2 Social Studies Final Grade Average regression summary shows a strong correlation with the predictor variables and the final grade averages (Grade 1, \( r = 0.692 \); Grade 2, \( r = 0.953 \)). Grade 1 predictor variables contributed to 47.9% of the variance explained, while Grade 2 predictor variables contributed to 90.9% of the variance explained. The KBIT-2 had a strong negative correlation in both grade levels and contributed the most to variance explained, suggesting its usefulness as a predictor of academic achievement in Social Studies may be limited.

Given the results of this study, the NNAT, KBIT-2, WPPSI-III, and WIAT-II, as a group, identifies highly gifted 5- and 6-year-old children who will achieve academically in the LEAP program. Individually, each test serves a purpose in the identification process. The NNAT is used as a pre-screening tool for groups of children in the district. After reviewing the NNAT
scores to determine if the child should advance in the identification process, the KBIT-2 is used by the gifted specialists as a quick individual screening measure. By using the NNAT and the KBIT-2, plus the qualitative measures, the gifted specialist finds those students who need to be evaluated further with the WPPSI-III and the WIAT-II. However, based on this study, it is not recommended that the KBIT-2 be used as a tool for screening children since it has a negative correlation in predicting academic achievement. In place of the KBIT-2, the district should consider administering a Cognitive Abilities Test (CogAT) Form 6, preferably off-level, as an additional measure for screening since it measures verbal, quantitative, and nonverbal abilities. Overall, the WPPSI-III has the strongest correlation with academic achievement, followed by the WIAT-II.

Based on the findings in this study, the district’s qualitative measures should be reviewed in order to establish some variance in the responses. The Gifted Rating Scales – Preschool/Kindergarten Form (GRS-P) could be substituted for the district’s Teacher Recommendation form (Appendix A). The GRS-P is a technically sound screening instrument, having been standardized with the WPPSI-III and the WISC-IV. The GRS-P uses a multidimensional model of giftedness based on intellectual ability, academic ability, creativity, artistic talent, and motivation (Pfeiffer & Petscher, 2008). In place of the Parent Inventory (Appendix B), the district should consider the Characteristics of Giftedness Scale or Things My Child Has Done checklist. Both of these measures have a Likert-type scale to quantify responses, making variance in gifted characteristics more evident. This would also eliminate the subjective evaluation of responses on the district’s parent inventory. In addition, the Portfolio Evaluation rubric (Appendix C) should be modified to reflect the abilities of average, gifted, and highly gifted young children. This will increase the variance in the evaluations of the portfolios.
It is also evident from this study that the district should examine additional methods to identify highly gifted students of other ethnicities. For example, extensive parent and teacher education on the characteristics of gifted and highly gifted students is recommended, beginning as early as preschool. Other tests such as the Bilingual Verbal Ability Tests (BVAT) may prove useful in identification of highly gifted bilingual students.

It is also recommended that members of the ARE committee not directly involved with testing receive training on the characteristics of highly gifted 5- and 6-year-old children and an introduction to the tests children are administered. It is also suggested that the gifted specialist provide the qualitative and quantitative measures used to build the student profile one week before the ARE committee meeting so that members of the committee may carefully examine all assessments, recommendations, inventories, and portfolio samples. Given the amount of data collected for each child and the number of children processed at each meeting, this would allow for a more informed discussion and placement recommendation for the child.

Limitations of the Study

There are several limitations to the study:

1. Statisticians generally recommend that in correlational studies the sample size should include more than 30 participants in order to reflect trait distributions of a population (Mertler, C. & Charles, C., 2008). The sample size of this study ($N = 16$) does not meet this criteria, however, the sample will grow every academic year as additional students who have participated in LEAP since kindergarten complete second grade. Currently, 54 students have attended, or are attending LEAP Kindergarten. Of these, 16 have completed second grade and these students are represented in this study.
2. Student achievement may be impacted by the experience of the teachers. This study does not examine the level of experience or training in gifted education of instructors teaching in the program.

3. Student achievement may be affected by social-emotional factors as well as an inappropriate curriculum (Rimm, 2008). Evaluation of self-efficacy and self-esteem is not an aspect of this study.

