9-24-2014

Identification of low-income gifted learners: A review of recent research

Jennifer Riedl Cross
College of William and Mary, jrcross@wm.edu

Darlene Wiggins Dockery
College of William and Mary - School of Education, carpediem2learn@gmail.com

JACK KENT COOKE FOUNDATION

Identification of Low-Income Gifted Learners:

A Review of Recent Research

September 24, 2014

Prepared by

Jennifer Riedl Cross, Ph.D.
Director of Research
Darlene D. Dockery, M.Ed.
Doctoral Candidate

Center for Gifted Education
College of William and Mary
P. O. Box 8795
Williamsburg, VA 23187

Identification of Low-Income Gifted Learners: A Review of Recent Research

Among top performers at every level of the K-16 educational system in the United States, there is a marked underrepresentation of students who are African American, Native American, and Latino (Ford & Whiting, 2008; Miller, 2004; Olszewski-Kubilius & Clarenbach, 2012). As in society in general, a disproportionate number of these students are from low-income families (Miller, 2004; Plucker, Burroughs, & Song, 2010). By far, the most commonly identified risk factors for students with high ability not participating in gifted programs are socioeconomic status and cultural diversity (Barlow & Dunbar, 2010; Bernal, 2002; de Wet & Gubbins, 2011; Donovan & Cross, 2002; Ford, 1995, 2011; Lee, Matthews, & Olszewski-Kubilius, 2008; McIntosh, 1995; Worrell, 2007; Wyner, Bridgeland, & DiIulio, 2007; Yoon & Gentry, 2009). In spite of this, based on most traditional measures of academic ability, the number of low-income high-ability students in the United States is estimated to exceed the individual populations of 21 states (Wyner et al., 2007).

Determining the most effective ways of identifying high-achieving students who have financial need remains a challenge in the field of gifted education. This challenge has been highlighted in other works that inform the practice of the Jack Kent Cooke Foundation, including *Unlocking Emergent Talent* (Olszewski-Kubilius & Clarenbach, 2012), *Achievement Trap* (Wyner et al., 2007), and *Mind the (Other) Gap!* (Plucker et al., 2010). These offer in-depth exploration of specific challenges, strategies and model programs attempting to meaningfully address issues related to the education of low-income, high-ability students. The goal of this report is to review more recent literature to examine issues related to identification, and determine what strategies show promise for helping close the opportunity gap in order to level the educational playing field for students from low-income backgrounds.

At the urging of the many researchers who have called for the inclusion of multiple criteria in the methods used to identify students for participation in gifted education programs (e.g., Bernal,

2002; Borland, 2004; Callahan, Tomlinson, Moon, Tomchin, & Plucker, 1995; Frasier, 1997; Lohman & Hagen, 2001; Peters & Gentry, 2010; Reis & Renzulli, 2010; Renzulli, 2000; VanTassel-Baska, Johnson, & Avery, 2002), practices have been changing in schools. Two strategies are considered particularly effective for increasing the odds of participation for low-income and/or cultural minority children in gifted education programs. One is early identification for participation in gifted programs. The other is expanded protocols for identification (Daugherty & White, 2008; Frasier, 1997; Olszewski-Kubilius & Clarenbach, 2012; Passow & Frasier, 1996; Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005; Tout, Halle, Daily, Albertson-Junkans, & Moodie, 2013; Yoshikawa et al., 2013).

Protocols for identification for participation often are not structured to consider the impact of cultural or family income differences on a student's performance (VanTassel-Baska et al., 2002; Wyner et al., 2007). Because there is no federal mandate for gifted education in the United States, the definitions of who should be considered for participation in gifted education programs are as varied as the states from which they emanate. In a study proposed to locate states with model policies to facilitate the identification of underserved gifted students, Coleman and Gallagher (1992) concluded that the lack of a federal mandate for standards in gifted education leaves the development of guidelines to the individual states, which often results in the underrepresentation of certain groups. More than 20 years later, this is still the case (National Association for Gifted Children [NAGC] & Council of State Directors of Programs for the Gifted [CSDPG], 2013).

Defining and measuring *low income* and/or *poverty* also presents challenges despite the construct being foundational to educational and social science research (Sirin, 2005). Traditionally, the U.S. Census uses the poverty threshold, developed in the 1960's as an effort to quantify poverty. This cash-based formula was determined by tripling the typical cost of food for an average family of four (Fisher, 2008). This traditional model neither represents the current cost of basic needs for

today's families, which requires considerations such as child care and higher taxes, nor does it take into account the impact of government programs such as food stamps, insurance, child care assistance. It also does not account for how the geographic location of the family impacts income needs (Coley & Baker, 2013; Meyer & Sullivan, 2012). Eligibility for free or reduced lunch was the measure of poverty most often represented in the studies included in this review.

Although agreement may be lacking as to the best way to measure poverty, there is much agreement as to the negative impact of growing up poor. Poverty in childhood has demonstrably negative academic, health and life outcomes. These challenges begin from the womb with lower birth weights and higher infant mortality. As toddlers, poor children have fewer words than their more affluent peers (Hart & Risley, 2003). They begin kindergarten behind in pre-reading and pre-math skills, and are more likely to drop out of school (Gornick & Meyers, 2003; Wertheimer, Croan, Moore & Hair, 2003). In a report released in September 2014 by the United States Census Bureau, it was announced that 14.5% or 9.1 million American families in 2013 lived in poverty. This is a decrease in the number of children living in poverty since the previous report, but still represents 14.7 million children in poverty—half of whom live in extreme poverty. Also, not all children benefited from this decrease. For Black children, there was no decrease (National Center for Children in Poverty, 2014).

Because many districts depend on local property taxes to fund their schools, there is a great deal of incongruity in the quality of public schools attended by children based on the circumstances of their neighborhoods. As a result, a disproportionate number of low-income students attend schools lacking enriching learning opportunities and academic rigor (Baker, Sciarra, & Farrie, 2010). Because their schools often focus on lower level instructional strategies and high stakes test preparation, too many low-income students lack opportunities to take courses with sufficient academic rigor for their talents, which lays the foundation for further missed opportunities later in

life (Engstrom & Tinto, 2008; Reis & Renzulli, 2010). From preschool through higher education, what is deemed important is clearly identified by its place in the hierarchy when funding is prioritized. In schools with fewer low-income students, there is more spending, in general, and more funding for gifted education (Baker & Friedman-Nimz, 2004; Education Trust, 2006).

As a result of these funding disparities, some regard gifted education as elitist and negative in its impact on low-income students (Kohn, 1998; Sapon-Shevin, 1994; Tomlinson, 2008). Advocates for and against gifted education, presumably, work with the best interest of children as their motivation. Thus, strategies for resolving difficulties related to identification for students from families from low-income backgrounds must include addressing the issues inherent in an educational system where the leaders too often approach equity and excellence as if they were mutually exclusive ideals (Kohn, 1998; Sapon-Shevin, 1994; Spielhagen & Brown, 2008). Testing plays a critical role in the identification of students for gifted education programming. A majority of students in the US are selected for services based on their performance on a standardized test of ability or achievement. Because of its importance to the topic, a brief description of the history and implications of testing is included here.

Measuring Intelligence

Gifted education has its roots in intelligence testing. The ability to measure differences in cognitive ability among individuals spurred the desire to provide for those with measured superiority. The ties between gifted education and intelligence testing are strong, but this has led to criticisms of the field, in part because what makes an individual "intelligent" varies by context and time. In a powerful example of this, Benjamin Franklin described a 1744 treaty negotiation between the Colonialists and the Native Americans. When the Government of Virginia offered the members of the Six Nations an opportunity for a half dozen of their youths to be educated at the College in

Williamsburg , the offer was declined on the grounds that several of their youth had previously been educated in this way. Upon their return, "they were bad runners, ignorant of every means of living in the Woods, unable to bear either Cold or Hunger, knew neither how to build a Cabin, take a Deer, or kill an Enemy, spoke our Language imperfectly; were therefore neither fit for Hunters, Warriors, or Counselors; they were totally good for nothing" (Franklin, 1967, para. 3). Such cultural and contextual differences in the meaning of intelligence complicate its measurement.

