Expanding Appropriate Assessment and Differentiated Instruction for Culturally Diverse Gifted Students

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CHAPTER I

A Review of Literature: Nonverbal Measures of Intelligence

The use of nonverbal measures of intelligence has been suggested for screening and identification of gifted students from culturally diverse backgrounds who may not exhibit strong verbal skills due to cultural barriers (Barkan & Bernal, 1991; Barona, Santos de Barona, & Fradd, 1989; Borland & Wright, 1994; Caruso & Witkiewitz, 2001; Castellano, 1998; Clark, 2002; Claus & Quimper, 1988; Colangelo & Davis, 1997; Fitz-Gibbon, 1974; Florey, Nottle, & Dorf, 1986; Ford & Harris, 1996; Gallagher & Gallagher, 1994; Haensly & Lee, 1995; Harris, Reynolds, & Koege, 1996; Lidz & Macrine, 2001; Matthews, 1988; Mills & Tissot, 1995; Naglieri & Prewitt, 1990; Saccuzzo, Johnson, & Guertin, 1994; Sarouphim, 2001, Zappia, 1989).

Several nonverbal measures of intelligence have been normed, either for use with groups or individuals. A discussion of the instruments and related research is included to assist educational personnel in selecting appropriate instruments for group (Appendix A) or individual testing (Appendix B).

Group Measures of Nonverbal Intelligence

The Raven’s Progressive Matrices (Raven, Court, & Raven, 1996) includes three tests: the Coloured Progressive Matrices (CPM), the Standard Progressive Matrices (SPM), and the Advanced Progressive Matrices (APM). All are designed to measures Spearman’s g, related to the ability to draw relationships. All three may be administered to a group or individually. The CPM is designed for use with children ages 5 through 11, elderly persons, and mentally and physically impaired persons. The CPM, composed of 36 questions, is untimed and takes approximately 15 to 30 minutes to administer. The SPM is designed for students ages 6 through adult and consists of 60 questions arranged in order of difficulty. Administration of the SPM
takes approximately 20 to 45 minutes. Both the CPM and SPM contain a question format whereby “a portion of a diagram is excluded and the task is to determine which of several options best fits in the location” (Naglieri & Prewett, 1990, p. 358). The APM, designed for ages 12 through adult, contains 48 problems. Administration takes from 40 to 60 minutes. Several investigations of validity have been conducted Raven (1986), including correlations with other measures of intelligence and with multiple cultural groups, including African American, Caucasian, Hispanic, Asian, and Navajo. Moderately high correlations with external criterion variables, including school grades, exam results, and teacher ratings have been established. Good convergent validity with other intelligence tests has also been reported (Raven, Court, & Raven, 1996). Tests of the SPM and CPM have indicated adequate test-retest reliability. Use of SPM has resulted in increased representation of gifted minority students (Sattler, 1982).

The Raven’s CPM and SPM were used to examine the concurrent validity of the DISCOVER assessment, a performance-based assessment designed to identify gifted minority students and gender differences (Sarouphim, 1999, 2001). Another purpose was to “determine the effectiveness of the assessment in identifying higher percentages of minority students than traditional standardized tests” (Sarouphim, p. 134). The sample included 257 kindergarten (n=74), 2nd (n=47), 4th (n=46) and 5th (n=90) grade students. Ethnic groups represented included Navajo Indian (n=114), Mexican American (n=119), and Anglo American (n=24) students. Gender makeup included 116 males and 141 females. Results indicated significant correlations between the nonverbal activities of DISCOVER and the Progressive Matrices. Low correlations between the verbal portions of DISCOVER and the Progressive Matrices were also found. No statistical gender differences were found between the number of girls and boys identified, either
in the sub-samples or across the entire sample. Ultimately, 22.9% of minority students in the study were identified as gifted using the DISCOVER assessment.

Consideration of the Raven’s Progressive Matrices as an identification instrument was the focus of a study by Mills and Tissot (1995). Ninth-grade students (n=347) from an urban New York high school were given the APM and the School and College Ability Test (SCAT). Students ranged in age from 13 to 18 years (m=15.01), and several cultural groups were represented: Hispanic (n=154), African American (n=83), Caucasian (n=95), and Asian (n=12). Furthermore, other factors included English as a Second Language (n=67), special education ruling (n=28), and free and reduced lunch status (n=47). Results of the study indicated that “differences among ethnic groups were found on the AMP,” but “[the study] did identify a significantly greater percentage of minority students, many of whom were low-income and low-achieving students” than the SCAT (Mills & Tissot, p. 215). Furthermore, the authors found the APM to be helpful in identifying the academic potential of ESL students, but cautioned against the use of the APM as an identification instrument since no adequate normative information was available at the time of the investigation (Mills & Tissot).

Guertin, Johnson, and Saccuzzo (1994) examined how risk factors of students affect differences in achievement and aptitude tests among intellectually gifted students. The sample included students referred for giftedness testing in San Diego, California, who were then tested using either the WISC-R individually or the SPM as a group and then tested using the Developing Cognitive Abilities Test (DCAT) group test. Children with a language/culture risk factor showed consistent disadvantage in verbal domains compared to peers with no risk factors. This same risk group performed better on Performance IQ scores and math areas, which led the authors to conclude that these students from disadvantaged backgrounds demonstrate giftedness
in performance tasks rather than in verbal tasks. Furthermore, Saccuzzo, Johnson, and Guertin (1994) recommend the use of nonverbal measures of intelligence because they identified more culturally diverse students using the Raven Standard Progressive Matrices than on traditional language-based measures.

Robinson, Bradley, and Stanley (1990) investigated ethnic differences in performance between 78 elementary students (22 African American, 56 Caucasian), who were participants in a mathematically talented after-school program (experimental group), and 185 alternate participants (40 African American, 140 Caucasian, 3 other) (comparison group). Both African American and Caucasian students were from middle-and lower-middle income families. Researchers used the Math Applied to Novel Situations test (MANS), a standardized mathematics problem-solving measure as the dependent variable. Independent variables included the SPM and the Sequential Tests of Educational Progress (STEP). Analysis of the Raven’s results indicated a statistically significant difference between African-American and Caucasian students selected for the program. The identification procedures using the SPM “contribute[d] less to the prediction of mathematics performance for [African Americans] than for [Caucasians]” (Robinson, Bradford, & Stanley, p. 10). Results of the regression analysis of only African American students indicated that they benefited from participation in an enriched mathematics program. The researchers found that using math achievement and nonverbal reasoning were effective in identifying mathematically talented African American students for a special program, but differences due to ethnicity in the identification variable, the SPM, led researchers to caution the use of these identification procedures for African American and Caucasian children.
The use of the Raven’s SPM and APM in identifying disadvantaged African American students was discussed by Fitz-Gibbon (1974). Eighth-grade students from a predominantly black urban community in California were selected for screening. Teacher’s nominations, as well as a variety of both nonverbal and verbal intelligence instruments (SPM, The California Test of Mental Maturity [CTMM]; and the California Achievement Test [CAT]) were used to screen intact classes. Results of the study indicated that five of the eight identified gifted students had been identified by the SPM. Furthermore, the author noted that “the SPM could be used alone [to screen potentially gifted students], but the addition of the [APM] permits an increase in the efficiency and fairness of the selection procedure” (Fitz-Gibbon, p. 65).

The Naglieri Nonverbal Ability Test (NNAT) (Naglieri, 1996) is a group or individually administered instrument for use with students in grades kindergarten through twelve. The instrument requires “students to rely on reasoning and problem-solving skills rather than verbal skills” (Stephens, Kiger, Karnes, & Whorton, 1999). The test has been designed for seven levels, including Level A, for kindergarten; Level B for grade 1; Level C for grade 2, Level D for grades 3 and 4; Level E for grades 5 and 6; Level F for grades 7, 8, and 9; and Level G for grades 10, 11, and 12. Each level has 39 questions. The NNAT has been normed in a national sample of 100,000 children and adults. Reliability studies of the NNAT indicate a range of .83 to .93 by grade level and .81 to .88 across the seven test levels. The NNAT has also been studied for use with special populations, including the gifted, learning disabled, and hearing-impaired students. Cross-cultural studies also validated its use with Hispanic, Asian, and other ethnic groups. Administration time is estimated to take 30 to 45 minutes. One proctor is recommended for each group of 25 students taking the NNAT. Administration requirements include a master’s-level
degree in psychology or education, or the equivalent in a related field, as well as relevant training in assessment.

The NNAT was used in a study of culturally diverse minority students in Pennsylvania in an effort to increase the representation of these students in the gifted and talented program, which had historically identified less than one percent of its school’s students (Lidz & Macrine, 2001). Following the screening of 473 African American, Hispanic American, Asian America, and East European immigrant students in grades one through five, the top ten percent (n=85) of students were then individually tested on either the Kaufman Assessment Battery for Children (KABC) (Kaufman & Kaufman, 1983) or the Naglieri Nonverbal Ability Test, modified for individual and dynamic administration (NNAT/DA). Results of the study indicated that 23 of the 25 identified students met criteria based on their NNAT scores; 60% of these students were from either ethnic minority or immigrant backgrounds. The assessors used a dynamic assessment model, which included “a test—intervene—post-test format” (Lidz & Macrine, p. 82) for the administration of the NNAT. Results indicate that the K-ABC Mental Processing Composite or Nonverbal Subscales (MPC) “significantly predicts gifted status, when controlling for immigrant group” (p. 88). Furthermore, the NNAT post-test was found to “significantly [predict] gifted status controlling for immigrant group, K-ABC (MPC), and NNAT pre-test” (p. 88).

Naglieri and Ronning (2000) examined differences between 3 matched samples of African American (n=2,306) and Caucasian (n= 2, 306), Hispanic American (n=1,176) and Caucasian (n=1,176), and Asian American (n=466) and Caucasian (n=466) from 22,620 children within the NNAT standardization sample. Participants were also matched on type of school setting (private or public), socioeconomic status, ethnicity, and geographic region. A small difference was found between scores for Caucasian and African American samples (difference
ratio = .25). Similarly, minimal differences were found between Caucasian and Asian American (difference ratio = .02) and Caucasian and Hispanic American (difference ratio = .17). This measure was also found to be moderately correlated with achievement for the total sample and in the samples for Caucasian and ethnic minority groups. Additionally, the NNAT was found to be moderately correlated with reading (.52) and math (.63) across the samples.

Karnes and McGinnis (1994) compared the use of the Matrix Analogies Test (now the NNAT) with the Wechsler Intelligence scale for Children-Revised (WISC-R) (Wechsler, 1974) on a group of gifted students (15 girls, 24 boys) in grades 4 through 6 enrolled in a Saturday Program for the intellectually gifted (120 or above on an individually-administered intelligence test). Results of the study indicated that “a significant Pearson \( r \) of .52 was found between the scores” on the two tests.

The Culture Fair Intelligence Test (CFIT) (Cattell & Cattell, 1965) was developed to measure fluid intelligence, which is purportedly influenced by biological factors rather than crystallized intelligence, which is developed through cultural factors (Nenty, 1986). Studies of the CFIT (Anastasi, 1968; Kidd, 1962) indicated “a high saturation on general ability factor and a relative independence from cultural experiences” (Nenty, p. 11). Two levels are available: Scale 1 for ages 4 through 8, which measures general mental capacity for \( g \), and Scale 2 for ages 8 through 13, which measures general intelligence. The CFIT may be administered to groups or individuals, with Scale 1 containing 8 subtests and Scale 2 containing four subtests of perceptual tasks. Administration times vary from 22 minutes for Scale 1 to 12.5 minutes for Scale 2. The CFIT has been standardized on more than 4,000 boys and girls from various U.S. regions. Both scales have been validated for construct, concurrent, and predictive validity. Reliability for Scale
1 is .91, and .87 for Scale 2. No special training is needed for administering the CFIT, but the examiner should thoroughly examine the administration manual for procedures and scoring.

Omoluabi (1993) investigated the performance of Nigerian students who performed well on school tests but poorly on tests of intelligence. Two hundred forty students, ages 9-16, were administered the CFIT, but no significant relationship was found between school examinations and performance on intelligence tests. Few commonalities were found between nonverbal tests of intelligence and school exams.

Stephens, Kiger, Karnes, and Whorton (1999) administered the CFIT, SPM, and the NNAT to intact classes of 189 rural elementary school students in grades 3 through 8 in order to identify culturally diverse, potentially gifted students. The results indicated that the SPM identified the most students scoring at the 80\textsuperscript{th} percentile or higher. A total of 39 scores on the 3 tests were at the 80\textsuperscript{th} percentile or higher, but these scores were from 26 students.

Lewis (2001) reports a replication of Stephens, Kiger, Karnes, and Whorton’s (1999) study. The SPM, CFIT, and NNAT were administered to a population of 270 grade 3-8 students representing Hispanic (99), Caucasian (160), and Other (11) students, none of whom had been identified previously for gifted programming (Lewis and Michelson Grippin, 2000). Of the eighty-nine students scoring at or above the 80\textsuperscript{th} percentile, 25.8\% were Hispanic (23 students) and 68.5\% were Caucasian (61 students). The majority of students (57.6\% of scores) were identified on either the SPM or the CFIT. Lewis and Michelson Grippin (2000) found that the CFIT identified more Hispanic students (17 students) than the SPM (12 students) or NNAT (4 students). Overall, the number of Hispanic and Caucasian students identified on the CFIT was 58, and on the SPM 59 students were identified.
The SAGES-2 is a screening assessment designed to assist in the process of preliminary identification of potentially gifted students ages 5-14 (Johnsen & Corn, 2001). The SAGES-2 test contains three subtests: Math/Science, Language Arts, and Reasoning. The Math/Science subtests include verbal components in the form of written and oral prompts for each test item. The Reasoning subtest, however, may be used as a nonverbal measure of intelligence since neither written nor oral prompts are included. Following the suggestions of Jensen (1980), the Reasoning subtest is a “culturally reduced” assessment, relying less on language symbols, but requiring problem-solving skills (Johnsen & Corn, p. 13). The Reasoning test may be administered independent of the other two subtests. Adequate standardization, reliability, and validity data have been collected and are reported in the technical manual (Johnsen & Corn, 2001).

Individual Measures of Nonverbal Intelligence

Following the same purposes as the group measures of intelligence, the individual measures were designed to assess various abilities of students without a verbal component. Several individual nonverbal measures have been developed, including the Comprehensive Test of Nonverbal Intelligence (CTONI; Hammill, Pearson, & Wiederholt, 1996), The Test of Nonverbal Intelligence-Third Edition (TONI-III; Brown, Sherbenou, & Johnsen, 1997), Leiter International Performance Scale-Revised (Leiter-R; Roid & Miller, 1997), the Universal Nonverbal Intelligence Scale (UNIT; Bracken & McCallum, 1998), and the K-ABC (Kaufman & Kaufman, 1983).

The CTONI (Hammill, Pearson, & Wiederholt, 1996) contains six subtests within a matrix format. Appropriate for ages 6 to 90, this instrument requires approximately one hour to administer. The scores yield information about various intelligences: “a Nonverbal Intelligence
Quotient (NIQ), a Pictoral Nonverbal Intelligence Quotient (PNIQ), and a Geometric Nonverbal Intelligence Quotient (GNIQ)” (Bracken & McCullum, 2001, p. 25). The pictoral format requires respondents to point to answers. Use of this measure is cautioned for students older than age 13, as there may be an insufficient ceiling. High levels of internal consistency in both the subtests and composite scores have been indicated through studies involving more than 2,000 children from the United States (Bracken & McCullum, 2001).