Recommendations for Further Study

The identification measures used to identify highly gifted students for the LEAP program have resulted in an underrepresentation of Hispanic, African American, and American Indian students. This problem is reflected in the demographics of the participants of this study - eight children are Asian, seven are White, and one is Hispanic. Further study is needed to determine how to increase the identification of underrepresented ethnicities in the LEAP program.

Conclusion

This study sought to determine if the identification measures used to place highly gifted 5- and 6-year-old children in the LEAP program were in fact finding children who would achieve in the rigorous academic environment. All sixteen children in the sample did achieve as evidenced by final subject averages, and all students but one (whose family moved) remain enrolled in the program.

While many factors that were not controlled for in this study affect a student’s academic achievement, it appears for this sample that the WPPSI-III stands as the measure to give the highest mean IQ score and it proved to have a strong correlation with reading achievement. The WIAT-II Achievement Test contributed in small part to the prediction of academic achievement.
Although the NNAT and KBIT-2 are used by the district to screen for giftedness, they are not effective predictors of academic achievement of highly gifted 5- and 6-year-old children.

Although the qualitative data were not included in the multiple regression, its importance cannot be discounted in contributing to the student profile used in identification. Characteristics of highly gifted children may be found in the parent or teacher recommendations. The student’s interview and portfolio may provide additional clues to support the presence or absence of giftedness.

For the 2009-2010 school year, the U.S. Department of Education (2009b) estimates an all-time high enrollment in kindergarten, approximately 3,790,000 students. That means there will be approximately 3,790 highly gifted kindergarteners (1 in 1000) in need of an accelerated curriculum to meet their educational and social/emotional needs. It is imperative that districts have valid and reliable measures to identify this unique population in order to offer appropriate forms of acceleration so highly gifted children may experience all the benefits of academic achievement.
APPENDIX A

PERSONAL CHARACTERISTICS APPRAISAL TEACHER FORM

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PERSONAL CHARACTERISTICS APPRAISAL FOR LEAP

TO: __________________________________________

Teacher name and school

RE: __________________________________________ GRADE __________

Student name

DATE: ____________________________

PERSONAL CHARACTERISTICS APPRAISAL

A teacher observation scale for rating learning, social-emotional work-study, and production skills of potential LEAP students.

This student has been nominated as a potential LEAP student. Your help is now needed in providing additional information on this student, utilizing the attached PERSONAL CHARACTERISTICS APPRAISAL form. Personnel observation is one of the 5 required criteria in the LEAP identification process.

Consider each characteristic as it applies to the student and rate each according to the following scale:

5 = observed constantly  (exceptional)
4 = observed to a high degree  (above average)
3 = observed occasionally  (average)
2 = observed sporadically  (below average)
1 = observed minimally  (well below average)
0 = unsure or don’t know

N/A = not applicable to my content area (mark where appropriate)

Enter a score for each of the characteristic in the four (4) strength areas, then the totals. In addition, please answer the questions in each of the four areas. Although the scores are important, your candid and specific observations are even more valuable to the screening team. Return this form at your earliest convenience to your school counselor. We appreciate your thoughtful consideration.

Thank you.
## I. LEARNING CHARACTERISTICS

1. Thinks logically and/or critically.  
2. Retains for a long period and has recall of factual information.  
3. Seeks insights, is observant.  
4. Has a large storehouse of information.  
5. Transfers learning easily from one subject area to another.  
6. Functions at higher cognitive levels with little frustration.  
7. Masters basic skills easily and quickly.  
8. Is intuitive; understands with little or no apparent effort.  
9. Enjoys learning; is curious.  
10. Has advanced oral, written and/or reading vocabulary.

Section total ________

Please give specific examples of the student's learning strengths (i.e., samples of unusually strong vocabulary usage, interests not typical for students his/her age, depth of knowledge in a specific area, or any other observed evidence of superior learning strengths).

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
<th>Example 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## II. SOCIAL-EMOTIONAL CHARACTERISTICS

11. Adapts readily to new situations. Is flexible in thought and action.  
12. Tends to show more than usual interest in ethical/philosophical issues.  
14. Social, in the classroom.  
15. Has a sense of humor, enjoys contradictions/paradoxes.  
16. Is cooperative.  
17. Relates well with peers and adults who have similar interests.  
18. Has high personal standards; tends to perfectionism.  
20. Is responsible, reliable.

Section total ________

What are some instances that you have observed concerning this student's characteristics that differentiates him/her from the rest of the class?