In the history of research on intelligence, many definitions of the construct have been proposed. Recent conceptions of intelligence stand in contrast to Charles Spearman's (1904) proposal of a single factor underlying all intellectual activity, "general intelligence" or "g." Evidence for and against such a unitary intelligence factor continue to spark debate in the literature (e.g., Gridley, 2002; Plucker, 2000; Plucker, Callahan, & Tomchin, 1996; Pyryt, 2000). Cattell (1963) proposed that intelligence is of two types: crystallized and fluid. Crystallized intelligence consists of what one knows; the things learned on a daily basis through experience or exposure. Fluid intelligence is active; it is one's thinking ability—reasoning, problem solving, speed of processing.

Intelligence can be broken down into its many structural components according to Guilford (1982), whose Structure of Intellect (SI) theory suggests that intelligence is made up of operations, contents, and products. The relationships of these three dimensions, each of which is further refined, results in 150 components of intelligence. Recent definitions of intelligence are less about the composition of the construct than its manifestation. Robert Sternberg's (1985) theory of human intelligence, for example, includes three types of intelligence: analytic, synthetic, and practical. Individuals high in analytic intelligence are able to dissect a problem and understand its parts. Individuals who are insightful, intuitive, creative, or adept at coping with relatively novel situations Sternberg would consider high in synthetic intelligence. Those who utilize their analytic and

synthetic abilities well in everyday, pragmatic situations, allowing them to be successful in various environments, are high in what Sternberg calls practical intelligence.

Howard Gardner (1999) has found great support among educators and parents for his proposed multiple intelligences, although it has been criticized for a lack of empirical support (Waterhouse, 2006; c.f., Gardner & Moran, 2006). In his theory, intelligence exists in eight areas: linguistic, logical-mathematical, musical, spatial, bodily kinesthetic, naturalistic, interpersonal, and intrapersonal. Such a definition recognizes the outstanding ability of individuals in each of these areas and the possibility that everyone has the potential for success in one or more of these areas, even if they are not exceedingly capable in another. An important component of Gardner's (1993) definition is the value the society places on the individual's ability to "solve problems or fashion products" (p. 15). A skill that is not valued by the culture will not be nurtured or developed. Sternberg (1985) also includes such cultural valuing in his definition of intelligence.

These varied conceptions of intelligence were developing in parallel with efforts to measure an ambiguous construct. Early tests of intelligence were informed by these ideas, but they were not tests of the constructs proposed. The first successful tests were instead pragmatic accounts of a student's abilities, not a test of *g* or other theorized intellects. In a public debate over just what early "mental measurements" were measuring, Lippmann (1922) argued that they were a means of classifying individuals into groups based on the performance of a select group of test subjects, not on "their ability in dealing with the problems of real life that call for intelligence" (as cited in Hunt, 2011, p. 10). Boring (1923) clarified this in his response, "Intelligence is what tests of intelligence test" (as cited in Sternberg, 2000, p. 7). The reification of intelligence as a test score continues to this day. Intelligence testing as we know it first appeared in the late 1800s.

Early Intelligence Tests

Alfred Binet is credited with the first successful effort at creating an instrument to measure "mental competence" (Hunt, 2011). Binet built on the unsuccessful efforts of Galton, who attempted to measure mental ability by physical characteristics, including vision, hearing, and reaction time (Zenderland, 1998). In the late 1800s, Galton proposed and subsequently attempted to prove that success in life was due to inherited abilities (Valencia & Suzuki, 2001). His dedication to identifying genetic differences in ability based on race and class gave credence to the burgeoning eugenics movement, whose name he coined in 1933 from the Greek root meaning "good in birth" or "wellborn" (Zenderland, 1998). Despite his distasteful role in the eugenics movement, his work strongly influenced the nascent field of intelligence testing.

In the early 1900s, France's commitment to an egalitarian, universal public education was challenged by the inability to effectively serve some students. To avoid the pitfalls of subjective methods of identifying these students (e.g., teacher identification), Binet, who had worked briefly with Galton, was hired by the French Ministry of Education to develop an objective means of discovering those students who would benefit from special education (Hunt, 2011). Binet and his colleague Theodore Simon developed the Binet-Simon, the progenitor of modern intelligence tests.

The Binet-Simon scale was transported to the US by Henry Goddard, who was critical to its implementation by physicians, educators, and even the U.S. Army (Zenderland, 1998). The Army Alpha and Beta Examinations were used during World War I to determine the military role the recruits would be trained to fulfill (Carroll, 1982). The Army Alpha test emphasized verbal abilities and was given to recruits who could read, whereas the Beta test emphasized nonverbal abilities and was given to recruits who were illiterate. The "mental measurement" movement took off in the US, with imitations of the Army tests proliferating. Little attention was paid to the construction of many of these tests, with the exception of a few, including Lewis Terman's Group Test of Mental Ability (Carroll, 1982). Terman was a professor at Stanford University, considered by many to be the father

of gifted education following his studies of 1,000 "geniuses." His modified version of the Binet-Simon scale, known as the Stanford-Binet Intelligence Scale, is still in use today, in its fifth edition. This test measures five weighted factors: knowledge, quantitative reasoning, visual-spatial processing, working memory, and fluid reasoning (Naglieri, 2008).

Early intelligence tests produced a score that included one's "mental age," which could be compared to her or his chronological age. Binet developed his measures of mental age by collecting information from French teachers about the kind of problems students at various ages could solve (Hunt, 2011). Over time, as intelligence testing was adopted for use with older subjects, the conception of mental age was dropped in favor of the Intelligence Quotient (IQ). The IQ is a relative measure, based on scores of large samples. Average IQ is determined by the average of all students of the same age taking the test. The distribution of scores among this normative sample indicates how high or low one's IQ is in comparison with peers (Hunt, 2011). During the validation of any standardized test, it is administered to as many appropriate subjects as possible. The representativeness of this normative sample is critical in determining its usefulness in an assessment process.

During the period of intense study of intelligence in the late 19th and early 20th centuries, testing was used to support the common discriminatory practices of the time. When study after study resulted in poorer performance among minority or immigrant subjects, researchers claimed to have found evidence of genetic superiority of the European Americans who consistently outperformed other groups. The importance of representativeness in the form of diversity in the normative sample was unknown or ignored. When immigrants performed poorly, "hereditarians" believed they had found evidence of their own genetic superiority, without considering the influence of the language of the test—English—which the immigrants often did not speak (Carroll, 1982). Test scores were used to determine occupations and academic tracks, consistently favoring the

European Americans (Valencia & Suzuki, 2001). The calculation of scores was based on normative samples that were almost exclusively European American (Valencia & Suzuki, 2001). Not until the 1972 revision of the Stanford-Binet were minorities included in the norm sample (Terman & Merrill, 1973).

The Relationship of Income and Intelligence

A great deal of intelligence testing research in the early 1900s focused on racial differences (Garth, 1930). Studies consistently found lower IQ scores among racial and ethnic minorities. Among African American and White students, for example, these differences have persisted (Hunt, 2011). Upon closer inspection, however, the differences in IQ among racial groups appear to be associated closely with environment and not any genetic tendency. In the US, race is closely linked to household income. In 2006, the percentage of African American children living in poverty was nearly three times that of White children (Hunt, 2011). Accounting for differences in family income leads to different conclusions about the heritability of intelligence. In an analysis of the relationship between genetics and intelligence, Turkheimer and colleagues (Harden, Turkheimer, & Loehlin, 2007; Turkheimer, Haley, Waldron, D'Onofrio, & Gottesman, 2003) found that environment explains more variance in intelligence scores than genetics for poor children, whereas genetics explains more variance than environment among their more advantaged peers. Adoption studies have found, on average, 12 to 18 point increases in IQ scores for children adopted from working-class to middle-class families (Nisbett et al., 2012). The research base on the relationship of SES and intelligence suggests social influences on test performance that have implications for gifted education. Reliance solely on an IQ test for identification of potential is contraindicated by this research.