The TONI-III (Brown, Sherbenou, & Johnsen, 1997) measures both abstract and figural problem-solving and is appropriate for individuals ages 6 to 89. Administration time is approximately 15 to 20 minutes, and requires gestured instructions. The test has been normed on more than 3,400 people, and results indicate high internal consistency. Subsets of this group, including male, female, African American, Hispanic, deaf, gifted, and learning disabled individuals, also yielded high reliability scores. Moderately high correlations have been found between the TONI-III and tests of achievement.

The Leiter International Performance Scale-Revised (Leiter-R; Roid & Miller, 1997) emphasizes fluid intelligence and was designed to measure individuals ages 2 to 20. The test includes two batteries: visualization and reasoning, and attention and memory; within these batteries are 20 subtests. Administration takes from 45 to 60 minutes. Standardized on more than 1,700 children and adolescents, the Leiter-R used a stratification plan of nationally representative portions of non-Hispanic, Hispanic American, African American, Asian American, and Native American children.

Ryan (1983) investigated the effectiveness of various traditional and nontraditional methods of identifying gifted African American children from 25 urban-suburban elementary schools with primarily middle to low socioeconomic status in the East. Phase one of the study
screened all students in 53 kindergarten classes (n=417 African American students out of 1340 students) and 66 third grade classes (n=570 African American students out of 2,039 students) using 2 traditional and 2 nontraditional screening methods, a) teacher nomination and the Draw-A-Man Scale (Goodenough, 1926), and b) pupil product and peer nomination. Based on the results of the screening, African American students scoring in the upper 5th % in each grade (n=49) were then selected for the next phase of the study, identification. Using both a traditional intelligence test, the Standford-Binet (Terman & Merrill, 1962), and a nontraditional intelligence test, the Leiter (Leiter, 1952), these 49 African American students were individually assessed. Results indicated that 25 of the 49 students scored at or above 120 on one or both of the assessments; 80% were identified on the Leiter, and 44% were identified using the Standford-Binet, and 24% qualified on both instruments. Researchers concluded that the Leiter and parent nominations were more effective than traditional measures of identification, such as the Standford-Binet and teacher nominations.

Flemmer (1997) examined the use of the Leiter-R (Roid & Miller, 1997) among Anglo (n=258) and Hispanic (n=62) children between the ages of 11 and 21. Results of the study indicate that the Leiter-R is a promising ethnic-fair measure of nonverbal intelligence with Hispanic students. Of the 4 subtests designed to be a “brief IQ screening index,” (Flemmer, p. 1121), 3 showed differences of less than one-third Standard Deviation, which were smaller than differences found on other traditional verbal measures of intelligence. Flemmer cautions using the Leiter-R with Hispanic populations, however, until further testing of larger groups can be undertaken.

Koehn (1999) investigated the purported fairness of the Leiter-R (Roid & Miller, 1997) by comparing the performance of 28 Hispanic-American students and 45 Anglo-American
students on the Leiter-R and the WISC-III (Wechsler, 1991), an intelligence test relying on verbal skills. Results supported previous studies of the validity of the Leiter-R as an instrument for accurately assessing cognitive functioning for both typical and ESL children.

The Universal Nonverbal Intelligence Test (UNIT) (Bracken & McCallum, 1998) was designed to yield as many as five scores: full scale IQ, memory quotient, reasoning quotient, symbolic quotient, and nonsymbolic quotient. The UNIT has been standardized on a group of more than 2,000 children, ages 5 to 17, with group variables including “gender, race, Hispanic origin, region, community setting, classroom placement, special education status, and parental educational attainment” (Braken & McCallum, 2001, p.71). Like the Leiter-R, the UNIT yields subtest scores, global scale scores, and a full scale score. While six subtests are available, the administration of the UNIT may include a two-(Abbreviated), four-(Standard), or six-subtest (Extended) battery. Administration times vary: 15 minutes for the Abbreviated battery, 30 minutes for the Standard battery, and 45 minutes for the Extended battery. Stimulus materials, such as pictures, cubes, and grids, are incorporated into the administration of the UNIT.

McCallum, Bracken, and Wasserman (2001) noted that both the Leiter-R and the UNIT are comprehensive nonverbal tests, which they classify as multidimensional. Matrices-format type intelligence tests, they purport, are narrow in focus and often utilize verbal directions, rendering them appropriate for “‘low stakes’ screening applications or in some cases, large scale group assessments” (p. 11). Conversely, the Leiter-R and UNIT are more conducive for “‘high stakes’ placement, eligibility, or diagnostic decision-making reasons” (p. 11). These comprehensive tests are recommended for such decisions since they employ multiple measures of intelligence through tasks and subtests to more accurately assess various intelligences.
Wilholt and McCallum (2002) developed and applied a normative typology for the UNIT (Bracken & McCallum, 1998). Results of this investigation of the UNIT Standard Battery and the Extended Battery indicated similarities to previous findings in terms of demographic trends and replication rates. Profiles of higher-ability students included more males than females in both the Standard and Extended Batteries of the UNIT. Furthermore, both measures also yielded higher-than-expected proportions of African Americans in the lower-ability profiles, as well as higher-than-expected representation of Caucasian individuals in the higher-ability profiles. These representations of gender and race are “similar to other typological research with intelligence scales” (p. 11).

Jeminez (2002) investigated the validity and reliability of the results of the UNIT (Bracken & McCallum, 1998) with Puerto Rican children. Additionally, comparisons of the performance on the UNIT of 60 Puerto Rican children and a matched sample of 60 non-Hispanic children were conducted on two measures, the UNIT and a reading test from the parallel Spanish version of the Woodcock-Johnson-Revised (Woodcock & Johnson, 1989). Analysis of the results indicated no positive evidence for the internal consistency of five of six UNIT subtests. Furthermore, coefficients for the Standard Battery IQ, Extended Battery IQ, and the four subscales failed to show acceptable internal consistency. Moreover, significant low-to-moderate correlations were found between the UNIT and the Bateria-R Reading Cluster. A significant difference between the scores of the two groups was also indicated. Thus, the UNIT was not recommended for use with Puerto Rican students as part of a multifaceted assessment process.

The Kaufman Assessment Battery for Children (K-ABC) (Kaufman & Kaufman, 1983) is an individually-administered test of mental abilities that yields standard scores in Sequential Processing, Simultaneous Processing, and a Mental Processing Composite for children ages 2.5-
12.5 years. Average scaled scores fall between 7-13, while average global scores range from 85-115. Scores for gifted students would range from 116 to 160. The K-ABC differs from traditional language-based IQ tests in that it reduces the role of language and verbal skills and it separates a child’s previous knowledge of factual information from the student’s processing skills by assessing them on a separate Achievement scale. The test has also been cited as having lesser black-white discriminability (Nalgieri & Jensen, 1987) and has been shown not to favor any race (Nolan, Watlington, & Wilson, 1989). Additionally, the K-ABC is a process-oriented assessment that emphasizes how information is processed, unlike a content-oriented measure, which focuses on how much information the student has acquired. Administration times range from 35 to 80 minutes, depending on the student’s age.

Each scale requires different mental tasks for students to complete. The Sequential Processing Scale requires the student to arrange tasks into sequential or serial order; each task idea relates to the previous idea and proceeds in a unified manner. Short-term memory is emphasized in this scale, but a greater emphasis is placed on how the student processes information. The Simultaneous Processing Scale requires organizational, spatial, or analogical reasoning to complete each task. The Achievement Scale includes as many as six subscales, depending on the child’s age, including language-based subtests such as reading recognition, reading decoding, and riddles. The Mental Processing Composite is a composite of the Sequential Processing Scale and the Simultaneous Processing Scale and is representative of the child’s overall functioning. A nonverbal component of the K-ABC (Kaufman & Kaufman, 1983) may also be generated, yielding a score that is independent of language skills.

The K-ABC (Kaufman & Kaufman, 1983) may also be used in identifying gifted children (Kaufman, 1984). Preschool and elementary gifted children were included in the standardization
sample of the instrument at a proportionally representative level of the United States population of gifted and talented students. The format of the K-ABC was designed to include items correctly solved by few children in the normative sample, allowing the test to appropriately challenge gifted children. Other facets of the K-ABC have also been included that pertain to gifted students. Examiners may accommodate gifted children by proceeding beyond the normal stopping point for students who have passed all items for their age level until the students fail one. Examiners may also exercise flexibility in administering the test by ignoring the stopping point for children whom the examiner instinctively feels may be gifted, even if the child has missed previous items in his or her age range. Furthermore, the examiner may administer above-age-level tests to students who are known or believed to be gifted.

Representation of underserved populations of gifted children from culturally diverse groups may also increase as a result of the use of the K-ABC (Kaufman, 1984). Minority children including African American, Hispanic, and Native American (Sioux and Navajo) children scored higher on the K-ABC than on the WISC-R (Kaufman & Dopplet, 1976). These scores may be due to the “de-emphasis of acquired facts, applied skills, and verbal expression” in the K-ABC (Kaufman, 1984, p. 86). Florey, Nottle, & Dorf, (1986) developed an in-service model for teachers of culturally diverse students. Their model includes the K-ABC due to its emphasis on nonverbal skills.

Smith (1988) administered the K-ABC (Kaufman & Kaufman, 1983) and the Matrix-Analogies Test-Expanded Form (MAT-EF) (Naglieri, 1985) to 50 students, including 25 non-disabled second grade students from a rural Midwest school district and 25 school identified gifted students (5 third graders, 10 fourth graders, and 10 fifth graders) from a suburban Midwest school district. The assessments were administered in counterbalance order to these two
randomly selected samples. Results indicate that mean K-ABC scores were higher than mean
MAT-EF scores for both samples.

McCallum, Karnes, and Oehler-Stinnett (1985) reported their administration of the K-
ABC (Kaufman & Kaufman, 1983) to 54 gifted students ranging from ages 8 to 12 to determine
the test’s construct validity. Results of a comparison of the factor structure from this sample’s
students’ scores on Mental Processing and Achievement subtests and the 1983 standardization
sample of nongifted children indicated similarities in the factor structures of gifted and nongifted
students.

Results of an investigation by Nolan, Watlington, and Wilson (1989) of the K-ABC
(Kaufman & Kaufman, 1983) with 1,699 African-American and Caucasian students ages 2.5 to
12.5 years indicated that no items on the assessment were biased against gifted Black subjects,
but 8 items were biased against gifted Caucasian students. Furthermore, when gender was
considered, 2 items were found to be biased against gifted females.

Swanson, Bradenburg-Ayres, and Wallace (1989) investigated the factor structure of the
K-ABC (Kaufman & Kaufman, 1983) for a group of 169 Caucasian (86%), Black (9%),
Hispanic and Asian (remaining 5%) gifted children in a South Eastern state. All students had met
eligibility criteria for inclusion in the district’s gifted program, including a score of 120 or better
on the K-ABC. Scores for the eight subtests of the K-ABC from this group were used for
analysis. Findings of the factor analyses indicate that the “factor structure for gifted children is
not similar to that reported for the standardization sample of the K-ABC” (p. 349). Furthermore,
“results provide limited support for the hypothesis that gifted children’s factor structures are
similar to the standardization sample” (p. 349). The sample size and geographical representation
limit the generalization of this student to the normal population, but may be generalized to gifted samples.

Selecting Appropriate Measures for the Assessment of Giftedness

Prather and Humble (1997) recognize that gifted children are distinctly different not only from the general population, but also from each other. In order to provide an equitable process of identification, a school district’s gifted program coordinator must structure his or her district’s identification procedures to develop a profile of the student’s behaviors and demonstrated abilities. From this profile, a psychologist/psychometrist may tailor assessment techniques to fit an individual child. Their model has two tools: the Personal Profile (Prather, 1990) (Appendix C), which documents a composite picture of the student’s performance based on group and individual intelligence test scores, results of gifted characteristics checklists, demographics, and disadvantaged designation. In addition, it documents the local survey committee’s meeting that assures that the child has met the state and district criteria and may proceed to the next phase of the identification procedure. The Prather/Humble Checklist (Humble & Prather, 1997) (Appendix D) is used to document the child’s vision, hearing, speech, and medical background; native language; as well as indicating the child’s behaviors in several areas, i.e. Concentration, Working Pace, Cues to Thinking Style, Shyness, Problem Solving Strategies, and Learning Style(s). These categories reflect behaviors used on tasks typically included on various individual intelligence tests.

Prather and Humble recognize that some students will perform better on primarily verbal assessment instruments and others will perform better with primarily nonverbal assessment procedures (Prather & Humble, 1997). The Otis Lennon School Abilities Test (OLSAT) (Lennon and Lennon, 1997), a group intelligence measure, is used in the Prather and Humble
model because it can provide information about a student’s verbal/nonverbal strengths, which can assist the school psychologist in selecting an appropriate individual intelligence test. Prather and Humble decline to recommend any particular instruments because new ones come on the market so frequently and psychometrists/psychologists should keep up with changes as a matter or course to ensure their continuing professional competence.
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intelligence in identification of culturally diverse gifted students in rural areas.