(continued)
III. GENERAL WORK-STUDY CHARACTERISTICS

21. Is attentive to classroom instruction.  5 4 3 2 1
22. Is highly motivated, seeks new tasks/activities.  5 4 3 2 1
23. Is resourceful.  5 4 3 2 1
24. Is spontaneous, can improvise.  5 4 3 2 1
25. Has high tolerance for ambiguity.  5 4 3 2 1
26. Has self-discipline.  5 4 3 2 1
27. Seeks to improve areas of need.  5 4 3 2 1
28. Assignments are done well, on time.  5 4 3 2 1
29. Is well organized; plans and uses time to advantage.  5 4 3 2 1
30. Is a good problem solver.  5 4 3 2 1

Section total

Please give specific examples of resourcefulness, and imaginative methods of accomplishing tasks (i.e., creative shortcuts, putting objects or ideas together in unusual ways, making something out of nothing, methods used for independent study, etc.)

IV. PRODUCTION STRENGTHS

(In this area, please consider only those activities conducted within the classroom or school setting.)

31. Is task committed, persevering.  5 4 3 2 1
32. Highly productive; accomplishes goals.  5 4 3 2 1
33. Is a problem “finder.” Can identify problem situation.  5 4 3 2 1
34. Generates more than one idea for, or solution to a problem.  5 4 3 2 1
35. Is original in thought and expression.  5 4 3 2 1
36. Meets deadlines with ease; needs little or no reminding.  5 4 3 2 1
37. Is able to set goals for self, in relation to production.  5 4 3 2 1
38. Uses imaginative methods.  5 4 3 2 1
39. Constructs models, charts, graphs or visual materials.  5 4 3 2 1
40. Creates stories, books or writes poetry.  5 4 3 2 1

Section total

Please describe instances in which the student has demonstrated strengths in production. In addition, please attach samples of student’s original work that indicates high productivity levels.

(continued)

COMPOSITE SCORE
1. Please list any other descriptors applicable to this student not already mentioned.

2. Many factors affect a student's performance in an academic program. If you are aware of any other information you feel is pertinent in the selection process, please indicate below.

3. Do you believe this student's needs would be best served through LEAP placement?

   DEFINITELY    PROBABLY    I'M NOT SURE    NO

   Please indicate reasons for your choice:
Date ________________

Child’s Name ____________________________ Birth date ______________________________

Parent/Guardian’s Name __________________________

Address ____________________________ E-Mail ____________________

City ____________________ ZIP Code ____________________

Phone Numbers ____________________ ____________________ ____________________

Home Work Cell

1. Describe your family unit (parents, step-parents, other adults in home, children, etc.)

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

2. List significant conditions or stresses which might influence your child’s school performance.

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

3. Describe early indications of your child’s superior ability (speech, interest, physical development).

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

4. List all languages that your child speaks/understands.

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________
5. Describe any problems your child has had at home or at school (speech, emotional, hearing, etc.).

______________________________________________________________

6. Describe any important aspects of the child's health or physical development which might affect participation in a challenging program (serious illness, handicaps, etc.).

______________________________________________________________

7. What special talents or skills do you feel your child has?

______________________________________________________________

8. What examples can you give of your child's creative productivity?

______________________________________________________________

9. What educational and vocational expectancies do you have for your child?

______________________________________________________________

10. What are your child's reading interests (favorite books, type of books)?

______________________________________________________________

11. What reading materials do you have available for your child's use (such as encyclopedias, magazines, etc.)?

______________________________________________________________
12. How often does your child read each week (estimate)?

________________________________________________________________________

________________________________________________________________________

13. What special lessons, training, learning opportunities or travel experiences does your child have outside of school?

________________________________________________________________________

________________________________________________________________________

14. What are your child’s special interests and hobbies (collections, sports, dancing, making models, swimming, singing, painting, cooking, sewing, drama, etc.)?

________________________________________________________________________

________________________________________________________________________

15. If your child or family is from another country, list any activities or abilities that your child might have exhibited which are reflective of your native culture, but not readily observable in this culture (academic, fine arts, athletics, etc.).

________________________________________________________________________

________________________________________________________________________

16. If your child is placed in the Gifted Program, how would you expect it to enhance your child’s educational opportunities?