Tests Used in Identification Criteria

Standardized tests of ability are usually interpreted in relation to a normative sample—a large group of similar subjects who have taken the test. Knowledge of the characteristics of the norm sample is critical to determining its appropriateness for the sample in question. Whether it is fair to use a particular test for students typically underrepresented in gifted education programs is largely linked to whether the test was normed on a population similar to those who will be taking the test.

In contrast to ability tests, tests of achievement are generally criterion-referenced measures. In these tests, subjects are assessed for their mastery of a specific level of academic content or other criteria. A driver's license exam is an example of a criterion-referenced test. Achievement tests are heavily dependent on formal learning acquired in school or at home and measure what a student has learned over a certain period of time, particularly in math or reading. They do not measure how a student thinks or a student's potential. Ability or aptitude tests, on the other hand, are tests of thinking and abstract reasoning ability. They may look at whether students can apply what they know in new and different ways. Students are often required to analyze designs, patterns, and pictures, or they challenge the test taker to mentally manipulate symbols, numbers, and written language. These tests vary in their alignment with the various conceptions of intelligence previously described, but each is assumed to assess some aspect of intelligence. They are presumed to examine innate learning ability rather than school-based learning, although Lohman (2006) explained that such distinctions are actually impossible. The relationship of learning and natural ability is so intricately enmeshed that separating ability from achievement is not possible through testing. Examples of nationally normed achievement tests are Iowa Tests of Basic Skills (ITBS), Terra Nova, Woodcock-Johnson Test of Achievement (WJ-III), Stanford 10, and the Comprehensive Test of Basic Skills (CTBS).

Although the Stanford Binet-5 (SB5) is the aptitude test with the longest history, and is still used today, the Wechsler Intelligence Scale for Children (WISC-4) is the most frequently used

aptitude test for identification for participation in gifted education programs (Rowe, Dandridge, Pawlush, Thompson, & Ferrier, 2014). The WISC-4, which must be individually administered, provides measures of both verbal and nonverbal intelligence, along with a full-scale IQ score (Robins & Jolly, 2011). Robins and Jolly (2011) gave an in-depth description of the technical specifications, including norm data, for 28 standardized tests commonly used as part of gifted identification procedures.

In an effort to identify abilities without a reliance on linguistic ability, nonverbal assessments have been used since the early 1900s. Goodenough's "Draw a Man" test gave points for features included. These were, however, culturally biased, when, for example, Australian aboriginal subjects lost points for not including clothing (Valencia & Suzuki, 2001). More recent nonverbal tests use abstract or figural elements to assess abilities such as pattern recognition and analogical reasoning. Some tests, such as the Naglieri Nonverbal Abilities Test (NNAT; Naglieri, 1997) have been touted as successful in identifying gifted students from typically underrepresented populations (Naglieri & Ford, 2003), but the methodologies used in the studies cited as evidence have been harshly criticized (Lohman, 2005; c.f., Naglieri & Ford, 2005). Based on a number of studies, Lohman and Gambrell (2012) recommended picture-based reasoning tests rather than figural reasoning, describing greater success using these instruments in the identification of high ability among ELL, low SES, and minority children. Even with improved assessments using picture-based reasoning tests and language-reduced quantitative tests, the authors strongly recommend the use of multiple criteria to make identification decisions.

Multiple Criteria

Identification for participation in gifted programs in many public school districts is still heavily bound to an intelligence test. The IQ test suggests a static nature to intelligence that minimizes the potential for family, school, or other environmental factors to have an impact on

outcomes (Lohman, 2006). Lohman (2006) argued that testing reflects previous opportunities to learn and that high potential—not just high accomplishment—is an important consideration when identifying students from groups typically underrepresented in gifted education programs such as students from poverty.

> The best programs for academically gifted children see their mission as developing talent—not merely discovering it. Programs might better communicate this goal to the public if they emphasized more their role in developing academic excellence and spoke less about giftedness. Anyone can aspire to excellence. Giftedness, however, has connotations of fixedness that are rightly resented by those who score lower on tests that measure the abilities and achievements used to define the construct. (Lohman, 2006, p. 11)

Although most states require multiple criteria to determine eligibility for gifted program participation, of the 38 respondents regarding indicators required for identification in the 2012 – 2013 National Association for Gifted Children *State of the States in Gifted Education* report, 18 of the reporting states required IQ tests (NAGC & CSDPG, 2013). Some leaders in the field of gifted education realize the necessity for more multifaceted identification protocols, especially for students typically underrepresented in gifted education that included indicators of potential not measures merely limited to what the child already knows (Elliott, 2003; Frasier, 1997; Passow & Frasier, 1996; VanTassel-Baska, Feng, & Evans, 2007). Nisbett et al. (2012) argued, however, "intelligence test scores remain useful when applied in a thoughtful and transparent manner" (p. 131).

Nonverbal assessments have also been widely recommended as more equitable for use in the identification of underrepresented students (Naglieri, 2008; Naglieri & Ford, 2003). All researchers do not agree, however, raising questions about such claims (Carman & Taylor, 2010; Giessman, Gambrell, & Stebbins, 2013; Lohman, 2005). Distinguishing between "high-accomplishment students" and "high-potential students," Lohman (2005) pointed out that whether the student has

had the opportunity to develop academic excellence due to age or exposure should be a consideration in placement decisions, but that care must be taken to develop programs around the admission criteria. Lohman warned, however, that failure to develop programs based on the specific needs of high-accomplishment students as well as high-potential students could lead to negative outcomes that alienate gifted education programs within schools and do not serve students well. Key to program success is understanding the strengths and limitations of specific assessment tools, including nonverbal assessments (Lohman, 2005). Arguing that, though nonverbal testing may need to be a part of the identification process, it should not be the only type of test used, he asserted:

> Selecting students for gifted and talented programs on the basis of a test of nonverbal reasoning ability would admit many students who are unprepared for—and thus would not profit from— advanced instruction in literacy, language arts, mathematics, science, or other content-rich domains…It would be like selecting athletes for advanced training in basketball or swimming or ballet on the basis of their running speed. These abilities are correlated, and running is even one of the requisite skills in basketball, but it is not the fair or proper way to make such decisions. (Lohman, 2005, p. 116)

Debate continues regarding the direction the field of gifted education should take to ensure the nation's most able learners have the opportunity to develop their talent. Research continues to address these concerns.

Standardized intelligence tests such as those described above are considered "static" measures, indicating a child's performance at one point in time. One alternative to static testing is dynamic assessment, which indicates potential to learn in addition to current knowledge. Elliot (2003) described dynamic assessment as inclusive of assessment models with differentiated instruction and feedback in the testing process. Foundational to this model is the idea that the child's capacity to learn and opportunity to demonstrate "latent abilities" (Elliott, 2003, p. 16) when

provided with scaffolded instruction, should be included in the examination. Dynamic assessment – scaffolding students in the identification process – is in keeping with Borland's (2005) suggestion that the field of gifted education could benefit from a paradigm shift with a focus on providing students with appropriate curriculum and instruction rather than the focus on meting out the gifted label.

Ryser (2011) pointed out the distinction between qualitative and quantitative assessment stressing the dynamic nature and the inherent capacity for flexibility and depth that qualitative measures provide, which stands in stark contrast to the control required of quantitative measures that results in a static assessment of students' abilities. Arguing that using qualitative measures, such as portfolios and interviews, also allows for assessment to be more consistent with performance requirements "in the real world" (Ryser, 2011, p. 38), she cautioned that data collected in one way not be interpreted using the other. For example, if portfolio data is collected, it should not be evaluated by simply assigning a number. Instead, rubrics describing task expectations must be carefully devised. While quantitative assessments, often consisting of highly structured multiple choice, true/false or matching tasks, are "low in realism" (p. 38). Qualitative indicators are increasingly being included in the identification process. Care must be taken to evaluate these with as much standardization as possible, maintaining respect for the very different natures of qualitative and quantitative indicators of ability or potential.