*Perceptual and Motor Skills, 88, 793-796.*


### Appendix A

**Group Measures of Nonverbal Intelligence**

<table>
<thead>
<tr>
<th>Test</th>
<th>Naglieri</th>
<th>Raven’s</th>
<th>Culture Fair Intelligence Test</th>
<th>SAGES-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group/Individual</td>
<td>Group</td>
<td>Group or individual</td>
<td>Scale 1: not wholly group administrable (4 of 8 subtests administered individually) Scale 2: Group or individual</td>
<td>Group or individual</td>
</tr>
<tr>
<td>Grade levels/Ages</td>
<td>K-12</td>
<td>Ages 5 to adult</td>
<td>Scale 1: ages 4-8; Scale 2: ages 8-13</td>
<td>5-14</td>
</tr>
<tr>
<td>Configuration</td>
<td>7 levels available</td>
<td>60 items in 5 sets of 12 items each Scales : A, B,C,D, &amp; E</td>
<td>Scale 1: 8 subtests Scale 2: 4 subtests</td>
<td>3 subtests; 1 is nonverbal: Reasoning</td>
</tr>
<tr>
<td>Number of Items</td>
<td>38 items/level NNAT 34 MAT-SF</td>
<td>60 items on Standard Progressive Matrices</td>
<td>Scale 1: 96 (group administration) Scale 2:46</td>
<td>35 Reasoning questions</td>
</tr>
<tr>
<td>Norms</td>
<td>Normed for appropriate grade levels; normed: large sample of children and adults</td>
<td>Norms for students from various ethnic, socio-economic, geographic, and school district backgrounds in manual. Norms for African American, Asian American, Native American, and Hispanic American populations are included in the Research Supplement.</td>
<td>Norms in manual for ages 4-adult</td>
<td>Normed on over 5,300 persons in 28 states.</td>
</tr>
<tr>
<td>Administration Time</td>
<td>30-45 minutes</td>
<td>45 minutes</td>
<td>Scale 1: 22 minutes; Scale 2: 12.5 minutes</td>
<td>30-45 minutes for Reasoning subtest</td>
</tr>
<tr>
<td>Test</td>
<td>Naglieri</td>
<td>Raven’s</td>
<td>Culture Fair Intelligence Test</td>
<td>SAGES-2</td>
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</table>
| Designed to measure           | General Reasoning ability                                                 | Eductive ability: as defined by Spearman’s theory of cognitive ability | Scale 1: general mental capacity for factor “g”  
Scale 2: general intelligence | Reasoning subtest measures problem solving                                    |
| Prior Knowledge               | Factual knowledge not needed to solve items                               | Perception of relationships and reasoning by analogy                     | Perceive relationships in shapes and figures.                                                 | Basic conceptual understanding and application of core knowledge in math, science, language arts, and social studies. Problem solving is measured in the Reasoning subtest. |
| Time Considerations           | o 10 minutes for identification information  
 o 5 minutes for verbal instructions/sample questions  
 o 30 minutes for completion of items | o Directions: 5-10 minutes  
 o Testing 30-50 minutes | Scale 1: 22 minutes for testing, a few minutes for reading test directions.  
 Scale 2: 12 minutes for testing, a few minutes for directions. | 30-45 minutes administration time for each subtest. May administer each subtest in order on separate consecutive days. |
| Ratio of proctor to students  | 1 proctor / 25 students                                                   | 1/10-15                                                                | Scale 1:  
Scale 2: 1:24                                                                            | 1:10-15 for younger children  
1:30 for older children                                                     |
<p>| Materials needed              | Pencil, Test booklets                                                    | Pencil, Test booklets                                                 | Pencil, Test booklets                                                                       | Pencil, Test booklets                                                   |</p>
<table>
<thead>
<tr>
<th>Test</th>
<th>Naglieri</th>
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<th>Culture Fair Intelligence Test</th>
<th>SAGES-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scores rendered</td>
<td>Raw scores, Nonverbal Ability Index Scores, Scaled Scores, Age Percentile Ranks, Stanines, Normal Curve Equivalents, Age Equivalents</td>
<td>Raw scores, percentile norms, standard scores, and Deviation-IQs</td>
<td>Raw scores, standard scores</td>
<td>Raw scores, standard scores, and percentiles.</td>
</tr>
<tr>
<td>Scoring Process</td>
<td>Machine scored or hand scored/ 4-12 use separate answer documents</td>
<td>Multiple Choice/Scoring Key provided 1 point for each correct response</td>
<td>Hand Scored</td>
<td>Hand scored</td>
</tr>
<tr>
<td>Reliability</td>
<td>Reliability: .83 to .93 by grade .81 to .88 across the seven levels</td>
<td>Validity: Good convergent validity with other IQ tests</td>
<td>Reliability: Scale 1- (.91) Scale 2: (.87) Validity: Scale 1 and scale 2: construct, concurrent, predictive validity have been demonstrated.</td>
<td>Validity: reasoning correlation for reasoning among normal sample of ages 5-9 is .52. Reasoning correlation for gifted sample ages 5-9 is .62. Evidence of content validity also provided. High correlations with total school ability index (.83). Content-description, criterion-prediction, and construct-identification validity have been demonstrated.</td>
</tr>
<tr>
<td>Test</td>
<td>Naglieri</td>
<td>Raven’s</td>
<td>Culture Fair Intelligence Test</td>
<td>SAGES-2</td>
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</tr>
<tr>
<td>Fairness</td>
<td>Examined differential functioning between</td>
<td>Correlations between item difficulties ranged from .97 to .99 in 8 separate socioeconomic groups (based on the British Standardization). In U.S. standardization, correlations between item difficulties for African American, Caucasian, Hispanic American, Asian American, and Navajo groups ranged from .97 to .100. Studies indicate comparable predictive validity and no evidence of differential validity. Use of SPM has resulted in increased representation of gifted minority students.</td>
<td>Standardized on over 4,000 boys and girls from various regions in U.S.</td>
<td>Standardized on over 3,000 students ages 5-14. Representative samples of school-age population with regard to geographic area, race, gender, ethnicity, residence, family income, disability status, and educational attainment of parents.</td>
</tr>
<tr>
<td>Administration Qualifications</td>
<td>Master’s level degree in psychology, education, or the equivalent in a related field, with relevant training in assessment.</td>
<td>Master’s level degree in psychology, education, or the equivalent in a related field, with relevant training in assessment.</td>
<td>No special training is needed to administer the test. The examiner, through self-study, should be thoroughly familiar with test administration and scoring procedures.</td>
<td>Examiner should have training in assessment, including testing statistics, general procedures for test administration, scoring, interpretation, and evaluation.</td>
</tr>
<tr>
<td>Test</td>
<td>Naglieri</td>
<td>Raven’s</td>
<td>Culture Fair Intelligence Test</td>
<td>SAGES-2</td>
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<tr>
<td>Publisher</td>
<td>Harcourt Brace Educational Measurement</td>
<td>The Psychological Corporation</td>
<td>EDITS</td>
<td>PRO-ED</td>
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<tr>
<td></td>
<td>P.O. Box 708912, San Antonio, TX 78270-8912</td>
<td>Corporation 19500 Bulverde Road</td>
<td>P.O. Box 7234, San Diego, CA</td>
<td>8700 Shoal Creek Boulevard</td>
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<td>San Antonio, Texas 78259</td>
<td>92167</td>
<td>Austin, Texas</td>
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<tr>
<td></td>
<td>Telephone: 1-800-211-8378</td>
<td>1-800-872-1726</td>
<td>1-800-416-1666</td>
<td>78757-6897</td>
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<tr>
<td></td>
<td>Fax: 1-877-576-1816</td>
<td></td>
<td>(619) 222-1666</td>
<td>1-800-897-3202</td>
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<tr>
<td></td>
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<td></td>
<td>Fax (619) 226-1666</td>
<td>Fax: 1-800-397-7633</td>
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</table>
## Appendix B

### Individually-Administered Measures of Nonverbal Intelligence

<table>
<thead>
<tr>
<th>Test</th>
<th>CTONI</th>
<th>TONI-III</th>
<th>Leiter-R</th>
<th>UNIT</th>
<th>K-ABC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group/Individual</td>
<td>Individual</td>
<td>Individual</td>
<td>Individual</td>
<td>Individual</td>
<td>Individual</td>
</tr>
<tr>
<td>Grade levels/Ages</td>
<td>6-89</td>
<td>6-89</td>
<td>2-20; ages vary according to subtest used.</td>
<td>5-17.11</td>
<td>2.5-12.5 years</td>
</tr>
<tr>
<td>Configuration</td>
<td>Six subtests</td>
<td>Quick-score test with 2 forms. Participants gesture to their responses. Ideal for those who language or motor difficulties.</td>
<td>20 Subtests (Divided into Visualization and Reasoning [VR] or Attention and Memory ([M]) and 4 rating scales.</td>
<td>Six subtests</td>
<td>Sequential Processing (3 subtests) Simultaneous Processing (7 subtests; ages vary for each) Achievement (6 subtests)</td>
</tr>
<tr>
<td>Number of Items</td>
<td>25 for each subtest</td>
<td>45 items</td>
<td>Symbolic Memory: 30 Cubic Design: 15 Spatial Memory: 27 Analogic Reasoning: 31</td>
<td>Symbolic Memory: 30 Cube Design:15 Spatial memory:27 Analogic Reasoning: 31 Object Memory: 31 Mazes:13 (some items count for more than one point, such as the mazes and cube design)</td>
<td></td>
</tr>
</tbody>
</table>

- **CTONI**
- **TONI-III**
- **Leiter-R**
- **UNIT**
- **K-ABC**
<table>
<thead>
<tr>
<th>Test</th>
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<th>Leiter-R</th>
<th>UNIT</th>
<th>K-ABC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norms</td>
<td>More than 2,900 students in all 4 geographic regions of the U.S.; included students with disabilities enrolled in general education classes; grades 1-12; African American, Native American, Hispanic American, Asian American, and Caucasian students.</td>
<td>More than 3,400 in the U.S. participated in the norms studies. A standardization site and smaller test sites were used. Representative norm data was also collected with regard to geographic region, disabling conditions, race, gender, ethnicity, family income.</td>
<td>Visualization and Reasoning Subtest normed on 1,719 children, adolescents, and adults; AM normed on 763 children, adolescents, and adults. Stratified by gender, race, socioeconomic status, community size, and geographic region. Within 2% of matching census percentages. Age levels, however, were either over or under-represented.</td>
<td>Sample of 2,100 children and adolescents in 38 states and representative of the 1995 U. S. Census for school-age children. The following groups were included in the stratification process: “gender, race, Hispanic origin, region, community setting, classroom placement, special education services, and parental educational attainment” (McCallum, Bracken, &amp; Wasserman, 2001, p. 120). Exceptional populations included children with learning disabilities, mental retardation, and intellectual giftedness, speech and language impairments, English as a second language, bilingual education, hearing impairments, and emotional disturbance.</td>
<td>The K-ABC was standardized on a national sample (2,000 cases) stratified for age, sex, race, region, parental education, community size, and educational placement.</td>
</tr>
<tr>
<td>Test</td>
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<td>TONI-III</td>
<td>Leiter-R</td>
<td>UNIT</td>
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<tr>
<td>Administration Time</td>
<td>Untimed; takes approximately 1 hour</td>
<td>Untimed; takes approximately 15 minutes</td>
<td>45-60 minutes</td>
<td>Untimed</td>
<td>7 subtests: 35 minutes 9 subtests: 40-45 minutes 11 subtests: 45-60 minutes 12 subtests: 60-70 minutes 13 subtests: 75-80 minutes</td>
</tr>
<tr>
<td>Designed to measure</td>
<td>General intelligence based on analogical reasoning, categorical classifications, and sequential reasoning.</td>
<td>Abstract/figural problem solving</td>
<td>Conceptualization, inductive reasoning, and visualization.</td>
<td>Memory and reasoning</td>
<td>Measures intelligence using simultaneous and sequential mental processes.</td>
</tr>
<tr>
<td>Prior knowledge</td>
<td>Analogical Reasoning, Categorical Classification, Sequential Reasoning.</td>
<td>Intelligence, aptitude, abstract reasoning, and problem solving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time considerations</td>
<td>Includes 3 practice items on each subtest.</td>
<td>The examiner pantomimes the instructions.</td>
<td></td>
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</tr>
<tr>
<td>Test</td>
<td>CTONI</td>
<td>TONI-III</td>
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<td>UNIT</td>
<td>K-ABC</td>
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</tr>
<tr>
<td>Materials needed</td>
<td>Pencil, test booklet, answer form, pencil</td>
<td>Test booklet, answer form, pencil</td>
<td>Manual, easel and books 1 and 2, response cards, manipulative response shapes, and easel pictures, examiner’s record forms with examiner’s rating scale, scoring keys, response grids, stopwatch, Social-Emotional Rating Scales (Parent, Self, Teacher), Growth Score Profile Sheets.</td>
<td>Stimulus plates, response cards, stimulus books, stopwatch, cubes, test booklet, administration easel, response chips, red-leaded pencil, #2 lead pencil without eraser, Mazes response booklet.</td>
<td>Carousel format (no manipulation of materials). Rules given on easels and test records.</td>
</tr>
<tr>
<td>Scores rendered</td>
<td>Raw scores, percentiles, age equivalents, standard scores</td>
<td>Raw scores, which can be converted to deviation quotients and percentile ranks.</td>
<td>Raw scores, standard scores, 2 IQ scores (Brief IQ screener, Full Scale IQ), composite scores for rating scales, Rasch-based ability assessments for subtests.</td>
<td>Full-Scale IQ, Brief IQ</td>
<td>Global Scales (Sequential Processing, Simultaneous Processing, Mental Processing Composite, Achievement, Nonverbal) standard scores ($M = 100$, $SD = 15$), percentile ranks, sociocultural percentile ranks, and age equivalents; Mental Processing subtests--scaled scores ($M = 10$, $SD = 3$), percentile ranks, and age equivalents; Achievement subtests--standard scores ($M = 100$, $SD = 15$), percentile ranks, sociocultural percentile ranks, and age equivalents. Grade equivalents are also provided for Reading and Arithmetic subtests.</td>
</tr>
<tr>
<td>Test</td>
<td>CTONI</td>
<td>TONI-III</td>
<td>Leiter-R</td>
<td>UNIT</td>
<td>K-ABC</td>
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<td>--------------------------------------------</td>
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</tr>
<tr>
<td>Scoring Process</td>
<td>Hand scorable</td>
<td>Hand scorable</td>
<td>Hand scorable</td>
<td>Hand scorable</td>
<td>Items are examiner scored. Scoring ASSIST program available for both Macintosh and Windows.</td>
</tr>
<tr>
<td>Reliability</td>
<td>Cronback’s Alpha: .90+; test-retest reliability .90+</td>
<td>Cronback’s Alpha: equal or exceeding .89 in the normative samples. Content sampling error for Forms A and B for 20 age intervals indicated a range from .79 to .95. Time-sampling studies indicated a coefficient of .90 for both forms and all tested ages.</td>
<td>Average internal consistency for the VR (.75 to .90) and AM (.67 to .87). Composite reliabilities for VR ranged from .88 to .93 (FSIQ .91 to .93) and .75 to .93 for AM. Rating scales reliability estimates vary from scale to scale, ranging from .90 for Anxiety Section, to .97 for the Attention Section on the Examiner Rating Scale. On the Parent Rating Scale, reliabilities range from .79 on the Adaptation Section to .90 for the Sensitivity and Regulation Section. On the Teacher Rating Scale, reliabilities range from .91 on the Temperament and Reactivity Sections to .97 on the Social Abilities Section. For the Self Rating Scale, reliabilities were .69 Self-Esteem Section, .77 on Organization/Responsibility and Activity Level Sections.</td>
<td>Average internal consistency reliabilities based on more than 3,000 students indicated a .83 for the Standard Battery and .80 for the Extended Battery. Average subtest reliabilities ranged from coefficients of .87 (Symbolic) to .91 (Nonsymbolic) in the Standard Battery, and .86 (Reasoning) to .90 (Memory) on the Extended Battery. Full-Scale IQ coefficients ranged from .91 to .98 across all Batteries.</td>
<td>Internal consistency reliability: Mental Processing subtests: .62 to .92 (median .81); Achievement subtests: .70 to .95 (median .86); Global Scales: .84 to .97 (median .93). Test-retest reliability: Mental Processing subtests: .59 to .86 (median .76); Achievement subtests: .72 to .98 (median .90); Global Scales: .77 to .97 (median .88). Floor and ceiling inadequacies that render ipsative test interpretation for gifted- and low-functioning children of questionable value.</td>
</tr>
<tr>
<td>Test</td>
<td>CTONI</td>
<td>TONI-III</td>
<td>Leiter-R</td>
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<tr>
<td>Validity</td>
<td>Strong content validity established. Criterion-related validity was also moderate to high in three studies that included LD elementary students, deaf students, and non-disabled adults. Strong construct validity was also established.</td>
<td>Criterion-related validity was established through correlations with the CTONI, WISC-III, and WAIS-R; strong correlations were found with all three tests. Construct validity was also established through studies of subgroups, including gifted, mentally retarded, gender, and racial groups.</td>
<td>Validity studies for various groups have also been conducted to illustrate the discrimination among different groups, including speech/language impaired, hearing impaired, traumatic brain injury, motor delayed, cognitive delayed, Attention Deficit Disordered, gifted, nonverbal learning disabled, verbal learning disabled, English as a second language, and Spanish.</td>
<td>Construct validity examined through exploratory and confirmatory factor loadings, which indicated loadings of above .70 on 5 of the 6 subtests. External evidence is provided through correlational studies; the relationship of the UNIT Standard Battery FSIQ’s with the WISC-III ranged from .81 to .84. ; the relationship of the UNIT Abbreviated Battery and the K-BIT was .71.</td>
<td>Extensive exploratory and confirmatory factor analyses examining structure of battery; convergent and discriminant validity with Das-Jarman successive-simultaneous battery; correlations with Wechsler and Stanford-Binet IQs for various samples. Correlations with individual achievement tests (WRMT, KeyMath, PIAT, WRAT, and Stanford Diagnostic Achievement); Correlations with group achievement tests (SRA, Gates-MacGinitie, Stanford Achievement, ITBS, CAT); Correlations with tests of general cognitive ability: (McCarthy Scales of Children's Abilities, Woodcock-Johnson, Cognitive Abilities Test, Luria-Nebraska Children's Battery), and various brief cognitive tests, including PPVT-R.</td>
</tr>
<tr>
<td>Test</td>
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<td><strong>Leiter-R</strong></td>
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<tr>
<td>Fairness</td>
<td>Calculated using dichotomous comparisons of male/female, African American/Non-African American, American Indian and Non-American Indian, ESL/Non ESL, LD/Non LD, Deaf/Hearing. Results indicated little or no bias in the groups investigated.</td>
<td>Subgroup studies of males, females, African Americans, Hispanics, deaf, gifted, and LD indicated Alphas ranging from .92 to .96. Item response theory approach was used in a study of gender, racial, ethnic groups, and intellectual exceptionalities; scores indicated little if any bias for these groups exists.</td>
<td>There is a “prominence of cultural content embedded in various intelligence tests . . . in 8 of the 20 Leiter-R subtests” (McCallum, Bracken, &amp; Wasserman, 2001, citing McGrew &amp; Flanagan, 1998) and 3 more subtests were found to have moderate levels of cultural content. Thus, caution is advised for using the Leiter-R with non-Western cultures or non-U.S. children.</td>
<td>Internal consistency estimates for special populations, including learning disabled or speech/language impaired are reported in the <em>UNIT Manual</em>. Expert bias panels were used to eliminate test items that suggested bias.</td>
<td>Nondiscriminatory assessment was a major consideration in developing the K-ABC. The standardization sample included representative proportions of white, black, Hispanic American, Asian American, and Native American children, based on the latest census data available. Appropriate numbers of exceptional children also were included.</td>
</tr>
<tr>
<td>Administration Qualifications</td>
<td>Some formal training in assessment, including statistics, procedures for administration, scoring, interpretation, and knowledge of mental ability evaluation.</td>
<td>Psychologists, educational diagnosticians, teachers, counselors, speech therapists, all of whom should have some formal training in assessment.</td>
<td>Examiners should have experience in the use of intelligence tests, and should also have been trained in graduate-level courses in assessment.</td>
<td>Psychologists and educational specialists are likely examiners who should have graduate-level training in psychology, assessment, and measurement.</td>
<td>School psychometrists or psychologists who are licensed and trained to use the K-ABC.</td>
</tr>
<tr>
<td>Test</td>
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<td>TONI-III</td>
<td>Leiter-R</td>
<td>UNIT</td>
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Appendix C
Appendix D