________________________________________________________________________

________________________________________________________________________

17. What do you perceive your role to be in the educational development of your child?

________________________________________________________________________

________________________________________________________________________

18. Describe any other information that you think is important regarding your child.

________________________________________________________________________

________________________________________________________________________
APPENDIX C

PORTFOLIO RUBRIC

Reproduced with permission.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
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<tbody>
<tr>
<td><strong>Age and Developmental</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriateness of Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Samples from several content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>areas)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ability to See Relationships</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Connections (Students Demonstrate an</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding of Concepts and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalizations)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Innovation and Application</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Creative demonstration of knowledge and skills in original products)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Depth of Knowledge Expessed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrated (What students can do related to the topic of study)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong> (Use of written, spoken, and technological media to convey new learning)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Score**

**Rating Scale:**
- 23 - 25 = Clearly Outstanding
- 20 - 22 = Meets Expectations
- 17 - 19 = Below Expectations
- Below 16 = Unacceptable

( ) Highly Recommended
( ) Recommended
( ) With Reservations
( ) Not Recommended

**Names of Committee Evaluating:**

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
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Revised July 2004
# LEAP

## Advanced Academic Services/ Gifted Education Program

### Student Profile - LEAP

<table>
<thead>
<tr>
<th>Student Name</th>
<th>School</th>
<th>DOB</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Name:</td>
<td>Phone: (H)</td>
<td>(W)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address:</th>
<th>City</th>
<th>ZIP</th>
<th>First Language</th>
<th>Other Language</th>
<th>Ethnicity</th>
<th>Referral by:</th>
<th>Teacher</th>
<th>Male/Female</th>
<th>Previous G/T</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Name of Indicator/Score</th>
<th>Minimum Standard for Consideration</th>
<th>Student's Actual Score</th>
<th>(+/-)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOI: Recommend</td>
<td></td>
<td></td>
<td>(+)</td>
<td>Highly recommend (HR)</td>
</tr>
<tr>
<td>Teacher: Recommend</td>
<td></td>
<td></td>
<td>(+)</td>
<td>Recommend (R)</td>
</tr>
<tr>
<td>Parent: Recommend</td>
<td></td>
<td></td>
<td>(+/-)</td>
<td>With reservations (WR)</td>
</tr>
<tr>
<td>OTHER: Recommend</td>
<td></td>
<td></td>
<td>(+/-)</td>
<td>Not recommended (NR)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Portfolio of Products</th>
<th>Portfolio Provided by: Recommend</th>
<th>(+) Highly recommend</th>
<th>(+/-) With reservations</th>
<th>(-) Not recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading, Math, Drawings, Webbing, Books, Unusual Products, KOI, Planned Experiences, Awards, etc.</td>
<td>Recommend</td>
<td>(+) Highly recommend</td>
<td>(+/-) With reservations</td>
<td>(-) Not recommended</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aptitude</th>
<th>TEST</th>
<th>V</th>
<th>NV</th>
<th>T</th>
<th>Date</th>
<th>Total/Fail Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>140+</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Achievement Test</th>
<th>Minimum of one 8 and two 9 stanines (Combination Examples)</th>
<th>%</th>
<th>Stanine</th>
<th>Additional Testing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>Percentile and Stanine Scores</td>
<td>(96%&gt;9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Percentile and Stanine Scores</td>
<td>(89%&gt;8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td>Percentile and Stanine Scores</td>
<td>(96%&gt;9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Interview</th>
<th>Special Referral</th>
<th>Reports/Grades</th>
<th>R</th>
<th>LA</th>
<th>M</th>
<th>SCI</th>
<th>SS</th>
</tr>
</thead>
</table>

*Additional Data Requested (specify)*

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>ARE Date</th>
<th>Review Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended for Placement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provisional Placement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Recommended for Placement</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Additional Data Requested (Specify above)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Admission/Review/Exit (A.R.E.) Committee Signatures:

Administrator: ________________________

Counselor: ________________________

Teacher/Liaison: ________________________

G/T Specialist: ________________________

Teacher/Liaison: ________________________

Other: ________________________

Information sent to Parent/Guardian Date Sent ________________________

(AAS only)

Copy: White - AAS Dept. Yellow - Parent Pink - Counselor Gold - School Revised July 2004

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REFERENCES


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