Addressing Concerns Through Research

In an effort to address the limitations of intelligence tests not normed on diverse populations, Dale, Finch, Mcintosh, Rothlisberg, and Finch (2014) sought to determine if the Stanford-Binet Intelligence Scales, Fifth Edition (SB5) could be effectively used with young children who are culturally diverse. With a sample consisting of 49 African American and 49 White preschool

children matched on age, parental education, and gender, Dale et al. conducted a profile analysis on the composite scores for the matched samples. They found that African American and Caucasian preschool children did not vary in the level or the pattern of their performance, nor did they differ on the level or pattern of performance. Dale et al. (2014) concluded that, if care is taken to determine that contextual variables match those of the normed population, the SB5 can be an appropriate test of cognitive ability (Dale et al., 2014).

Briggs, Reis, and Sullivan (2008) conducted an analysis of methods to increase successful participation in gifted education programs of students who are typically underrepresented. In this qualitative study, 25 programs were evaluated, 7 of which were selected for in-depth site visits that included observations and interviews with administrators and teachers. The results suggested five categories of strategies that contributed to the successful identification and participation of underrepresented students in gifted programs. These include (a) modifying identification procedures, such as alternative assessment tools or elimination of formal assessments; (b) additional program support systems, such as identifying high-potential children and providing opportunities for advanced work prior to formal identification (front-loading); (c) selecting curriculum/instructional designs that enable students to succeed; (d) building parent/home connections; and (e) using culturally sensitive program evaluation practices. Professional development that increased awareness of the problems associated with underrepresentation and the implementation of program supports, such as front-loading, were critical to expanding the identification of a more inclusive population.

Borland, Schnur, and Wright (2000) described Project Synergy, a 7-year federally funded research project that embodied Olszewski-Kubilius and Clarenbach's (2012) suggested considerations. Project Synergy sought to devise and test ways of identifying potentially gifted, economically disadvantaged children. Each year from 1990, using nontraditional measures including a portfolio assessment process, they identified a cohort of 15–18 potentially academically gifted

kindergarten students from public schools in central Harlem who, very likely, would not have been identified using traditional identification protocols. They also equipped parents and teachers to be more effective partners in the development of the children's gifted potential by providing services for them as well, including workshops covering a wide range of topics. The goal of these workshops was to help parents to understand the way the educational system worked, and how to become effective advocates for their children within that system (Borland, 2004; Borland et al., 2000). Based on this research, Borland (2004) noted that identification is more meaningful when conceptualized as a "process, not an event" (p. 20) and should have certain features, such as using observation protocols and portfolio assessment; seeking to assess performance rather than focusing on scores and averages; prioritizing curriculum-based assessment over standardized measures; allowing open-ended teacher referrals rather than checklists; and valuing a case study approach instead of mechanical measures such as matrices.

In a study of nearly 7,000, mostly low-income Black males in the Miami public schools, Winsler, Gupta Karkhanis, Kim, and Levitt (2013) found a number of predictors for early identification as gifted. Preschool attendance at age 4, higher scores on a variety of tests before entering kindergarten (including cognitive, language, fine motor, behavioral, and emergent literacy school readiness skills), bilingual skills, age at kindergarten entry (older), higher grades in school, and higher standardized math and reading test scores were characteristics identified as predicting later gifted identification. When students were identified during the kindergarten year, these predictors were stronger than when identified later in their school career. Early academic experience appears to augment skills that are useful for later identification processes.

Overcoming Cultural and Psychosocial Barriers

Another potential barrier to participation in gifted education programming may be the student's background. Matthews (2006) stated, "Cultural preferences may lower a child's willingness

to be singled out for academic prowess, causing the otherwise qualified child (or more importantly, his or her parents) to decline to participate in a school's gifted program"
(p. 5). Meimei and Conoley (2007) noted the apparent link between family factors that supported the use of a consultation approach to increase the number of Latino English language learners (ELL) in gifted and talented education programs in public schools. Programs would include a combination of administrative, case, and conjoint behavioral consultation. Olszewski-Kubilius and Clarenbach (2012) suggested that leaders who develop programs should consider:

> Gifted students from low-income backgrounds, including those who are culturally or linguistically different, share many of the personal traits and characteristics of gifted students who are not. However, because they may have had fewer opportunities to gain the academic background knowledge needed to be successful in school and may have unique psychological and social issues as a result of poverty and marginalization, different and distinct approaches to identification and programming are sometimes necessary to fully develop their talents and abilities. (p. 22)

Arguing that the transition from abilities to elite talent is mediated by environmental and psychosocial components, Calderon, Subotnik, Knotek, Rayhack, and Gorgia (2007) proposed a consultation model for supporting gifted students. They suggested that service delivery must include acknowledgement of the various systems and organizations in which the children interact. Further, they argued there must be a match between identification practices and program delivery and that the content expert alone cannot provide this integrated and necessary service.

Indeed, ensuring that low-income students are successfully identified may require additional support in advance of the selection process. Ebanks, Toldson, Richards, and Lemmons (2012) argued that the academic program planning process should be developed with consideration for students' current socioeconomic status (SES), and suggested that free intensive test preparation

programs are especially important for students from families from low-income backgrounds. They described a pilot study of a test preparation program designed to equip Black and Latino middle school students to do well enough on the Specialized High School Admissions Test (SHSAT) to qualify for admission in one of the city's special schools, which typically have a very low enrollment of Black and Latino students. The sample consisted of 59 students beginning in the sixth grade who had scored well in English and Language Arts and Math on the Spring 2009 Grade 5 statewide standardized test. Fifty-five were Black among whom many were first or second generation Caribbeans. Two were Latino and 2 were other. Students were exposed to academic content that was between 7th- and 10th-grade levels, mentoring experiences and mock SHSAT tests. Forty-seven students completed the program. At the end of the program, 30% received a passing score on the SHSAT. Twenty-seven percent were accepted into a specialized high school, and the rest of the students were accepted into highly competitive public schools including Bard Early College at Columbia University, Hunter College High School, Benjamin Bannaker High School, Townsend Harris High School at Queens College, and Leon M. Goldstein High School (Ebanks et al., 2012).

The Role of Teachers

In his analysis of state-wide data in Georgia, McBee (2006) evaluated the "accuracy" of referral methods by comparing the referral method, including teacher nominations, to the number of students formally identified gifted. Many fewer students who received Free and Reduced Lunch (FRL) were formally identified gifted (2.9%) than those who were not in this low-income group (12.9%). Black low-income students were especially disadvantaged, with only 2.2% being formally identified as gifted, compared to 4.4% of White low-income students and 9.4% of Asian low-income students who were identified. Teacher referrals were much less likely to result in formal identification than was performance at or above the 90th percentile on a standardized test (automatic referral). This lower rate of accuracy is partially due to the sequence of referral methods

that spur the assessment process. Automatic referrals come first in the referral timeline, making teacher nominations for all students less frequent, but there were significantly fewer teacher nominations of low-income students who were not automatically referred than of high-income students. McBee (2006) claimed that teacher nominations were a valuable source of referrals, but moderated this claim with the assertion that, "inequalities in nomination, rather than assessment, may be the primary source of the underrepresentation of minority and low-SES students in gifted programs" (p. 103). This assertion was further supported by his later in-depth analysis of the 2004 state-wide data using path analysis to identify the differential effects of income and race (McBee, 2010). Race has an effect over and above SES in reducing the accuracy of nominations. Income is a factor, but race has a greater effect in identification. "High SES White students are 3.8 times more likely to be identified than low SES White students, but high SES Black students are 5.0 times more likely to be identified than low SES Black students" (McBee, 2010, p. 295).

Accuracy of referrals in McBee's (2006) analysis was considered to be a resultant formal identification. Any student who received a standardized test score in the 90th percentile or higher was referred and then further assessed on multiple criteria. This same identification variable was the outcome being predicted in McBee's (2010) path analysis. Although the analyses in both studies were quite comprehensive, students who did not perform in the top 10% on a standardized test and who were not nominated by a teacher or through some other, infrequent method, could not be considered in McBee's analyses. The determination of accuracy in the 2006 analysis is dependent on the student's formal identification, as is the outcome of the 2010 analysis. A student with high potential who was not formally identified is not part of either analysis, so the true accuracy of referral methods or predictors of identification may be substantially lower than indicated.