Prather/Humble Checklist
CHAPTER II

Using Nonverbal Measures of Intelligence with Three Culturally Diverse Schools

In the fall of 2002, the project team identified three schools with culturally diverse students and high rates of free and reduced lunches. School I, located in a rural area, served 359 students enrolled in grades K through 8. Ninety-three percent of the students enrolled were African American, and ninety-six percent received free or reduced lunches. Additionally, of the 169 students in grades 2 through 6 who were assessed, only 2 were served in their district’s gifted program.

School II served 300 students in grades K through 6 and is located in a suburban area with a transient population, including African American (46%), Asian American (primarily Vietnamese) (34%), Caucasian (18%), and Hispanic American (1.6%) students. Ninety-eight percent of students receive free or reduced lunches. Of the 218 students assessed in grades 2 through 6, 3 had already been identified for gifted programming, all of whom were Asian American (Vietnamese).

School III is located on an Indian Reservation and serves 209 children in grades Kindergarten through 8, all of whom receive free lunches, regardless of socioeconomic status. One hundred percent of the students were Native American (Choctaw). Five of the 113 students assessed in grades 2 through 6 had been previously identified for gifted programming and services.

Methods

For each of the three participating schools, researchers worked with school administrators to design a schedule for conducting assessments. Researchers visited each school and administered assessments to intact classes of students in grades 2 through 6. One assessment per
day was given, and all three assessments were administered during the same week. Researchers scored the assessments and analyzed the results using SPSS.

Instruments

Three nonverbal measures for screening potentially gifted children were used, including the Raven Standard Progressive Matrices (SPM) (Raven, Court, & Raven, 1996), the Culture Fair Intelligence Test (CFIT) (Cattell & Cattell, 1965), and Naglieri Nonverbal Abilities Test (NNAT) (Naglieri, 1996) (See chapter 1).

Results

The descriptive statistics for the CFIT, the SPM, and NNAT at school I, II, and III are reported in Tables 1, 2, and 3, respectively.

The standard scores or z scores for the SPM were obtained by subtracting the mean from each raw score and dividing by the standard deviation. Due to school absences, the total number of students tested is higher than the number of students who were assessed on each instrument.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Descriptive Statistics School I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Culture Fair Intelligence Scaled Score</td>
<td>165</td>
</tr>
<tr>
<td>Naglieri Nonverbal Abilities Test</td>
<td>167</td>
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<tr>
<td>Nonverbal Ability Index</td>
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<tr>
<td>Raven Standard Progressive Matrices z score</td>
<td>166</td>
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</tbody>
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<thead>
<tr>
<th>Table 2</th>
<th>Descriptive Statistics School II</th>
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<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Culture Fair Intelligence Scaled Score</td>
<td>208</td>
</tr>
<tr>
<td>Naglieri Nonverbal Abilities Test</td>
<td>207</td>
</tr>
<tr>
<td>Nonverbal Ability Index</td>
<td></td>
</tr>
<tr>
<td>Raven Standard Progressive Matrices z score</td>
<td>212</td>
</tr>
</tbody>
</table>
Table 3
Descriptive Statistics School III

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture Fair Intelligence Scaled Score</td>
<td>103</td>
<td>62.00</td>
<td>155.00</td>
<td>104.86</td>
<td>19.33</td>
</tr>
<tr>
<td>Naglieri Nonverbal Abilities Test</td>
<td>107</td>
<td>50.00</td>
<td>129.00</td>
<td>92.14</td>
<td>17.02</td>
</tr>
<tr>
<td>Nonverbal Ability Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raven Standard Progressive Matrices z score</td>
<td>102</td>
<td>-2.28</td>
<td>1.67</td>
<td>.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

To identify a pool of high-scoring students, the scores were categorized into 5-point ranges beginning at the 80\textsuperscript{th} percentile. These data are reported in Table 4 (School I), Table 5 (School II), and Table 6 (School III).

Table 4
Percentiles by Range: School I

<table>
<thead>
<tr>
<th>Range</th>
<th>80-84</th>
<th>85-89</th>
<th>90-94</th>
<th>95-99</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Culture Fair Intelligence Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Grade</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Raven Standard Progressive Matrices</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>11</td>
<td>13</td>
<td>26</td>
<td>62</td>
</tr>
</tbody>
</table>

It should be noted that at School I, the total number of scores at the 80\textsuperscript{th} percentile or higher was 62; however, the scores were actually obtained from only 45 different students.

Similarly, at School II, the total number of scores at the 80\textsuperscript{th} percentile or higher was 186, but was gathered from 109 students. At School III, the total number of scores at or above the 80\textsuperscript{th} percentile was 74, but was gathered from 49 students.
Compared with the Raven Standard Progressive Matrices and the Naglieri Nonverbal Abilities Test, the scores on the Culture-Fair Intelligence Test identified the largest number (36) of students scoring at the 80\textsuperscript{th} percentile or higher at School I. Scores from School II indicate that both the CFIT and Raven’s SPM identified 72 students at or above the 80\textsuperscript{th} percentile. Scores from School III are similar to those from School I in that the CFIT identified the most students (31) at or above the 80\textsuperscript{th} percentile.

Table 5  
Percentiles by Range: School II

<table>
<thead>
<tr>
<th>Range</th>
<th>80-84</th>
<th>85-89</th>
<th>90-94</th>
<th>95-99</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFIT</td>
<td>18</td>
<td>9</td>
<td>19</td>
<td>9</td>
<td>72</td>
</tr>
<tr>
<td>Age</td>
<td>11</td>
<td>9</td>
<td>19</td>
<td>9</td>
<td>72</td>
</tr>
<tr>
<td>Grade</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>47</td>
<td>38</td>
<td>60</td>
<td>186</td>
</tr>
</tbody>
</table>

Table 6  
Percentiles by Range: School III

<table>
<thead>
<tr>
<th>Range</th>
<th>80-84</th>
<th>85-89</th>
<th>90-94</th>
<th>95-99</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFIT</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>31</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Grade</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>17</td>
<td>22</td>
<td>21</td>
<td>74</td>
</tr>
</tbody>
</table>
Discussion

Results of the assessments were shared with school district personnel. Names of students scoring at or above the 90th percentile were given to administrators and school psychologists or psychometrists for further evaluation. Each district has individual guidelines for screening and identification, which were discussed in this meeting. An action plan was developed that established timelines for each step in the remaining identification process, including the individualized intelligence testing. Schools agreed that students who qualified for individual assessments would be administered a nonverbal measure, such as the The Leiter International Performance Scale-Revised (Leiter-R; Roid & Miller, 1997) or the Universal Nonverbal Measure of Intelligence (UNIT) (Bracken & McCallum, 1998). District personnel in School II, however, chose to use the Kaufman Assessment Battery for Children (K-ABC) (Kaufman & Kaufman, 1983) since they had neither the Leiter-R nor the UNIT.

Project personnel coordinated with participating districts to deliver staff development sessions at local school sites for all faculty on identifying and serving culturally diverse gifted children. Included in these workshops was information gleaned from published materials about appropriately instructing the culturally diverse student. A discussion of the research and examples of the characteristics and recommended teaching strategies used in these sessions is presented in Chapter III.
References


Chapter III

Best Practices for Teaching Culturally Diverse Gifted Students

Because of the natural structure of the United States, diversity in schools is inevitable. The array of cultures provides challenges and opportunities for students and teachers to acquire knowledge about various ways of life (Gallagher & Gallagher, 1994). Culture, in this regard, refers to a group of people who maintain a set of values, a belief system, language, and heritage that extends beyond race or ethnicity (Clark, 2002). Children from culturally diverse backgrounds have a variety of talents, skills, and values to offer in any educational setting. Although differences in attitude may be present, they are derived from prior experiences and are influenced by each individual’s home environment. Educators are encouraged to accept these differences as personal traits without viewing them as either positive or negative (Clark, 2002).

According to Banks and Banks (2001), the two main focuses of multicultural education should be: a.) centering the instruction around the cultural practices of other people without stereotyping or misinterpreting them and b.) teaching about one’s own cultural practices without characterizing the practices of other people.

Regardless of cultural background, Gallagher and Kinney (1974) state that minority students still possess similar mental traits: 1) the ability to meaningfully manipulate some symbol system held valuable in the subculture, 2) the ability to think logically, given appropriate information, 3) the ability to use stored knowledge to solve problems, 4) the ability to reason by analogy, and 5) the ability to extend or extrapolate knowledge to new situations or unique applications. (p. 16). Ford (1996) suggests that in addition to these traits, culturally diverse gifted students have the ability to learn quickly
through experience and retain and use ideas well. They also have the ability to transfer acquired knowledge to other areas, perceive relationships between seemingly unrelated information, and use problem-solving skills resourcefully.

Underrepresentation of minorities in gifted and talented programs is an ongoing concern in the United States. The disparity between the groups, particularly African Americans, Native Americans, and Hispanic Americans, has been well documented (Ortiz, 1995; Hartley, 1991; Garrison, 1989; Raborn, 2002; Ford, & Harris, 1999, Ford, Harris, Tyson, & Trotman, 2002). Asian Americans tend to face the opposite issue of overrepresentation in gifted programs (Kitano & DiJosia, 2002). Furthermore, the cultures within each of these cultures create additional challenges for educators. African Americans, for instance, may vary in socioeconomic status (Clark, 2002), dialect, and values. Native Americans may vary in tribal differences (Herring, 1996). Hispanic and Asian Americans may differ in ethnicity (Clark, 2002; Ford & Harris, 1999). Many researchers have developed qualitative research designs on which recommended strategies for teaching culturally diverse gifted students are based. However, there is a lack of empirical data published regarding instruction of this population (Donovan & Cross, 2002).

Many schoolwide reform models have been developed over the last 20 years that attempt to shift the focus from improving grade-level performance of low-achieving students to promoting high achievement for all students (Borman, Stringfield, & Rachuba, 2000). The Core Knowledge Curriculum (Ruenzel, 1997), for example, is a sequential curriculum with a planned progression of specific knowledge. Similar to Reis and Renzulli’s (1992) curriculum compacting strategy, the curriculum model is designed
to condense 50 percent of the school’s existing curriculum. Of particular significance is
the curriculum’s focus on multiculturalism. The children are exposed to a variety of
genre from many cultural perspectives. Subject matter related to African Americans as
well as other cultures is interspersed throughout the curriculum on a regular basis during
the school year (Ruenzel, 1997). Achievement levels of students in districts that
implemented the Core Knowledge Curriculum made significant gains from the 1\textsuperscript{st} to 5\textsuperscript{th}
grades and performed at or above grade level at the completion of the 5\textsuperscript{th} grade school
year.

Baldwin (1989) posits that the overall goal of programs designed for culturally
diverse gifted students should be no different from that which is designed for all students;
however, the process used to meet those goals might be different. Ford and Grantham
(1996) recommends four main objectives for incorporating multicultural education into
the curriculum: 1) to teach values that support cultural diversity and individual
uniqueness, 2) to encourage the qualitative expansion for diverse cultures and their
incorporation into the mainstream of American socioeconomic and political life, 3) to
explore alternative and emerging lifestyles, and 4) to encourage multiculturalism.

Ford and Harris (1999) designed a table of goals and objectives that details the
programming components for gifted education, multicultural education, and multicultural
gifted education (See Appendix A). The intended goals of a culturally diverse gifted
education program according to this model should a.) include an attempt to meet the
individual needs of this population according to the socioeconomic level, culture,
ethnicity, and gender; b.) provide a learning environment that is nondiscriminatory and
meets the cognitive and academic needs, despite the cultural background; c.) establish
high standards and expectations; d.) provide appropriate curricular modifications to meet the needs of high ability students of all cultures; e.) create a supportive learning environment in which students are grouped appropriately; f.) implement strategies to prevent or reverse underachievement; g.) design supportive services to aid the psychological and social development of this population that will encourage self-understanding, appreciation, and respect for their own cultures; h.) provide specially trained teachers who are able to, effectively, provide a rigorous curriculum with all students; and i.) lay the foundation for gifted children from a variety of backgrounds to become responsible adults who contribute to society. Banks and Banks (2001) have also established guidelines for teaching multicultural content. These guidelines are intended to provide teachers with a means to better incorporate culturally diverse content into the curriculum and to teach more effectively in a multicultural environment. Included are suggested books for incorporating multicultural content into the curriculum and recommended strategies for teachers to create a more culturally responsive environment.