The Role of Professional Development

Often, the content expert—the teacher—is tasked with a central role in the identification process (Peters & Gentry, 2012; Speirs Neumeister, Adams, Pierce, Cassady, & Dixon, 2007). Teachers have been described as gatekeepers who often block access to gifted programs for low-income students, making professional development for teachers a critical component of any protocol for identification designed to address issues of underrepresentation of students who are from low-income families in gifted education programs (Brulles, Castellano, & Laing, 2010; Lewis-Moreno, 2007; Peters & Gentry, 2012; Reed, 2007; Swanson, 2006). Because teachers are so critical to the identification process, several researchers have examined the best ways to equip them to be effective.

Frank (2007) also addressed the impact of teachers' preparation and attitudes in the identification of minority students for participation in gifted programs. She sought to discover the effect of professional development on the number of migrant students nominated for gifted and talented programs. Using a quasi-experimental research design, teachers from a school district where no migrant children had been nominated received 3 hours of professional development in identification of underrepresented gifted students (experimental group) or no professional development (control). In the school where teachers received the training, two migrant students were identified in the school year following the professional development, compared to no migrant student nominations in the control school. Using semi-structured interviews, Frank found that migrant students' mobility and low English proficiency were major challenges to teachers' recognition of academic potential.

Swanson (2006) focused on three South Carolina elementary schools in a 3-year study of low-income, minority gifted students. Using the Metropolitan Achievement Test-7, pre-post student performance assessment tasks, teacher observation logs, and teacher questionnaires and interviews, the study sought to address three areas:

- Improve all students' achievement through the use of high-end curricula developed for high-ability, gifted and talented students;
- identify underrepresented students through the use of these rigorous curricula; and
- identify successful professional development activities that led to changes in classroom practice in support of gifted students.

In Year 1, teachers learned to use strategies and teaching models embedded in units created by the Center for Gifted Education at The College of William & Mary. In Year 2, teachers selected and taught one science and one language arts unit. In Year 3, teachers created their own units. Qualitative data included teacher observation logs, teacher questionnaires and interviews, and a project evaluation report. Quantitative data included standardized achievement test scaled scores, and pre-post student performance assessment tasks. In addition to improvements in achievement in two of the three schools, teacher practices changed in response to professional development. Teachers also became more aware of their students' talents, resulting in more students being identified. This study challenged the identification process for gifted students and supports the idea that teacher preparation and classroom experiences may be key to identification of giftedness, especially as it relates to assumptions about low-income, minority gifted students (Swanson, 2006).

Low referral rates from teachers for gifted identification are often linked to deficit thinking—the idea that students from diverse populations who struggle in school do so because they are in some way deficient or less capable than their dominant culture counterparts (Ford, Grantham, & Whiting, 2008; Harradine, Coleman, & Winn, 2014). This was evident in Frank's (2007) study of teachers challenged by the identification of migrant gifted children. One teacher claimed, "I don't know how I could consider it [identification] for them if they are not proficient in English. I mean don't they have to work on that a little more before they are even considered? If they can't speak English very well and if they can't write in English very well, how can they be in a GT program?" (p.

63). Limited English proficiency may be masking true potential, yet some teachers are unable to see beyond it. The teachers in Frank's study who received professional development were better able to overcome their deficit views.

As a part of the Using Science, Talents, and Abilities to Recognize Students ~ Promoting Learning for Under-Represented Students (U-STARS~PLUS) program, Harradine et al. (2014) explored whether use of the Teacher's Observation of Potential in Students (TOPS) would impact any potential deficit thinking in teachers that could affect identification for gifted education of underrepresented students. In 100 schools in four states, many of them Title I with student population demographics consistent with that of their states, 1,115 classroom teachers participated in the study. Ninety-five percent were female, with 88% White, 10% African Americans, and 2% Latino. There was an even split of novice, experienced, and veteran teachers. They used TOPS first with the whole class in a 3- to 6-week observation period, followed by the Individual Student Observation form for an additional 3–6 weeks after the initial period. By the project's end, 1,972 students were examined using the Individual Student Observation form, with gender and ethnicity reported on 1,741 students. According to teachers' comments, 436 of the students, including 24% White boys and half (48%) of the children of color (53% African American boys, 37% Latino boys) would not have been identified using traditional measures (Harradine et al., 2014), but were with the TOPS.

The development of the teachers who will be a primary source of gifted program identification is an important consideration in the talent development of non-native English-speaking students as well. Although models of effective identification protocols are emerging for English language learners (ELL), professional development for teachers must address misconceptions about those learning a new language (Brulles et al., 2010; Lewis-Moreno, 2007; Reed, 2007). Because cognitive ability tests such as the Otis-Lennon School Ability Test (OLSAT),

which are very strongly linked to verbal ability, are used in many districts, a student who lacks English language skills is often deemed ineligible for gifted services (Brulles et al., 2010; Lewis-Moreno, 2007; Meimei & Conoley, 2007; Reed, 2007). Without the possibility of placement in gifted programming, including honors, advanced, and Advanced Placement (AP) classes, future opportunities are decidedly limited for English Language Learner (ELL) students (Brulles et al., 2010; Lewis-Moreno, 2007). Gifted ELL students are often given significantly less rigorous academic content due to teachers' emphasis on the development of their English language skills. This development is often the exclusive focus of their educational experience, with no regard for their exceptional talents. As a result, they are often tracked into vocational classes (Stein, Hetzel, & Beck, 2011).

Recent Instruments

Responding to research that suggested the need for instruments used in identification of low income and culturally diverse students for placement in gifted education programs to be normed using representative populations, Peters and Gentry (2010, 2012) developed and evaluated the HOPE Teacher Rating Scale, an 11-item instrument with two factors, Academic and Social. This instrument was designed to be used by teachers, in addition to other criteria, to increase fairness in the identification process. Understanding that classroom teachers who often have little training in gifted education are involved in the identification process, 349 classroom teachers with varying experiences were given no specific training on using the HOPE scale. The teachers' use of the scale resulted in consistently proportional representation of typically underrepresented students at any percentage level when the group-specific norms for the students were used (Peters & Gentry, 2010). The study was replicated with a group of 71 teachers and resulted in consistent findings (Peters & Gentry, 2012). One important caveat is the consistency of lower scores among low-income students than among the non-low-income students. If used in comparison with middle- and upper-income

students, scores on the HOPE scale will be lower and students with potential will be rejected on that basis. Although it can be used effectively without training, interpretation of scores must be based on an appropriate comparison group. Normative data is not yet available for the HOPE scale.

The educator's role can also impact views on identification. Teachers, principals and district level coordinators may each have different perspectives on the importance of a particular identification strategy or gifted education in general. Principals, for example, make decisions on a daily basis that impact gifted children's access to an education commensurate with their abilities. Yet, principals' effectiveness at implementing gifted programs in their schools is not only dependent upon support they receive from district administrators but also the teachers who will be the front line of implementation. Teachers of gifted students provide bottom up support to principals while district administrators provide support from the top down. Teachers and district administrators are important in providing access to the gifted services, setting the expectation, fostering collaboration and partnerships; however, without the school principal's support, services for gifted learners will continue to be fragmented (Lenner & Sanguras, 2012).

Schroth and Helfer (2008) collected data from 300 administrators, 300 gifted education specialists, and 300 regular classroom teachers. The preference by all three groups of educators for particular methods of identification was determined to be problematic, with distinct preferences and areas of distrust aligned with the individual's role. The researchers found the possibility of "confusion between the relative importance of general or specific aptitude and good effort and study habits," and suggested that the provision of better services to high-ability students may be linked to the development of shared understandings among professionals (Schroth & Helfer, 2008).

Effective Program Models

At the 2012 Summit on Low Income High Ability Youth, sponsored by the Jack Kent

Cooke foundation, replication of program models and practices demonstrated to be effective with high-ability, low-income students was called for by many present (Olszewski-Kubilius & Clarenbach, 2012). Some of the effective models and practices were developed through federal funding. From 1988–2011 Jacob K. Javits Gifted and Talented Student Education Program (Javits Act), named for Jacob Javits, an effective legislator from humble beginnings, provided grant funding that allowed for the development of protocols that more effectively identified underrrepresented K–12 students and other scientifically based research projects. In addition, the funding provided for the development of curriculum and instructional methods, as well as the facilitation of professional development for the teachers responsible for its implementation. Javits grants also supported the National Research Center on the Gifted and Talented (Winkler & Jolly, 2011).

An effective model, Project Clustering Learners Unlocks Equity (Project CLUE), targeted Indianapolis public school teachers with training to recognize gifted students from nontraditional populations provided by researchers from an area university. Data after the first year indicated an increase in Latino and English Language Learners (ELL) among students represented in the gifted program (Pierce et al., 2006).

Not only were students from urban areas served by the Javits grants, but students from rural areas as well. Rural schools comprise 58% of all Pennsylvania. Project REAL targeted students from these rural areas and provided professional development leading to better identification and resources for the students including video and web-based instruction, mentoring, educational counseling, access to college courses and apprenticeships (Winkler & Jolly, 2011).

While the aforementioned programs were the result of public funds, Adams and Chandler (2014) described potentially replicable programs representing a variety of funding strategies and types of support for high ability K–16 students. These programs also represent a variety in age groups and program structures. Among other programs, the authors describe Northwestern

University's Project EXCITE, for example, which is a publically funded talent development program designed and implemented by the Center for Talent Development (CTD). The program's goal is to increase the number of underrepresented students in advanced tracks in high school and in the college pipeline through academic enrichment and parental outreach and cultivating peer group support (Adams & Chandler, 2014).

Beginning with the youngest learners, the goal of the Fairfax County Young Scholars model is to identify giftedness in diverse students as soon as possible and to support their development so that they are equipped for increasingly greater academic challenges. Foundational to this model is the notion of casting a wide net to include, not exclude in order to develop potential (Adams & Chandler, 2014; Olszewski-Kubilius & Clarenbach, 2012). Empirical research will be needed to assess the effectiveness of these programs, but they serve as useful models of adaptions that can be made based on a community's or organization's resources to effectively support high potential low income learners from the time they enter school until they graduate.

References

Adams, C., & Chandler, K. L. (Eds.). (2014). *Effective program models for gifted students from underserved populations*. Waco, TX: Prufrock Press.

Baker, B. & Friedman-Nimz, R. (2004). State policies and equal opportunity: The example of gifted education. *Educational Evaluation and Policy Analysis*, *26*(1), 39–64.

Baker, B., Sciarra, D. G., & Farrie, D. (2010). *Is school funding fair? A national report card*. Newark, NJ: Education Law Center. Retrieved from http://www.schoolfundingfairness.org/National_Report_Card.pdf

Barlow, K., & Dunbar, E. (2010). Race, class, and Whiteness in gifted and talented identification: A case study. *Berkeley Review of Education*, 1(1). Retrieved from http://escholarship.org/uc/item/247908gb

Bernal, E. (2002). Three ways to achieve a more equitable representation of culturally and linguistically different students in GT programs. *Roeper Review, 2*–, 82–88.

Borland, J. (2004). *Issues and practices in the identification and education of gifted students from underrepresented groups*. Storrs: University of Connecticut, The National Research Center on the Gifted and Talented.

Borland, J. (2005). Gifted education without gifted children: The case for no conception of giftedness. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (2nd ed., pp. 1–20). New York, NY: Cambridge University Press.

Borland, J. H., Schnur, R., & Wright, L. (2000). Economically disadvantaged students in a school for the academically gifted: A post-positivist inquiry into individual and family adjustment. *Gifted Child Quarterly, 44,* 13–32.

Briggs, C., Reis, S., & Sullivan, E. (2008). A national view of promising programs and practices for culturally, linguistically, and ethnically diverse gifted and talented students. *Gifted Child Quarterly*, *52*, 131–145.

Brulles, D., Castellano, J., & Laing, P. (2010). Identifying and enfranchising gifted English language learners. In J. Castellano (Ed.), *Understanding our most able students from diverse backgrounds* (pp. 305–316). Waco, TX: Prufrock Press.

Calderon, J., Subotnik, R., Knotek, S., Rayhack, K., & Gorgia, J. (2007). Focus on the psychosocial dimensions of talent development: An important potential role for consultee-centered consultants. *Journal of Educational & Psychological Consultation*, *17*, 347–367.

Callahan, C. M., Tomlinson, C. A., Moon, T. R., Tomchin, E. M., & Plucker, J. A. (1995). *Project START: Using a multiple intelligences model in identifying and promoting talent in high-risk students* (RM 95136). Charlottesville: University of Virginia, National Research Center on the Gifted and Talented.

Carman, C. A., & Taylor, D. K. (2010). Socioeconomic status effects on using the Naglieri Nonverbal Ability Test (NNAT) to identify the gifted/talented. *Gifted Child Quarterly*, *54*, 75–84.

Carroll, J. B. (1982). The measurement of intelligence. In R. J. Sternberg (Ed.), *Handbook of human intelligence* (pp. 31–122). New York, NY: Cambridge University Press.

Cattell, R. B. (1963). Theory of fluid and crystallized intelligence: A critical experiment. *Journal of Educational Psychology, 54*, 1–22.

Coleman, M. R., & Gallagher, J. J. (1992). *Report on state policies related to the identification of gifted students.* Chapel Hill, NC: Gifted Education Policy Studies Program at the University of North Carolina at Chapel Hill.

Coley, R. J., & Baker, B. (2013). *Poverty and education: Finding the way forward.* Princeton, NJ: ETS Center for Research on Human Capital and Education.

Dale, B. A., Finch, M., Mcintosh, D. E., Rothlisberg, B. A., & Finch, W. (2014). Utility of the Stanford-Binet Intelligence Scales, 5th edition, with ethnically diverse preschoolers. *Psychology in the Schools*, *51*, 581–590.

Daugherty, M., & White, C. (2008). Relationships among private speech and creativity in Head Start and low-socioeconomic status preschool children. *Gifted Child Quarterly*, *52*, 30–39.

de Wet, C. F., & Gubbins, E. (2011). Teachers' beliefs about culturally, linguistically, and economically diverse gifted students: A quantitative study. *Roeper Review*, *33*, 97–108.

Donovan, M. S., & Cross, C. T. (Eds.). (2002). *Minority students in special and gifted education*. Washington, DC: National Academy of Sciences.

Ebanks, M. E., Toldson, I. A., Richards, S., & Lemmons, B. P. (2012). Project 2011 and the preparation of Black and Latino students for admission to specialized high schools in New York City. *The Journal of Negro Education*, *81*, 241–251.

Education Trust. (2006). *Funding gaps 2006*. Retrieved from http://www.edtrust.org/sites/edtrust.org/files/publications/files/FundingGap2006.pdf

Elliott, J. (2003). Dynamic assessment in educational settings: Realising potential. *Educational Review, 55*(1), 16–32.

Engstrom, C. H., & Tinto, V. (2008). Learning better together: The impact of learning communities on the persistence of low-income students. *Opportunity Matters, 1*, 5–21.

Fisher, G. (2008). Remembering Mollie Orshansky—the developer of the poverty threshholds. *Social Security Bulletin*, 68(3). Retrieved from http://www.ssa.gov/policy/docs/ssb/v68n3/v68n3p79.html

Ford, D. (1995). Desegregating gifted education: A need unmet. *The Journal of Negro Education, 64,* 52–62.

Ford, D. (2011). *Multicultural gifted education* (2nd ed.). Waco, TX: Prufrock Press.