The constructivist approach includes activities that involve learning with a partner, trial-and-error experimentation, process-oriented activities in which the student an opportunity to select, and instructional strategies that are adjusted according to the needs of the students (Maker & Nielson, 1996). Borman, Stringfield, and Rachuba (2000) state that teachers who use a constructivist approach to educate students of diverse backgrounds believe that all students can learn and take active, self-conscious steps to deal with student differences. This signifies that the educators recognize the importance of understanding cultures and world experiences and, therefore, use appropriate teaching strategies and materials that encompass this view.
African American Gifted Students

In order to provide a quality education for culturally diverse gifted students, educators must make a conscious effort to understand cultural differences and draw on them as strengths. Torrance (1989) and Ford (1994) identified characteristics commonly exhibited by gifted African American students (Appendix B). Torrance (1989) advocates that the design of an effective curriculum for gifted African American students should be based on their strengths rather than their deficits. The overall goal of the gifted program for African American students should be no different than that of any other culture group (Baldwin, 1989). However, the curriculum design and processes that the teacher employs in order to meet the individual needs of the students may vary. Teachers should reflect on the learning styles and cultural needs of the students when deciding what is considered necessary, as well as appropriate for their population.

Heath (1982) conducted a study of first grade teachers, students, and their parents. During the initial phase of the study, it was noted that the African American students were practically unresponsive to the teachers’ inquiries. Interviews with parents and observations of the daily routines of the family were used to provide insight on the lack of participation. It was discovered that the questioning strategy used in Caucasian and African American households differed. Caucasian parents were more inclined to ask inauthentic questions or questions to which they already knew the answers. For example, questions such as “What color is this flower?” would be used to converse with children at home. A questioning format of this type is used in U.S. school systems. Teachers convey information and frequently ask literal questions to determine whether the
information was comprehended. In this regard, Caucasian parents are preparing their children for the questioning format that will be used by teachers.

In African American households, however, parents would ask authentic questions or questions to which they did not know the answer. Questions such as the following evoke responses that require students to think on a higher level: “What is your favorite story?” or “Why is it your favorite story?” Because of the complexity of the questions, students have the opportunity to voice their opinions, use their imaginations, and expound on their initial responses.

From these findings, it was concluded that African American children were perceived to be less prepared for the classroom because of the infrequent use of inauthentic questions in their households. This is not to say that African American children were not prepared for instruction, but that they were differently prepared. The result of the study showed an increase in participation and achievement by African American students after the teachers were informed of the differences in questioning strategies (Heath, 1982).

The recommendation to account for the differences in preparation is that teachers be informed of these distinctions and incorporate a variety of teaching strategies that will appropriately address the needs of all students. In addition to teaching African American children using a questioning format with which they are familiar, this process will also expose all students to both authentic and inauthentic questions (Donovan & Cross, 2002).

In order to become more culturally competent, educators must obtain accurate information concerning different cultural groups and use this knowledge to develop relationships with African American families, communities, and organizations (Ford,
Harris, Tyson, & Trotman, 2002; Ford & Harmon, 2001;). In addition, educators must examine their personal beliefs regarding other cultural groups and be willing to reflect on how these views influence their teaching. Teachers of gifted African American students must develop an understanding of worldviews as well as incorporate multicultural practices within heterogeneous and homogeneous groups (Ford & Harris, 1999).

Harmon (2002) analyzed the experiences of six African American gifted students who were bused to a predominately Caucasian elementary school then sent back to their inner city neighborhood schools after busing was discontinued. Interviews with the students and three teachers identified as exemplary were conducted. The students outlined characteristics of effective and ineffective teachers that were present in both school settings. It was stated that the ineffective teachers seemed to “lack an understanding and appreciation of African American culture” (p. 71). As a result, teachers held low academic expectations of the students and placed them in lower ability groups and provided assignments that were less challenging than that of their Caucasian counterparts. Students expressed that they were not able to comprehend concepts explained during the lessons. African American students were given different instructions, even when they asked for clarification. The teaching strategies were not modified for these students when it was evident that they did not understand what was being asked of them. Students felt that the teachers exhibited prejudice and disrespectful attitudes toward African American students and made little or no attempt to dissuade mocking or harassment by other students. Obvious preferential treatment of Caucasian students was also noted as a characteristic of ineffective teachers.
Effective teachers, however, were described as having high expectations of African American students and adjusted the instructional strategies according to the needs of the individual students. Although the teachers did not lower the standards for African American children, they did display a willingness to restate directions or provide more detailed information in order to help students understand the task. For example, some students noted that teachers would write instructions on the board rather than providing them orally. In addition, teachers would explain the meaning of words students did not understand while listening to instructions. They would also work with students individually or in small groups until comprehension was achieved. Effective teachers also provided books that had characters to which students could relate as well as independent projects that students were able to complete outside of class and discuss with teachers individually. Although the students felt that the resources were superior at the predominately Caucasian school, they felt that the personal treatment received at the neighborhood school, outweighed the provision of adequate resources because the environment of the neighborhood school seemed to be a safe one in which all students could grow and develop.

The students identified 16 teachers from both school settings who were regarded as effective. Three of the 16 were interviewed about their thoughts on the students’ experiences and about their personal philosophies of education, management techniques, and the curriculum they implemented. The commonalities between these teachers included their motivation to teach inner city minority students, concerns about effective educational practices for underprivileged children, and the urgent educational needs within the African American community. Teachers employed a multicultural curriculum
that incorporated lessons on social skills that cover topics such as prejudice, racism, and achievement in a positive way. Additionally, derogatory remarks or actions were not tolerated (Harmon, 2002).

As a result of this study, it is recommended that teachers participate in professional development workshops that focus on multiculturalism. Teachers should also design a classroom environment that encourage risk-taking, creativity, and attends to the cognitive, social, and emotional needs of culturally diverse gifted students. The classroom structure should be one that eliminates bias and provides for individual differences (Harmon, 2002).

Harmon (2002) indicates that school personnel should be aware of the role of the community in the education of culturally diverse students. School officials, including administrators, counselors, and teachers, must collaborate in order to provide support for a safe, academic environment. Parents of gifted and talented African American students should also be mindful of their role in the positive and successful growth and development of their children. Family participation in the classroom activities, fund-raising events, and decision-making roles help to improve student achievement, attendance, and classroom behavior (Ford & Harris, 1999).

Underachievement is a recurring focus throughout the research on the needs of African American gifted students (Ford, Harris, Tyson, & Trotman; 2002; Ford & Harris, 1999; Banks & Banks, 2001; Maker & Schiever, 1989). Underachievement refers to a child whose level of achievement is inconsistent with the expected level of performance as indicated by the child’s intellectual aptitude (Gallagher & Gallagher, 1994). A child in
this category tends to perform significantly lower on an achievement test, yet yields an IQ score that indicates the potential for high academic achievement.

In an effort to assess underachievement among gifted, potentially gifted, and average African American learners, Ford (1996) studied the achievement effort and attitudes of 152 students in grades 6 through 9 in five Virginia public school districts. She found that 42% of the population sample was underachieving, although the mean GPA was 3.1 on a 4.0 scale. Results indicated that students had strong, positive racial identities, and optimistic attitudes and perceptions overall. Because the achievement behaviors did not match the achievement attitudes, Ford proposes a focus on nurturing abilities and talent development. The incorporation of multicultural content into the gifted curriculum to provide meaning or to empower the students is also encouraged. The use of these methods will emphasize a student-centered approach to learning, resulting in valuable activities that are both relevant and challenging (Borman, Stringfield, & Rachuba, 2000; Ford, 1996).

Ford et al. (2002) states multiculturalism should be embedded within the curriculum in such a way that maximum potential of students is reached in academics, cognition, social-emotional, and cultural development. It is suggested that students be able to “see themselves reflected and affirmed in the curriculum” through the exposure of culturally diverse books and materials, modified instructional strategies that make allowances for learning styles, discussions of social and cultural issues, the exploration of concepts and issues from multiple perspectives, and the development of policies and practices that promote equity and excellence.
Struck (2003) describes a study of a program implemented in an urban school district in which students were identified as potentially gifted in kindergarten and subsequently placed in a self-contained classroom for the gifted during their first grade year. The participants in this program included African American children and students of low socioeconomic status. Using Gagne’s (1993) Differentiated Model of Giftedness and Talent, which focuses on the development of latent abilities, the students were grouped with peers of similar ability and were instructed by the same teachers throughout the day. The program spanned from three to eight years. The students involved in the program completed the Student Perceptions of Influences on Academic Talent Development (SPIATD) survey (Struck, 2002). The results of the survey indicated that students associated their academic success with the teachers they were assigned and with their classroom environment. The influence of peers with similar abilities was identified as one of the most significant factors found. Students attempted to maintain the same level of challenge and mental stimulation during their middle and high school years that they had received in the previous years in the program. Therefore, more students enrolled in Advanced Placement courses or accelerated forms of other courses than in years prior to this program. Struck states that the teaching techniques employed and curriculum implemented instilled mastery-oriented behavior patterns within the students. In addition, the students developed self-acceptance and became autonomous, self-directed learners.

Sparling (1989) recommends the use of a “difference-sensitive curriculum” approach in teaching gifted African-American students. Difference-sensitive refers to the implementation of curricula and teaching strategies for students who have a wide range
of learning needs. Because there are so many groups requiring specialized curriculum and teaching strategies, this approach is considered a viable alternative because it will enable students and teachers to be sensitive to the changing needs of the individual, regardless of the gender, culture, or socioeconomic background. When using this approach, the students’ learning needs must be considered with regard to race, gender, and socioeconomic status. Students will share part of the responsibility for their own learning needs, which will, in turn, make the job of curriculum developers and teachers simpler and give students greater ownership in their learning.

As with Sparling’s (1989) recommendation, many models for integrating multiculturalism suggest including components that promote responsibility, incorporate self-concept building activities, develop pride and self-worth, foster creativity, encourage risk-taking, and integrate individual strengths, without any of the components becoming the main focus of the program (Baldwin, 1989; Baldwin, 1999; Banks & Banks, 2001; Ford, 1996; Sparling, 1989; & Torrance, 1989). The Integrative Education Model (IEM) and Shared Responsibility Model (SRM) are two such models recommended for use to address the individual needs of African American students (Sparling, 1989).

The development of cultural competence is not limited to programs facilitated solely by the teacher of the gifted. Enhanced preparation and professional development opportunities are needed for general education teachers to effectively meet the needs of students who are gifted or underachieving, as well as cultural differences that may affect the student’s performance or behavior in the school setting (Donovan & Cross, 2002; Ford, Harris, Tyson, & Trotman, 2002).
In a case study of a fifth-grade teacher who is considered exemplary in the area of multicultural instruction, Brown (2002) revealed competencies that a teacher must have in order to effectively incorporate multiculturalism into the classroom. The classroom teacher must a.) possess effective classroom management skills; b.) maximize the inclusion of diverse cultures in the classroom environment, textbooks, instruction, and community resource; c.) be flexible yet consistent in discipline practices to assist students in assuming responsibility for their actions; affirm the student’s language code while assisting each in learning to articulate in standard English; d.) develop and utilize assessment tools to focus on student weaknesses and evaluate the effectiveness of instruction; and e.) actively encourage parent/teacher partnerships. (p.139) Additional instructional recommendations for gifted African American students are listed in Appendix C.

Based on observations of student-teacher interactions and interviews with school personnel and students, Brown (2002) denoted the several strategies as useful for the instruction of culturally diverse students. Teachers held high expectations for students and structured the classroom so that the message was conveyed that academic excellence can be attained by all. Bulletin boards and other classroom displays used for instruction are designed so that students may visualize themselves within them. The teachers encourage the students to support each other and maintain responsibility for themselves and their group members. The students’ cultural backgrounds, dialects, and languages are accepted in the classroom setting; however, the teachers provide instruction on the use of standard English and how to adjust language and dialect to fit the audience to which they are speaking. A variety of instructional strategies are used to appeal to the
learning styles of all students. There is a deliberate shift in teaching strategies when it is evident that students have not grasped a concept. For example, the teachers observed were willing to rephrase questions and use verbal cues to clarify information for students. This strategy fostered greater participation by students independently and cooperatively. Critical thinking and inquiry are embedded within the classroom structure and used in teacher-student interactions as well as student-student interactions. Teachers are willing to use alternative assessments when necessary, however, the assessments are aligned with the competency requirements to so that teachers are able to identify the students actual level of comprehension and ability. The teachers develop interpersonal relationships with students and employ strategies such as cooperative grouping to encourage cross-cultural interaction and friendships. The relationship between parents and teachers is considered a partnership essential to the proper growth and development of the students nurtured through ongoing communication.

Exposure to African Americans role models is essential to the growth and development of African American gifted children. This includes characters in stories, older students, mentors, counselors, teachers, and community leaders (Cohen, 1990; Ford & Harris, 1999). Gifted and talented African American students need to have opportunities to interact with other children of the same culture and to be able to discuss openly what it means to be gifted and African American (Cohen, 1990; Ford & Grantham, 1996). Ford (1995) conducted interviews with 43 gifted African American students in grades six through nine about their concerns and the curricular needs as it related to gifted programming. Forty-one percent of those interviewed expressed that they were unhappy learning only about Caucasians in school. Eighty-seven percent
marked “agreed” or “strongly agreed” on a Likert-scale that they become more involved in class activities when they are related to African Americans.

Developing partnerships between home and school will help enhance student achievement. Ford and Harmon (2001) note that few schools put forth a consistent or aggressive effort to build partnerships between parents of culturally diverse students. It is suggested that the endeavor be proactive. School officials should become involved with community activities and attend minority-sponsored events. In addition, educators could hold workshops and meetings for the purpose of informing parents as to how they could assist in meeting the needs of their gifted children (Ford & Harmon, 2001). Evaluation of the professional development workshops and periodic re-evaluation of the gifted program, including the identification process, policies and procedures, and curriculum and instruction are all vital components to the recruitment and retention of gifted and talented African American students.

Native American Gifted Students

Although it is noted that there are differences between the groups, the term “Native American” will be used to refer to the American Indian cultures as a whole. Studies reported refer to specific tribes; however, further research is needed on the characteristics and dynamics of Native American tribes, independently, and their educational differences (Maker & Schiever, 1989).

Several studies have focused on the cognitive strengths of Native American children (Davidson, 1992; Florey, Nottle, Dorf, 1986; Tonemah; 1991). These strengths include strong aptitude in visual/spatial activities (Herring, 1996), a holistic approach to learning, and simultaneous processing abilities. Appendix D provides an overview of
characteristics of gifted Native American students compiled by Tonemah and Brittan (1985). These characteristics were derived from a survey of 266 Native American educators across the United States.

In a study of the visual abilities of Native American children, Levensky (1970) used the Goodenough-Harris Draw-A-Man test (Harris, 1963). The instrument was designed to observe the mental processes of students age 3-13 to assess the concept that children draw what they perceive rather than those things they observe; the means score is 100. Above-average scores were achieved by all groups to which the test was administered. The Hopi children, in particular, achieved scores as high as 117.

Salois (1999) conducted a comparative study of children on the Cheyenne and Blackfoot reservations in Montana. The Wechsler Intelligence scale for Children-Third Edition (WISC-III) was used to assess the cognitive abilities of the two groups. Although the Full Scale IQ and Verbal IQ scores of the Native American students were found to be significantly lower than the population norm, scores on the Performance IQ were not statistically significant above the norm. Visual-perceptual and visual-spatial-motoric ability were identified as strength areas for students from both tribes.