Ford, D. Y., Grantham, T. C., & Whiting, G. W. (2008). Culturally and linguistically diverse students in gifted education: Recruitment and retention issues. *Exceptional Children, 74,* 289–306.

Ford, D. Y., & Whiting, G. W. (2008). A mind is a terrible thing to erase: Black students' *Multiple Voices for Ethnically Diverse Exceptional Learners, 10*(1/2), 28–44.

Frank, G. (2007). *The effect of elementary teachers' professional development activities intended to increase the number of migrant student nominations for gifted and talented programs* (Unpublished doctoral dissertation). University of Houston, Houston, TX.

Franklin, B. (1967). Remarks concerning the savages of North-America. In *The Bagatelles from Passy* (C. A. Lopez, Ed.). New York, NY: Eakins Press. Retrieved from http://mith.umd.edu//eada/html/display.php?docs=franklin_bagatelle3.xml

Frasier, M. (1997). Gifted minority students: Reframing approaches to their identification and education. In N. Colangelo & G. Davis (Eds.), *Handbook of gifted education* (2nd ed., pp. 498–515), Boston, MA: Allyn & Bacon.

Gardner, H. (1993). *Frames of mind: The theory of multiple intelligences.* New York, NY: Basic Books.

Gardner, H. (1999). *Intelligence reframed.* New York, NY: Basic Books.

Gardner, H., & Moran, S. (2006). The science of multiple intelligences theory: A response to Lynn Waterhouse. *Educational Psychologist*, *41*, 227–232. doi:10.1207/s15326985ep4104_2

Garth, T. R. (1930). A review of race psychology. *Psychological Bulletin, 27,* 329–356.

Giessman, J. A., Gambrell, J. L., & Stebbins, M. S. (2013). Minority performance on the Naglieri Nonverbal Ability Test, 2nd Edition, versus the Cognitive Abilities Test, Form 6: One gifted program's experience. *Gifted Child Quarterly*, *57*, 101–109.

Gornick, J., & Meyers, M. (2003). *Families that work: Policies for reconciling parenthood and employment.* New York, NY: Russell Sage Foundation.

Gridley, B. E. (2002). In search of an elegant solution: Reanalysis of Plucker, Callahan, and Tomchin, with respects to Pyryt and Plucker. *Gifted Child Quarterly, 46*, 224–234.

Guilford, J. P. (1982). Cognitive psychology's ambiguities: Some suggested remedies. *Psychological Review, 89*, 48–59.

Harden, K., Turkheimer, E., & Loehlin, J. C. (2007). Genotype by environment interaction in adolescents' cognitive aptitude. *Behavior Genetics, 37*, 273–283. doi:10.1007/s10519-006-9113-4

Harradine, C. C., Coleman, M. R., & Winn, D. C. (2014). Recognizing academic potential in students of color: Findings of U-STARS~PLUS. *Gifted Child Quarterly*, *58*, 24–34.

Hart, B., & Risley, T. R. (2003). The early catastrophe: The 30 million word gap by age 3. *American Educator, 27*(1), 4–9.

Hunt, E. (2011). *Human intelligence*. New York, NY: Cambridge University Press.

Kohn, A. (1998). Only for my kid: How privileged parents undermine school reform. *Phi Delta Kappan*. Retrieved from http://scottmcleod.org/1998%20-%20PDK%20-%20Only%20For%20MY%20Kid.pdf

Lee, S.-Y., Matthews, M. S., & Olszewski-Kubilius, P. (2008). A national picture of talent search and talent search educational programs. *Gifted Child Quarterly*, *52,* 55-69.

Lenner, J., & Sanguras, L. (2012, November). *Matters of principle: Middle school principals in gifted education.* Poster presented at the annual conference of the National Association for Gifted Children, Denver, CO.

Lewis-Moreno, B. (2007). Shared responsibility: Achieving success with English-language learners. *Phi Delta Kappan*, *88*, 772–775.

Lohman, D. F. (2005). The role of nonverbal ability tests in identifying academically gifted students: An aptitude perspective. *Gifted Child Quarterly*, *49*, 111–138.

Lohman, D. F. (2006). Exploring perceptions and awareness of high ability: Beliefs about differences between ability and accomplishment: From folk theories to cognitive science. *Roeper Review, 29*, 32–40.

Lohman, D. F., & Gambrell, J. L. (2012). Using nonverbal tests to help identify academically talented children. *Journal of Psychoeducational Assessment*, *30*, 25–44. doi:10.1177/0734282911428194 Lohman, D. F., & Hagen, E. (2001). *Cognitive Abilities Test* (Form 6). Itasca, IL: Riverside.

Matthews, M. S. (2006). *Working with gifted English language learners.* Waco, TX: Prufrock Press.

McBee, M. T. (2006). A descriptive analysis of referral sources for gifted identification screening by race and socioeconomic status. *Journal of Secondary Gifted Education, 17*, 103–111.

McBee, M. T. (2010). Examining the probability of identification for gifted programs for students in Georgia elementary schools: A multilevel path analysis study. *Gifted Child Quarterly, 54*, 283–297.

McIntosh, S. (1995). Serving the underserved: Giftedness among ethnic minority and disadvantaged students. *School Administrator*, *52*(4), 25–29.

Meimei, O., & Conoley, J. (2007). Consultation for gifted Hispanic students: 21st-century public school practice. *Journal of Educational & Psychological Consultation, 17*, 297–314.

Meyer, B. D., & Sullivan, J. X. (2012). Identifying the disadvantaged: Official poverty, consumption poverty, and the new supplemental poverty measure. *Journal of Economic Perspectives*, *26*, 111–136.

Miller, L. (2004). *Promoting sustained growth in the representation of African Americans, Latinos, and Native Americans among top students in the United States at all levels of the education system*. Storrs: University of Connecticut, The National Research Center on the Gifted and Talented.

Naglieri, J. A. (1997). *Naglieri Nonverbal Ability Test: Multilevel technical manual.* San Antonio, TX: Harcourt Brace.

Naglieri, J. A. (2008). Traditional IQ: 100 years of misconception and its relationship to minority representation in gifted programs. In J. VanTassel-Baska (Ed.), *Alternative assessments with gifted and talented students* (pp. 67–88). Waco, TX: Prufrock Press.

Naglieri, J. A., & Ford, D. Y. (2003). Addressing underrepresentation of gifted minority children using the Naglieri Nonverbal Ability Test (NNAT). *Gifted Child Quarterly*, *47*, 155–160.

Naglieri, J. A., & Ford, D. (2005). Increasing minority children's participation in gifted classes using the NNAT: A response to Lohman. *Gifted Child Quarterly, 49,* 29–36.

National Association for Gifted Children, & Council of State Directors of Programs for the Gifted. (2013). *State of the states in gifted education 2012–2013: National policy and practice data.* Washington, DC: National Association for Gifted Children.

National Center for Children in Poverty. (2014). *U.S. child poverty rate falls.* Retrieved from http://www.nccp.org/media/releases/release_158.html

Nisbett, R. E., Aronson, J., Blair, C., Dickens, W., Flynn, J., Halpern, D. F., & Turkheimer, E. (2012). Intelligence: New findings and theoretical developments. *American Psychologist, 67*, 130–159.

Olszewski-Kubilius, P., & Clarenbach, J. (2012). *Unlocking emergent talent: Supporting high achievement of low-income, high-ability students*. Washington, DC: National Association for Gifted Children.

Passow, A. H., & Frasier, M. (1996). Toward improving identification of talent potential among minority and disadvantaged students. *Roeper Review*, *18*, 198–202.

Peters, S. J., & Gentry, M. (2010). Multi-group construct validity evidence of the HOPE scale: Instrumentation to identify low-income elementary students for gifted programs. *Gifted Child Quarterly, 54,* 298–313.

Peters, S. J., & Gentry, M. (2012). Additional validity evidence and across-group equivalency of the HOPE teacher rating scale. *Gifted Child Quarterly*, *57*, 85–100.