Davidson (1992) utilized the Kaufman Assessment Battery for Children (K-ABC) (Kaufman & Kaufman, 1983) to compare the cognitive strengths of Native American students to that of Caucasian students who were referred for placement in an enrichment program. Fifty-seven Native American students and sixty Caucasian students that ranged from seven to twelve years of age were included in the project. Sixty-seven percent of the Native American students were of the Crow tribe and thirty-three percent were comprised of other tribes, including Northern Cheyenne, Flathead, Chippewa, Cree,
Apache, Assiniboine, and Navajo. The K-ABC measures Mental Processing ability, which is general intelligence, Simultaneous Processing ability, and Sequential and Simultaneous Processing ability. The focus of this study was the areas of Sequential and Simultaneous Processing ability and subtests that assess visual and spatial abilities.

Results of this study indicate that Native American students scored significantly higher as an overall group than Caucasian students in the area of Simultaneous Processing abilities. However, the Caucasian students scored significantly higher in the area of Sequential processing ability than Native Americans. Both groups exhibited equal strength overall in general intelligence. The researcher emphasizes, however, that when individual scores were analyzed for the Native American subjects, 47% showed Simultaneous Processing ability to be a strength. There was no significant difference found between Sequential and Simultaneous Processing ability for 49% of the Native American students. Similarly, 73% of the Caucasian students showed no significant difference in Sequential and Simultaneous Processing ability. These findings imply that educators need to be cognizant of the differences among students individually and be careful not to assume that all Native American students will be strong only in Simultaneous Processing ability.

According to Darnell (1979) and Garrison (1989) Native American cultures tend to make inferences from nonverbal messages, more so than verbal messages. This is characteristic of visual-spatial learners who have a highly developed ability to read body language and facial expressions (Silverman, 1989). Linear-sequential thinking and processing is the modality primarily addressed in U.S. schools (Silverman, 1989). Students who use this approach understand concepts based on simple ideas first, and then
progress, in a step-by-step manner, toward more difficult subject matter. By contrast, the visual-spatial learner views concepts holistically and ideas as interconnected. The need for repetition is eliminated if ideas are presented in a way that connects to preexisting and related concepts (Silverman, 1997). Appendix E provides an overview of characteristics of the gifted visual-spatial learner.

Mann (2001) suggests that in order for visual-spatial learners to be successful teachers should incorporate activities that use visualization, humor, color, mnemonics, and manipulatives. Thematic activities are recommended because Native American students have the ability to use inductive reasoning and problem-solving to comprehend abstract relationships (Mann, 2001; Raborn, 2002; Silverman, 1989).

Cultural awareness and sensitivity are essential elements for effective instruction in a gifted and talented classroom. In order to maintain this sensitivity, teachers must acquire knowledge of the Native American cultures and then utilize this information when planning their lessons. Maker and Schiever (1989) state that the most important purpose for gifted and talented Native American children is to “develop abilities necessary for survival of the culture and tribe, including abilities valued by the tribe, necessary for individual success and required to enable students to be successful in both their own and mainstream cultures.” (p. 144)

In a comparative study of an Acculturated Navajo community, a traditional Navajo community, and an Anglo community, Hartley (1991) surveyed parents and teachers. A return rate that ranged from 35% to 60% from the three communities yielded characteristics that may be considered the opposite of that which is normally regarded as gifted by the majority culture. Appendix F is comprised of a list of
descriptors that characterize the gifted and talented Navajo child that differed from that which is expected of Caucasian gifted children. From the data gathered by Hartley (1991), it can be reasoned that the level of acculturation of a Native American student has a direct affect on the characteristics of giftedness exhibited. Gifted and talented Native American students who are more assimilated into the majority culture are more easily identifiable than those who have strong cultural ties. However, Herring (1996) recommends that instruction incorporate individualized education plans (IEP), the use of Native American teachers as role models, cooperative learning, culturally exclusive grouping, and the enhancement of self-confidence.

Using IEPs will assist the teacher in appropriately addressing the needs of the students individually. Student progress is tracked throughout the year and the teacher can make instructional modifications as necessary. IEPs allow for the consideration of each child’s learning style and provide an opportunity for each student to take part in the development of his or her learning plan (Herring, 1996). Tonemah (1991) recommends using Rezulí’s Enrichment Triad Model to design programming for Native American students, because the development of an IEP in this model is based on the student’s interests and preferred learning style.

Garrison (1989) asserts that the most essential component of the Native American instructional program is the selection of the teacher. Teachers serve as role models for Native American students (Herring, 1996 & Garrison, 1989). It is suggested that Native American teachers, particularly, be selected to teach Native American children. This recommendation is based on the position that using recognizable role models encourages risk-taking during activities that require class participation (Herring, 1996). Many
researchers state that Native American children need nurturance of their academic skills and abilities (Pfeiffer, 1989; Robbins, 1991) as well as an opportunity to develop interpersonal relationships with the teacher and other students (Garrison, 1989; Herring; 1996; Robbins, 1991). The teacher is not only the key to the appropriate development of these areas, but should also be sensitive to the changing needs of this population (Kogan, 2001). For example, teachers must be cognizant of statements that may be considered stereotypical, such as “sit Indian style” (Banks & Banks, 2001; Saul & Saul, 2001). Similarly, teachers must be careful not to make assignments that violate Native American traditions, such as having students dissect animals, although the assignment may be a part of the standard curriculum (Robbins, 1991).

The cooperative learning strategy is considered a viable option of educators of gifted and talented Native American children because it allows an opportunity for students of the various cultures to interact with each other. This noncompetitive method also encourages risk-taking, allows the student to contribute freely without fear of ridicule, and without having to designate a leader. The cooperative learning method, also, provides additional examples of ways a problem can be solved. The interrelated method in which students share ideas in groups, coincides with the holistic approach to learning preferred by this culture (Garrison, 1989; Herring, 1996; Mann, 2001).

The use of exclusive groups of Native American children is encouraged. This practice allows Native American students the opportunity to interact with each other, individually or in groups. This method provides an opportunity for students to have educational experiences with others who have similar cultural values and beliefs (Herring, 1996).
Teachers of the gifted should integrate activities into the curriculum that will enhance self-confidence. These activities include a discussion of the elements of gifted and talented, activities that promote self-esteem and self-awareness, leadership, creativity, and problem-solving activities. To further develop self-confidence, these activities should be encompassed in group activities (Herring, 1996).

In an observational study of 125 secondary-level Native American students in a residential summer program, Robbins (1991) denoted issues that students felt were problems in the educational system. Some of the most prevalent issues discussed included dealing with overt and subtle prejudice, a high dropout rate, the lack of Native Americans in postsecondary education, and the lack of guidance and information about future careers.

Because Native American students tend not to hold themselves in higher regard than others, many tend to mask their gifts and abilities and underachieve in order to discourage ridicule or derision by other Native students (Robbins, 1991). Tonemah (1991) suggests including an affective component in the gifted program for Native American students. This area of the program would help students to understand their Native American heritage and what it means to be gifted and talented (Robbins, 1991).

When developing curricula for gifted and talented Native American students, tribal differences as well as individual differences should be considered (Appendix G). Davidson (1992) cautions that educators should be mindful that not all students will embody the cognitive traits that have often been assigned to a specific cultural group. Pfeiffer (1989) asserts that gifted programming for Native American students should address the tribal history as well as the historical settings of non-Native groups. Students
should also be exposed “to the conditions, changes, and possibilities of tribal policies affecting all areas of life” (p. 103).

Asian American Gifted Students

Asian American students are considered by many researchers to be overrepresented in gifted and talented programs (Donovan & Cross, 2002). Others have questioned the validity of these claims (Shen & Mo, 1990; Kitano & DiJiosa, 2002). The level of acculturation of Asian American families has a direct affect on their outlook on U.S. school systems (Bempechat & Omori, 1990; Feng, 1994; Huang, 1993). American-born Asians tend to develop a high level of acculturation that is evident in their choice of attire, participation in the classroom, and even in their selection of friends (Liu & Li, 1996). According to Bempechat and Omori (1990), adjustment to an American lifestyle may be easier for younger children; however, psychosocial conflicts to which students in this population must contend are often derived from the clash between their traditional and American cultural beliefs.

If educators hold stereotypical views, such as the expectation that all children of Asian decent will be top achievers, they actually help to create tension for these students (Shen & Mo, 1990). For many students, enrollment in the U.S. school system is their first experience with formal schooling (Bempechat & Omori, 1990; Shen & Mo, 1990). Those who have had formal schooling must adjust to new teaching and learning styles of the American schools. Although this forced adjustment may be difficult, it can serve as a strong point for many because they are able to draw on the educational experiences of both cultures.
The term “Asian Americans” is used to refer to a host of ethnic groups. The major groups are Southeast Asians, Pacific Islanders, South Asians, and East Asians (Feng, 1994). More specifically, the groups include Japanese, Chinese, Korean, Vietnamese, Philippine, Laotian, Cambodian, Hawaiian, Guamanian, and Samoan. Some Asian Americans are recent immigrants who may have lost family members in war, while others are American-born with strong ties to their ancestral roots. Still others may be refugees from rural, poverty-stricken villages, while those from the rural areas of Hmong, Vietnam, and Laos may have limited exposure to written language skills (Huang, 1993). The differences among and within groups should be considered when developing instructional practices for gifted and talented Asian Americans (Feng, 1994; Huang, 1993). Characteristics of gifted Asian American students are listed in Appendix H.

The lack of parental involvement in school activities is often misconstrued as a lack of concern for the child’s academic progress. On the contrary, Asian American parents tend to be very concerned for their child’s educational advancement. Education is regarded as vital to having a successful future by Asian American standards. Teachers are held in the highest regard; however, Asian American parents believe that it is the responsibility of the teacher to instruct the students appropriately (Bempechat & Omori, 1990; Shen & Mo, 1990; Zhang & Carrasquillo; 1995). Parents attempt not to interfere with the teachers’ instructions because teachers are considered the experts. They view issues related to education, including curriculum and discipline, as the responsibility of school officials (Shen & Mo, 1990). Many parents believe that their role in the child’s education is to monitor the student’s work ethic at home. Shen and Mo (1990) state that some Asian American parents look over the shoulders of the children urging them to
work hard at home and actually blame themselves if their children do not maintain high academic achievement. They may also make it their personal responsibility to remedy the situation (Shen & Mo, 1990).

Parents of Asian American students favor interdependence in education. They feel that the responsibility for their child’s success in school is not only theirs, but is also shared by the teachers and students. They have a propensity to value effort over innate ability (Zhang & Carrasquillo, 1995). Shen & Mo (1990) note that Asian American parents feel that students should not be rewarded for “behaviors they are expected to demonstrate” (p. 2). This includes the rewarding of high grades. Students are expected to receive excellent grades if a great degree of effort is put forth. There is a tendency to believe that despite the child’s natural ability, a greater effort on the child’s part, combined with obedience towards elders, including teachers, and the constant monitoring by parents at home should result in superior work. This belief may be traced back to the Confucian era, in which hard work is viewed as a means for conditioning and disciplining the mind. Parents were instilled with values that included a respect for elders, deferred gratification, and discipline. As a result, parents teach their children to value education, have respect for authority, be responsible for relatives, and maintain self-control (Feng, 1994; Shen & Mo; Zhang & Carrasquillo, 1995).

Teachers are often led to believe that Asian American students are unassertive, display inappropriate nonverbal messages, and are slow to respond to verbal queries (Cheng, 1998; Zhang & Carrasquillo, 1995). However, the values and beliefs held by the families of these children contribute to many of these behaviors. For example, teachers should be aware that Asian American parents instill in their children that education is of
the highest importance and that a lack of accomplishment in academics brings shame to the family (Huang, 1993; Shen & Mo, 1990). Asian American youth are trained to absorb information first, and then contribute to the class discussion (Liu & Li, 1996). A delay in participation in class activities may be due to a lack of understanding of the topic or the uncertainty of a correct response. In Asian American culture, avoidance of eye contact with adults is considered a sign of respect and frowning may indicate concentration. American teachers must be careful not to interpret these behaviors as impolite or disrespectful (Cheng, 1998).

Huang and Waxman (1997) studied the behaviors exhibited by 463 Asian American students in middle school mathematics classrooms. The mathematics achievement level of the six middle schools observed was just above the national norm. The sample population was 23% Asian American, 32% Caucasian, 26% African American, and 20% Hispanic. Approximately 48% of the Asian American students observed were born in the United States and 75% spoke a language other than English prior to entering school. The Classroom Observation Schedule (COS) was used to document observed behaviors. This instrument was designed for direct observation of student learning rather than teaching pedagogy. Researchers examined four areas: student interactions with teachers and peers and the purpose of those interactions, the settings in which behaviors were observed, the types of materials students used in the classroom settings, and the types of activities in which the students were engaged. From these observations, it was found that students spent 63% of the observation time engaged in whole group instruction. Thirty-one percent of the class time was spent completing independent work. During this time researchers found that Asian American students
interacted with their teachers more than half the time (52%) for instructional purposes and 9% for managerial purposes. Only 8% of their time was spent interacting with peers. Researchers stated the Asian American students observed spent 43% of the time in class watching and listening.

Although their ability levels may be high in other subject matter, Asian American gifted students may have difficulty with English language proficiency. Developing a balance between American instructional practices and traditional teaching strategies used in their native countries proves trying for many students, while others enjoy the challenge of combining the learning approaches (Appendix I). Bempechat and Omori (1990) suggest selecting teachers of Asian decent or teachers who are bilingual to instruct Asian American gifted students. These individuals may also serve as school-home liaisons that communicate information about the academic progress of the student to the parents (Bempechat & Omori, 1990; Feng, 1994; Shen & Mo; 1990). Home visits are viewed by other cultures as a show of sincerity. Discussing a student’s progress in a more casual setting makes the parents feel more comfortable about speaking freely and openly (Shen & Mo, 1990).

Some parents, those who only speak their native languages, may feel incapable of assisting their children with school-related tasks such as homework (Cheng, 1998). Often, the primary languages of the parents and children differ. Young children, new to the United States, are able to acquire English conversational skills more easily due to their daily interaction in a school setting (Zhang & Carrasquillo, 1995). Teachers should be aware that some students might not be able to obtain their parents help with homework assignments for this reason. However, certain assignments may be structured in a way
that would also benefit the parents. For example, students could be assigned passages to read to their parents on a regular basis. As the students read aloud, the parents’ oral proficiency skills could improve as well. In order to maintain a balance between the old and new cultures, parents could read stories to their children in their native languages (Siu, 1996). Assignments of this type help school personnel forge partnerships with Asian American parents and remove cultural barriers from the learning environment.

Zhang and Carrasquillo (1995) assert that many Asian American children have well-developed reading habits acquired in their home environments prior to entering school. Carrasquillo and London (1993) theorize that if reading and writing are encouraged in a stimulating home environment, both skills can develop in the same natural way as spoken language.

Establishing effective communication with the families of Asian American students is essential to the success of the gifted child. Teachers of the gifted must strive to gain a better understanding of the values held by each individual family, rather than assuming that all behaviors are characteristics of Asian American gifted students in general. School personnel may accomplish this in a variety of ways, including providing professional development opportunities for educators, using parents or teachers who had been in residence in the United States longer as liaisons, or by hosting an orientation for recently immigrated parents and students (Shen & Mo, 1990). These methods will forge partnerships between parents and school officials, as well as encourage teachers to make considerations for each student’s individual differences.
Hispanic American Gifted Students

The term “Hispanic” is considered an ethnicity, rather than a race by the federal government (U.S. Census Bureau, 2001). This population is comprised of many different cultures including Central American, South American, Mexican American or Chicano, Cuban, and Puerto Rican. According to the 2001 census, the Hispanic Americans are identified as the largest minority population in the United States (Associated Press, 2003). Approximately 37 million Hispanics are represented in these numbers. Despite this, there is still a large degree of underrepresentation within gifted and talented programs for students of this cultural descent (Castellano, 2002a).

The cause of underrepresentation has been attributed to several factors including language barriers when English is not the student’s primary language, low teacher expectations, and inappropriate identification measures (Zappia, 1989; Maker, 1982; Granada, 2002). According to Zappia (1989), a common misconception among educators is that an English-speaking bilingual child can be evaluated fairly and adequately in English. This assumption may not be entirely accurate because the interpretation of spoken language relies on visual cues from others. Whereas, written language is dependent upon cognitive abilities, such as semantic, syntactical, and functional meaning. Zappia (1989) indicates that higher level cognitive skills, such as those assessed by intelligence tests, take an estimated five to seven years to develop for English language learners. This indicates that the selection of an appropriate instrument is crucial to the identification and placement of Hispanic American students in gifted and talented programs.
A defensible program for gifted and talented learners should be qualitatively different from that of the regular classroom (Maker & Nielson, 1996). In addition to this, curriculum for gifted and talented Hispanic students should be based on the definition of giftedness used for the population served and the method of identification used to select students for the program (Granada, 2002; Udall, 1989). For instance, if a nonverbal assessment is used during the screening and identification phase, the program should have activities with a nonverbal focus embedded throughout the curriculum. This approach will “ensure success of students with nonverbal or creative strengths in the gifted program” (Granada, 2002, p.141). Udall (1989) and Granada (2002) state that an effective curriculum for the gifted should also incorporate the following principles: 1) interdisciplinary content that is advanced or accelerated and maintains high level of abstractness, 2) a focus on real problems, 3) research skills development and independent study opportunities, and 4) new information or products that enhance personal growth.

Sarouphim (2002) examined the effectiveness of the DISCOVER assessment at the secondary level. The instrument is considered culturally sensitive assessment because the instructions are given in the student’s native language and culturally biased material was removed during the piloting phase. The design of the DISCOVER assessment was based on Howard Gardner’s theory of Multiple Intelligences. The form used in this study is intended for students in grades 9-12 and assesses the student’s strength areas using five problem-solving activities: Drawing and Construction (spatial artistic), Word Play (linguistic), Writing (linguistic), Individual Tangrams (spatial analytical/logical-mathematical), and Group Tangrams (interpersonal intelligence).
The participants included 152 Hispanic students, 88 Navajo students, and 63 Caucasian students. The students’ performance on the assessment was compared to that in the classroom setting over a four year period. Of the 303 students assessed, a total of 89, or 29.3% were identified as gifted. No gender or ethnic differences were found. Sarouphim (2002) reiterates Granada (2002) and Udall’s (1989) theory that the assessment used for identification should match the gifted program design. DISCOVER was found to be appropriate for use in identifying gifted and talented culturally diverse students if the program design focused on the use of the Multiple Intelligence theory embedded within the curriculum. Results indicated that students of all the cultural groups assessed benefited from the use of engaging materials and hands-on activities that appealed to a variety of learning modalities.

A secondary reason for underrepresentation of gifted and talented Hispanic American students may be that school personnel may lack accurate descriptions of gifted students from this culture. Bernal and Reyna (1974) identified the following as characteristic of gifted Hispanic students: 1) rapidly acquire English language skills once exposed to the language and given an opportunity to use it expressively; 2) exhibit leadership ability, although often in an open or unobtrusive manner, with strong interpersonal skills; 3) Tend to have older playmates and easily engage adults in lively conversation; 4) enjoy intelligent and/or effective risk-taking behavior often accompanied by a sense of drama; 5) are busied and entertained by imaginative games and ingenious applications, such as getting the most out of simple games and toys; 6) accept responsibilities at home normally reserved for older children, such as supervision of younger siblings or helping others to complete homework; 7) are “street-wise” and are
recognized by others as youngsters who have the ability to “make it” in the Anglo-dominated society. Baldwin (1999) further states that Hispanic American gifted students 1) may be able to communicate fluently in native language with peers and within community; 2) have excellent translation skills; and 3) are able to express feelings and emotions through storytelling, movement, and visual arts. Appendix J lists additional characteristics of gifted Hispanic American students.

Griggs and Dunn (1996) explain that Hispanic American students may have a preference for peer-oriented learning and kinesthetic activities. They tend to perform better in a highly structured environment; however, they prefer variety rather than routine during class activities. They also note that Hispanic American students may have late morning and afternoon peak energy levels.

In order for teachers to select the instructional strategies that are most appropriate for gifted Hispanic American students, it is important that the students’ current level of proficiency in English and their native language be assessed. Traditional language proficiency tests measure individual skills that are interpreted in the form of a composite score that provides teachers with very little information about the student’s learning needs (Zamora-Duran and Reyes, 1997).

Zamora-Duran and Reyes (1997) suggest a communicative competence approach to determining the level of language proficiency. Communicative competence includes an observation of the way language is used in formal and informal conversation and the appropriate adjustment of language to suit the audience. This method of assessment focuses on four main areas: grammatical competence, sociolinguistic competence, discourse competence, and strategic competence.
Grammatical competence refers to the mastery of vocabulary, syntax, semantics, pronunciation, and spelling. Zamora-Duran and Reyes (1997) emphasize that these skills are the most difficult, and are often the last to be mastered for students learning a second language. Students may be grammatically competent in Spanish, yet limited in English. For students born in the United States to Spanish-speaking parents, the opposite may hold true.

Sociolinguistic competence relates to the appropriate use of language in different social situations. Students who are proficient in this area are able to utilize proper dialect when addressing peers and adjust to a more suitable dialect when in the company of adults. They use titles of respect correctly and speak courteously to others.

The third area, discourse competence, involves the effective use of language in an organized way. Students who demonstrate competence in this area are able to use pronouns, transition words, and repetition appropriately. They can elaborate on and clarify statements and share ideas in sequence. They are also able to share personal experiences in present or future tense.

Strategic competence refers to the use of verbal and nonverbal communication. Strategically proficient students are able to paraphrase and use gestures for emphasis. They read to gain information, are able to use a dictionary, and observe and imitate language patterns. They are also able to alternate between languages, or code switch, when necessary. Zamora-Duran and Reyes (1997) state that allowing students to use code switching encourages them to participate in class activities and allows them more than one means of demonstrating comprehension.
It is recommended that teachers who do not speak the student’s first language contextualize the information presented during lessons by using pictures, videos, CD-ROMs, appropriate vocabulary, and cooperative grouping. This strategy will allow teachers the opportunity to observe how well the students integrate the techniques that are modeled in class (Zamora-Duran and Reyes, 1997). Appendix K offers additional recommendations for teaching gifted Hispanic American students.

Chavkin and Gonzalez (1995) encourage the use of parent involvement to enhance the learning experiences of Hispanic American students. The lack of involvement in school activities has been attributed to several reasons. One primary reason is that Hispanic American parents believe that their role is to maintain responsibility for the basic needs of the children and teaching them appropriate behavior, while the school is responsible for the child’s education. Teachers are highly respected and parents feel that the role of one should not interfere with the other. Additional reasons for the lack of parental involvement include a possible negative view of the school system, past negative experiences with education, and language barriers (Chavkin and Gonzalez, 1995). If possible, school systems should employ bilingual educators that would be available to interpret information between parents and school officials (Bernal, 2002; Schall, 2003). In addition, administrators should attempt to hire teachers familiar with the characteristics of Hispanic American gifted students is also recommended to nurture the abilities of this population (Bernal, 2002; Kloosterman, 2002; Robisheaux & Banbury, 2002). Professional development opportunities should be made available for educators and other school personnel with whom the student will come in contact (Cohen, 1990).
Maker (1982) emphasizes that the curriculum for gifted Hispanic American students should focus on their intellectual strengths that are less dependent on language. Creativity, leadership abilities, and interpersonal activities should also be incorporated into the instructional program. This may be accomplished through tasks, such as creative dramas, or hands-on activities that incorporate a variety of learning strategies.

Perrine (1989) suggests that teachers create a learning environment that “encourages and nurtures native inquisitiveness” (Perrine, 1989, p.16). An environment of this type places the teacher in an inquiry mode and encourages the students to ask evaluative questions rather than literal questions that involve simple recall. In addition, simulations, debates, small committees, and other cooperative learning strategies are also suggested for incorporating the use of both languages in classroom activities.

Teachers should incorporate English and Spanish in original thinking for bilingual and monolingual students. Although students may not proficiently speak either language, they should have exposure to each in a capacity other than as a skill building activity (Perrine, 1989).

Schall (2003) compiled a list of strategies that teachers who serve English language learners felt were the most effective in the classroom. Included were strategies such as 1) displaying books, pictures, and other objects that are familiar to the students; 2) allow students to make personal history books, including pictures of family members, their homeland, or cultural celebrations; 3) use mentors; 4) read aloud to the students; 5) have students copy sentences from the board to practice written language; 6) allow students to keep journals; and 7) use cooperative learning.
There are several options that schools may modify or adapt to meet the needs of their gifted Hispanic students. Part-time options include pull-out programs, mentorships, subject advancement, telescoping, early admission, dual enrollment, accelerated classes, grade advancement, correspondence courses, and telecourses. Several full-time options also recommended, such as magnet schools, special schools, school within a school, self-contained classrooms, special classes, cluster grouping, curriculum compacting, or multiage/multigrade classrooms (Castellano, 2002b; Cohen, 1990).

According to Bernal (2002), the curriculum for the gifted and talented must become multicultural in order to serve as a foundation for culturally diverse students. He indicates that an “ethnically exclusive” program may not attract or appeal to students of different cultures. One significant point that Bernal emphasizes is that teachers must be willing to research material with which they are not familiar as it pertains to the students’ cultural background or heritage. It is important that teachers be well informed of the cultural differences of the students in the classroom and employ a variety of strategies to promote excellence.
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### Multicultural Gifted Education: A Synthesis of Goals and Objectives

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<td><strong>Grouping</strong></td>
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<td>Cooperative and peer grouping provide social support and builds</td>
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<td>Underachievement</td>
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<td>Underachievement must be prevented or reversed so that culturally and ethnically diverse students reach their potential in school and life.</td>
<td>Underachievement must be prevented or reversed so that gifted students reach their potential in school and life, regardless of culture, ethnicity, gender, and SES.</td>
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<td>Affective &amp; Supportive Services</td>
<td>Supportive services must be present in schools to help gifted students to adjust psychologically and socially, and to increase gifted students’ self-understanding and appreciation of abilities.</td>
<td>Supportive services must be present in schools to help ethnically and culturally diverse students to adjust psychologically and socially—to increase their self-understanding and appreciation of culture and ethnicity.</td>
<td>Supportive services must be present in schools to help all students to adjust psychologically and socially, regardless of socio-demographic variables; students must have self-understanding, and appreciate and respect their ethnicity/culture and gender.</td>
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<tr>
<td>Teacher Training</td>
<td>Teachers must be trained to work effectively with gifted students; to provide a relevant and rigorous education.</td>
<td>Teachers must be trained to work effectively with minority students; to provide a culturally relevant and appropriate education.</td>
<td>Teachers must be trained to work effectively with all gifted students; to provide an academically rigorous and culturally relevant education.</td>
</tr>
<tr>
<td>Lifelong Goals</td>
<td>Gifted education helps children to become responsible adults who make a contribution to society.</td>
<td>Education helps minority children to become responsible adults who make a contribution to society.</td>
<td>Education helps gifted children for all backgrounds become responsible adults who make a contribution to society; citizens who are culturally competent, as well as socially active, responsive, and responsible.</td>
</tr>
</tbody>
</table>

Appendix B

Characteristics of Gifted African American Students

- Ability to express feeling and emotions
- Ability to improvise with common materials
- Articulates in role playing and storytelling
- Enjoyment of and ability in visual art
- Enjoyment of and ability in creative movement, dance, and dramatics
- Enjoyment of and ability in music and rhythm
- Expressive and colorful speech
- Fluency and flexibility in nonverbal media
- Enjoyment of skill in small-group (cooperative) learning and problem solving
- Responsiveness to the kinesthetic (movement)
- Expressiveness of gestures and body language
- Richness of imagery in informal language
- Humor
- Originality of ideas in problem-solving, invention
- Problem centeredness
- Quickness of “warm-up”
- Able to swiftly identify racial attitudes and practices
- Able to effectively read behavioral cues and their implications
- Independent
- Originality
- Large vocabulary
- Multiple interests
- May ask questions that are considered inappropriate for the school setting
- Experiential, perceptual, and concrete learners


Appendix C

Recommendations for Educating African American Gifted Children

Individualizing Instruction

1. Design a curriculum that focuses on the strengths of African American gifted students rather than the deficits (Torrance, 1989).

2. Become aware of differences in the questioning techniques employed in the home environments of African American students versus that of the mainstream culture (Heath, 1982).

3. Develop a curriculum that nurtures the students’ abilities (Ford, 1996).

4. Use teaching strategies that take learning differences of the students into account (Sparling, 1989).

5. Modify curricula and teaching strategies according to the needs of the individual students (Sparling, 1989).

Teaching Strategies

1. Expose students to both authentic and inauthentic questioning formats.

   ([Example: Authentic: “What is the title of this story?” Inauthentic: “How could this story have ended differently?”] Heath, 1982; Donovan & Cross, 2002)

2. Allow talent development to be a primary focus of the gifted program (Ford, 1996).

3. Emphasize a student-centered approach to learning (Borman, Stringfield, & Rachuba, 2000; Ford, 1996).

4. Provide activities that are both relevant and challenging (Borman, Stringfield, & Rachuba, 2000; Ford, 1996).
5. Allow students to take partial responsibility for the planning and monitoring of their learning (Baldwin, 1989; Baldwin, 1999; Banks & Banks, 2001; Ford, 1996; Sparling, 1989; & Torrance, 1989).

6. Design curriculum models that incorporate self-concept building activities, develop pride and self-worth, foster creativity, encourage risk-taking, and integrate individual strengths, without any of the components becoming the main focus of the program (Baldwin, 1989; Baldwin, 1999; Banks & Banks, 2001; Ford, 1996; Sparling, 1989; Torrance, 1989).

7. Affirm the students’ language codes while assisting each in articulating standard English (Brown, 2002).

8. Encourage parent/teacher partnerships (Brown, 2002).

9. Vary instructional techniques and incorporate all of the sensory modes to fit the needs of all students (Brown, 2002).