Pierce, R. L., Adams, C. M., Speirs Neumeister, K. L., Cassady, J. C., Dixon, F. A., & Cross, T. L. (2006). Development of an identification procedure for a large urban school corporation: Identifying culturally diverse and academically gifted elementary students. *Roeper Review*, *29*, 113–118.

Plucker, J. A. (2000). Flip sides of the same coin or marching to the beat of different drummers? A response to Pyryt. *Gifted Child Quarterly, 44*, 193–194.

Plucker, J. A., Burroughs, N., & Song, R. (2010). *Mind the (other) gap: The growing excellence gap in K–12 education.* Bloomington, IN: Center for Evaluation & Education Policy.

Plucker, J. A., Callahan, C. M., & Tomchin, E. M. (1996). Wherefore art thou, multiple intelligences? Alternative assessments for identifying talent in ethnically diverse and low income students. *Gifted Child Quarterly, 40*, 81–92.

Pyryt, M. C. (2000). Finding "*g*": Easy viewing through higher order factor analysis. *Gifted Child Quarterly, 44*, 190–192.

Reed, C. F. (2007). We can identify and serve ESOL GATE students: A case study. *Gifted Child Today, 30*(2), 16–22.

Reis, S. M., & Renzulli, J. S. (2010). Opportunity gaps lead to achievement gaps: Encouragement for talent development and schoolwide enrichment in urban schools. *Journal of Education, 190*, 43–49.

Renzulli, J. S. (2000). The identification and development of giftedness as a paradigm for school reform. *Journal of Science Education & Technology*, *9*, 95–114.

Robins, J. H., & Jolly, J. L. (2011). Technical information regarding assessment. In S. K. Johnsen (Ed.), *Identifying gifted students: A practical guide* (2nd ed., pp. 75–118). Waco, TX: Prufrock Press.

Rowe, E. W., Dandridge, J., Pawlush, A., Thompson, D. F., & Ferrier, D. E. (2014). Exploratory and confirmatory factor analyses of the WISC-IV with gifted students. *School Psychology Quarterly*. Advance online publication. Retrieved from http://psycnet.apa.org.proxy.wm.edu/psycarticles/2014-39271-001.pdf

Ryser, G. (2011). Qualitative and quantitative approaches to assessment. In S. K. Johnsen (Ed.), *Identifying gifted students: A practical guide* (2nd ed., pp. 75–118). Waco, TX: Prufrock Press.

Sapon-Shevin, M. (1994). *Playing favorites: Gifted education and the disruption of community*. Albany, NY: State University of New York Press.

Schroth, S. T., & Helfer, J. A. (2008). Urban school districts' enrichment programs: Who should be served? *Journal of Urban Education, 5,* 7–17.

Schweinhart, L., Montie, J., Xiang, Z., Barnett, W., Belfield, C., & Nores, M. (2005). *Lifetime effects: The High Scope Perry Preschool study through age 40*. (Monographs of the HighScope Educational Research Foundation, 14). Ypsilanti, MI: HighScope Press.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, *75*, 417–453.

Spearman, C. (1904). "General intelligence," objectively determined and measured. *American Journal of Psychology, 15,* 201–293.

Spielhagen, F., & Brown, E. (2008). Excellence versus equity: Political forces in the education of gifted students. In B. Cooper, J. Cibulka, & L. Fusarelli (Eds.), *Handbook of education politics and policy* (pp. 374–387). New York, NY: Routledge.

Speirs Neumeister, K. L., Adams, C. M., Pierce, R. L., Cassady, J. C., & Dixon, F. A. (2007). Fourth-grade teachers' perceptions of giftedness: Implications for identifying and serving diverse gifted students. *Journal for the Education of the Gifted*, *30*, 479–499.

Stein, J. C., Hetzel, J., & Beck, R. (2011). Twice exceptional? The plight of the gifted English learner. *Delta Kappa Gamma Bulletin, 78*(2), 36–41.

Sternberg, R. J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York, NY: Cambridge University Press.

Sternberg, R. J. (2000). The concept of intelligence. In R. J. Sternberg (Ed.), *Handbook of intelligence* (pp. 3–15). New York, NY: Cambridge University Press.

Subotnik, R. F., Olszewski-Kubilius, P., & Worrell, F. C. (2011). Rethinking giftedness and gifted education: A proposed direction forward based on psychological science. *Psychological Science in the Public Interest, 12*(1), 3–54.

Swanson, J. D. (2006). Breaking through assumptions about low-income, minority gifted students. *Gifted Child Quarterly, 50,* 11–25.

Terman, L., & Merrill, M. A. (1973). *Stanford-Binet Intelligence Scale: 1972 norms edition*. Boston, MA: Houghton Mifflin.

Tomlinson, S. (2008). Gifted, talented and high ability: Selection for education in a one-dimensional world. *Oxford Review Of Education*, *34*(1), 59–74.

Tomlinson, C., & Jarvis, J. M. (2014). Case studies of success: Supporting academic success for students with high potential from ethnic minority and economically disadvantaged backgrounds. *Journal for the Education of the Gifted*, *37*, 191–219.

Tout, K., Halle, T., Daily, S., Albertson-Junkans, L., & Moodie, S. (2013). *The research base for a birth through age eight state policy framework* (Publication No. 2013-42). Washington, DC: Child Trends. Retrieved from http://www.childtrends.org/wp-content/uploads/2013/10/2013-42AllianceBirthto81.pdf

Turkheimer, E., Haley, A., Waldron, M., D'Onofrio, B., & Gottesman, I. I. (2003). Socioeconomic status modifies heritability of IQ in young children. *Psychological Science*, *14*, 623–628.

U.S. Census Bureau. (2014). *Income, poverty and health insurance coverage in the United States: 2013*. Retrieved from http://www.census.gov/newsroom/press-releases/2014/cb14-169.html#

Valencia, R. R., & Suzuki, L. A. (2001). *Intelligence testing and minority students: Foundations, performance factors, and assessment issues*. Thousand Oaks, CA: SAGE.

VanTassel-Baska, J. Feng, A. X., Evans, B. L. (2007). Patterns of identification and performance among gifted students identified through performance tasks. *Gifted Child Quarterly, 51,* 218–231.

VanTassel-Baska, J., Johnson, D., & Avery, L. D. (2002). Using performance tasks in the identification of economically disadvantaged and minority gifted learners: Findings from Project STAR. *Gifted Child Quarterly, 46,* 110–123.

Waterhouse, L. (2006). Multiple intelligences, the Mozart effect, and emotional intelligence: A critical review. *Educational Psychologist, 41*, 207–225.

Winsler, A., Gupta Karkhanis, D., Kim, Y., & Levitt, J. (2013). Being Black, male, and gifted in Miami: Prevalence and predictors of placement in elementary school gifted education programs. *Urban Review*, *45*, 416–447. doi:10.1007/s11256-013-0259-0

Wertheimer, R., Croan, T., Moore, K. A., & Hair, E. C. (2003). *Attending kindergarten already behind: A statistical portrait of vulnerable young children* (Research brief). Washington, DC: Child Trends.

Winkler, D. L., & Jolly, J. L. (2011). Historical perspectives: The Javits Act: 1988–2011. *Gifted Child Today, 34*(4), 61–63.

Worrell, F. C. (2007). The relationship of ethnic identity to academic achievement and global self-concept in four groups of academically talented students. *Gifted Child Quarterly, 51,* 23–38.

Wyner, J., Bridgeland, J., & DiIulio, J. (2007). *Achievement trap: How America is failing millions of high-achieving students from lower-income families.* Loudon, VA: Jack Kent Cooke Foundation.

Yoon, S., & Gentry, M. (2009). Racial and ethnic representation in gifted programs. *Gifted Child Quarterly, 53*, 121–136.

Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., . . . Zaslow, M. J. (2013). Investing in our future: The evidence base on preschool education. Retrieved from http://fcd-us.org/sites/default/files/Evidence%20Base%20on%20Preschool%20Education%20FINAL.pdf

Zenderland, L. (1998). *Measuring minds: Henry Herbert Goddard and the origins of American intelligence testing.* New York, NY: Cambridge University Press.