10. Integrate critical thinking and inquiry into lessons (Brown, 2002).
### Characteristics of Gifted Native American Students*

<table>
<thead>
<tr>
<th>Acquired Skills</th>
<th>Human and Personal Qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Problem-solving</td>
<td>• Native art(s) talent</td>
</tr>
<tr>
<td>• Commitment to task</td>
<td></td>
</tr>
<tr>
<td>• Scientific ability</td>
<td>• High intelligence</td>
</tr>
<tr>
<td>• English language</td>
<td>• Visionary</td>
</tr>
<tr>
<td></td>
<td>• Inquisitive</td>
</tr>
<tr>
<td></td>
<td>• Intuitive</td>
</tr>
<tr>
<td><strong>Tribal and Cultural Understanding</strong></td>
<td></td>
</tr>
<tr>
<td>• Knowledge of history and traditions</td>
<td>• Creative</td>
</tr>
<tr>
<td>• Respect for elders</td>
<td>• Individualistic</td>
</tr>
<tr>
<td>• Tribal language</td>
<td>• Self-disciplined</td>
</tr>
<tr>
<td>• Competence</td>
<td>• Leadership</td>
</tr>
<tr>
<td>• Storytelling ability</td>
<td>• Athletic prowess</td>
</tr>
<tr>
<td></td>
<td>• Coordination and dexterity</td>
</tr>
<tr>
<td><strong>Aesthetic Abilities</strong></td>
<td>• Self-discipline</td>
</tr>
<tr>
<td>• Demonstrated visual art talent</td>
<td>• Sense of humor</td>
</tr>
<tr>
<td>• Demonstrated performing art talent</td>
<td></td>
</tr>
<tr>
<td>• Creative expression</td>
<td></td>
</tr>
</tbody>
</table>

*Characteristics derived from a survey of 266 Native American educators across the United States.

Appendix E

Characteristics of Gifted Visual-Spatial Learners

- Have difficulty finishing tasks/school work
- Poor listening skills (may appear not to be listening)
- Are physically sensitive, frequently with heightened hearing and intense responses to loud noises
- Poor handwriting or difficulty staying within the lines
- May grip the pen/pencil very hard and press on paper when writing
- Is distractible
- Sensitive to criticism
- Emotionally very sensitive
- Poor sense of time
- Likes art or music or both
- Have difficulty with spelling/times tables
- Are disorganized
- Have a vivid imagination or disturbing dreams or both
- May not perform well on timed tasks
- Patterns of grades favoring science classes and labs, math classes, and vocational courses
- Interest or achievement in hobbies requiring creating, building, or repairing
- Interests in “things” rather than “ideas” or “people”
- Adept at reading maps
- Interest in tinkering with objects
- Preference for reading science fiction rather than nonfiction
- Are successful at finding their way in unfamiliar territory
- Enjoy Legos, puzzles, computer games, television, and making things


Appendix F

Characteristics of the Gifted and Talented Navajo Student

- may be humble (not boastful or assertive about one’s accomplishments)
- aural/oral memory may be better than visual memory
- may be quiet
- may not be competitive with peers for leadership roles
- may use traditional ways of dealing with personal issues (e.g., a song, using a medicine man and other methods unconventional by white middle-class standards)
- may not assertively or readily suggest better ways of doing things
- may not readily or openly express feelings
- may have difficulty overcoming peer pressure
- may not look one directly in the eye because it is considered impolite (a non-Navajo teacher may misconstrue this behavior as non-attentiveness or rudeness)
- family and religious or spiritual activities may take precedence over school functions
- may not challenge something they know is incorrect
- may not prefer to do some work with others but to practice independently
- may not be competitive with peers for leadership roles
- may not be comfortable with public speaking
- may not have strong reading environment at home
- may be fluently bi- or trilingual.
- may not ask a lot of questions—just enough to get the necessary information
- may need instruction and training in all learning modalities, particularly kinesthetic
- may need time to reflect and practice before they produce
- may not have a strong first (native) language background

Appendix G

Recommendations for Educating Native American Gifted Students

Cultural Awareness

1. Develop cultural awareness and sensitivity for gifted Native American students (Maker & Schiever, 1989).
3. Provide students with an opportunity to interact with others from their culture groups by using culturally exclusive groups (Hartley, 1991).
4. Avoid assignments that violate Native American traditions, such as dissecting animals (Robbins, 1991).
5. Be cognizant of stereotypical statements such as “sit Indian style.” (Saul & Saul, 2001)

Learning Styles

1. Be careful not send negative nonverbal messages (Darnell, 1979; Garrison, 1989).
2. Consider each student’s learning style when developing Individualized Education Plans (IEP) (Hartley, 1991; Herring, 1996).
3. Design activities that promote simultaneous processing abilities (Garrison, 1989).
4. Incorporate activities that focus on visual-spatial ability (Mann, 2001; Silverman, 1989).
5. Include activities that use visualization, humor, color mnemonics, and manipulatives (Mann, 2001).

Curriculum Design

1. Use a holistic approach to teaching in which concepts are introduced as a whole and then divided into smaller segments (Herring, 1996).
**Instructional Strategies**
1. Connect new concepts to the students’ prior knowledge (Silverman, 1989).

2. Make use of thematic activities that require students to use inductive reasoning and problem-solving to comprehend abstract relationships (Mann, 2001; Raborn, 2002; Silverman, 1989).

3. Utilize Individualized Education Plans (IEP) to address the changing needs of these students (Hartley, 1991).

4. Use cooperative learning activities to foster creativity, risk-taking, and leadership development (Hartley, 1991).

5. Allow opportunities for students to discuss the elements of gifted and talented programs (Herring, 1996).

**Affective Component**
1. Implement activities that enhance self-confidence (Hartley, 1991).

2. Use recognizable role models to encourage risk-taking during activities that require class participation (Herring, 1996).

3. Design curricula that nurture the academic skills and abilities of Native American gifted students, as well as encourage interpersonal relationships between teachers and students (Garrison, 1989; Herring; 1996; Pfeiffer, 1989; Robbins, 1991).

4. Include an affective component into the gifted program that allows the students’ the chance to participate in individual and group counseling, if the need arises (Robbins, 1991).
Appendix H

Characteristics of Gifted Asian American Students

- Excels in work
- Displays good academic skills
- Has excellent problem-solving ability
- Demonstrates creativity in writing, art, or poetry
- Formulates pertinent questions
- Maintains high ability in task commitment
- Interprets information well
- Able to interact effectively with adults
- Has a keen awareness of the environment and of the people around him or her
- Works diligently
- Has a good sense of humor
- May excel in math-related activities
- Tends to be high in verbal ability
- Demonstrates positive attitudes towards schools and learning


Appendix I

Recommendations for Educating Asian American Gifted Students

Cultural Awareness
1. Instruct students on how to debate issues without encouraging them to challenge authority and conflict with their culture (Huang, 1993; Zhang & Carrasquillo; 1995).

2. Invite students to share information about their native countries with the class in a group setting or privately, with the teacher only (Bempechat & Omori, 1990).

3. Provide frequent, direct feedback about the student’s progress, preferably in person, rather than general comments, such as “she’s doing well” (Siu, 1996).

4. Incorporate discussions of culturally unique experiences and celebrations of the mainstream culture into curriculum for gifted students, such as birthdays and major holidays (Cheng, 1998).

5. Allow students to infuse knowledge of their cultural backgrounds into the curriculum, including recounts of famous Asians and other family or religious cultural practices (Bempechat & Omori, 1990).

Language Considerations
1. Learn select words in the child’s native language in order to set a tone for interpersonal communication between the teacher and student (Brown, 2000; Feng, 1994).

2. Use peer teaching to enhance language proficiency skills (Brown, 2000; Feng, 1994).

3. Provide explicit comparisons between languages to promote language development and to help American students understand the differences among Asian cultures. {Example: Chinese is tonal and noninflectional, while English is intonational and inflectional; Japanese has two writing systems, kanji and kana.} (Cheng, 1998)
4. Create skits and incorporate role-playing in class activities that allow students to practice colloquialisms frequently used in American classroom settings. This process will assist in language proficiency as well as reinforce classroom rules (Cheng, 1998; Harris, 1993).

5. Read orally to students to increase their vocabulary and to expose them to a variety of narrative styles {i.e. letters, stories, newspapers, magazines, biographies, and poetry} (Cheng, 1998).

Teaching Behaviors
1. Make no assumptions about students’ prior knowledge or strength areas (Brown, 2000; Cheng, 1998; Feng, 1994; Harris, 1993).

2. Be aware of nonverbal cues when assessing the students’ comprehension of subject matter (Huang, 1993).

3. Clearly explain both written and unwritten rules that govern writing styles and model them repeatedly (Cheng, 1998).

4. Provide “wait time” to allow students ample opportunity to sort out answers. This will reduce the anxiety level in students and encourage risk-taking (Cheng, 1998; Zhang & Carrasquillo; 1995).

Curricular Designs
1. Plan lessons that draw on the educational experiences of both the Asian cultural practices and the American cultural practices to which the students have been exposed (Bempechat & Omori, 1990; Shen & Mo, 1990; Zhang & Carasquillo, 1995).

2. Plan activities that enhance critical and analytical thinking and creative writing (Harris, 1993; Zhang & Carrasquillo; 1995).
3. Use strength areas, such as rote memorization and drill and skill activities as a springboard to introduce new learning approaches (Zhang & Carrasquillo; 1995).

4. Encourage independent thinking (Harris, 1993; Zhang & Carrasquillo; 1995).

5. Encourage journal writing and the writing of stories and poems (Harris, 1993).

Instructional Strategies for Teachers
1. Provide clear expectations about class assignments (Brown, 2000; Huang, 1993).

2. Use reinforcement rather than subjective questioning or opinion-based instructional strategies. ([Example: Repetition and practice to show mastery are preferred over having to answer open-ended opinionated questions.] Zhang & Carrasquillo; 1995).

3. Design English literacy projects or homework assignments that will help parents understand the structure of teaching and learning in the U.S. school systems (Huang, 1993; Siu, 1996).


Affective Considerations
1. Deal with immediate learning and personal needs of the students (Huang, 1993).

2. Provide counseling strategies that are concrete and rational, rather than confrontational and nondirective (Huang, 1993; Liu & Li, 1996).

3. Provide opportunities for peer counseling (Harris, 1993).

Interacting with Parents and Family
1. Learn about the migratory conditions of each family in order to appropriately identify the needs of each student (Bempechat & Omori, 1990; Huang, 1993).

2. Establish clear communication with parents of Asian American children, preferably in person (Huang, 1993)
3. Immediately inform parents of a change in progress of their children (Huang, 1993; Siu, 1996).

4. Inform parents of the purpose of gifted programming in their native language, if possible (Harris, 1993).

5. Promote the gifted program as an opportunity for students to work harder and learn more (Harris, 1993).


7. Become aware of the ethnic groups and the differences among them (Feng, 1994; Huang, 1993).

8. Explain to parents that learning difficulties are not a source of shame and encourage collaboration between the parent and school personnel to strengthen deficit areas (Huang, 1993; Liu & Li, 1996).

**Suggestions for Administrators**
1. Host an orientation for new Asian American parents and children on the structure and purpose of the gifted program, school policies, class expectations, and extra curricular activities (Shen & Mo, 1990).

2. Select teachers of Asian descent or teachers who are bilingual and knowledgeable of the needs of gifted and talented students (Bempechat & Omori, 1990; Harris, 1993)

3. Use school-home liaisons to communicate with parents regarding the student’s academic progress (Bempechat & Omori, 1990; Feng, 1994; Shen & Mo, 1990).

4. Use Asian parents, Asian staff members, or students who are proficient in both languages as interpreters for newly integrated Asian parents (Bempechat & Omori, 1990; Feng, 1994; Shen & Mo, 1990).
5. Provide professional development workshops that will allow school personnel to become familiar with Asian cultures (Cohen, 1990; Harris, 1993; Asian-American Communication In-School Staff Workshops, 1991; Shen & Mo, 1990).
Appendix J

Characteristics of Gifted Hispanic American Students

• Rapidly acquire English language skills once exposed to the language and given an opportunity to use it expressively

• Exhibit leadership ability, although often in an open or unobtrusive manner, with strong interpersonal skills

• Tend to have older playmates and easily engage adults in lively conversation

• Enjoy intelligent and effective risk-taking behavior often accompanied by a sense of drama

• Are busied and entertained by imaginative games and ingenious applications, such as getting the most out of simple games and toys

• Accept responsibilities at home normally reserved for older children, such as supervision of younger sibling or helping others to complete homework

• Are streetwise and are recognized by others as youngsters who have the ability to succeed in the Anglo-dominated society

• Able to communicate fluently in native language with peers and within community

• Excellent translation skills

• Able to express feelings and emotions through storytelling, movement, and visual arts


Appendix K

Recommendations for Educating Hispanic American Gifted Students

Classroom Environment

1. Create a highly structured environment (Griggs & Dunn, 1996).

2. Provide a learning environment that encourages and nurtures native inquisitiveness (Perrine, 1989).

3. Make considerations for students who have late morning and afternoon peak energy levels (Griggs & Dunn, 1996).

4. Set the mode that will encourage students to ask pertinent evaluative questions rather than basic recall questions (Perrine, 1989).

Curricular Modifications

1. Create a parallel between the type of assessment used for identification and the design of the program in which the students will participate (Zappia, 1989).

2. Include leadership training, creativity, and interpersonal skills activities into the curriculum (Udall, 1989).

3. Incorporate mentors into the curriculum (Udall, 1989).

4. Integrate basic skills training, if necessary (Udall, 1989).

5. Concentrate on affective needs, if needed (Udall, 1989).


7. Incorporate advanced or accelerated interdisciplinary content that maintains a high level of abstractness (Udall, 1989; Granada, 2002).

8. Integrate research skills development into the curriculum (Udall, 1989; Granada, 2002).

**Language Considerations**

10. Assess students in the language in which they are the most proficient (Zappia, 1989).

11. Identify the students’ current level of English proficiency and design activities accordingly (Zamora-Duran & Reyes, 1997).

12. Incorporate simulations, debates, and small committees in program planning in order to provide diversity of language roles (Perrine, 1989).

13. Emphasize the use of original thinking activities for bilingual and monolingual students (Perrine, 1989).

14. Be aware that children apply the principles that govern language to thinking processes (Perrine, 1989).

15. Provide opportunities for students to develop fluency in English (Schwartz, 2001).

16. Design oral language activities that require the use of the deductive strengths of Spanish-speaking students and provide practice with inductive reasoning (Perrine, 1989; Schwartz, 2001).

17. Incorporate both languages in classroom activities (Perrine, 1989).

18. Read aloud to the students to enhance their fluency (Schall, 2003).

19. Have students to copy sentences from the board to practice written language (Schall, 2003).

20. Focus the curriculum on the intellectual strengths of the students and less dependent on language (Maker, 1982).

**Teaching Strategies**

1. Emphasize verbal and nonverbal activities equally (Udall, 1989).

2. Focus instructional activities on real problems (Udall, 1989; Granada, 2002).
3. Use cooperative learning strategies that capitalize on a less competitive and more collaborative dynamic (Perrine, 1989; Udall, 1989).

4. Use cluster grouping to afford students an opportunity for peer interaction (Perrine, 1989).

5. Use concrete materials to teach abstract concepts (Udall, 1989).

6. Use examples that are relevant to culture and experience (Udall, 1989; Schwartz, 2001).

7. Utilize engaging materials and hands-on activities that appeal to a variety of learning modalities (Udall, 1989; Griggs & Dunn, 1996; Schwartz, 2001; Granada, 2002).

8. Display books, pictures, and other objects that are familiar to the students (Schall, 2003).

9. Allow students to make personal history books, including pictures of family members, their homeland, or cultural celebrations (Schall, 2003).

10. Allow students to keep journals (Schall, 2003).

Suggestions for School Personnel

1. Involve parents and the community to enhance the learning experiences of the students (Udall, 1989; Zamora-Duran & Reyes, 1997).

2. Employ bilingual educators who can interpret information between parents and school officials (Bernal, 2002; Schall, 2003).

3. Select teachers who are familiar with characteristics of Hispanic American gifted students (Bernal, 2002; Kloosterman, 2002; Robisheaux & Banbury, 2002).

4. Host professional development workshops for all school personnel with whom the student will come in contact (Cohen, 1990).