

A Study of Identification and Achievement Profiles of Performance Task-Identified Gifted Students Over 6 Years

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This study examined the trend of identification and achievement patterns of performance task-identified students over a span of 6 years (2000–2005), in comparison to profiles of students who were identified exclusively through traditional ability and achievement tests. The study findings suggested that the performance-based protocols were consistent across time in locating a higher percentage of low-income and minority students, as well as female students for gifted programs; a higher percentage of students with uneven verbal-nonverbal strengths were performance task-identified students also. Performance task-identified students scored significantly lower than traditionally identified students on both the English and math portions of the state assessment test for multiple years; however, the performance differences on state assessments were small, rendering small effect sizes.

It is a belief of many in the field of gifted education that new conceptions of giftedness and a new paradigm for identifying and selecting students will help low socioeconomic and minority students become more represented in gifted programs (Ford, 1996; VanTassel-Baska, Patton, & Prillaman, 1991). This new paradigm of identification would recognize the different ways in which students display giftedness and would call for more varied and authentic assessments. Instead of relying on intelligence and achievement test scores solely for identification, multiple criteria would be used, including more

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Journal for the Education of the Gifted. Vol. 31, No. 1, 2007, pp. 7–34. Copyright ©2007 Prufrock Press Inc., <http://www.prufrock.com>

nontraditional measures such as observing students interacting with a variety of learning opportunities (Passow & Frasier, 1996), dynamic assessment (Feuerstein, 1986; Kirschenbaum, 1998) and nonverbal tests (Bracken & McCallum, 1998; Naglieri & Ford, 2003; Naglieri & Kaufman, 2001). A problem related to this approach, however, has been the lack of program match for such students once they were identified (Mills & Tissot, 1995).

Based on our current understanding of the problem of underrepresentation of low-income and minority students in gifted programs and preliminary studies, the use of performance-based assessment as a nontraditional tool for enhancing the possibility of greater representation of such students in these programs appears to be a promising development (VanTassel-Baska, Johnson, & Avery, 2002). Studies have not really focused, however, on the comparative efficacy of this approach in relation to more traditional models of identification.

Purpose

The purpose of this study was to conduct a continuing trend analysis of profiles and performance of students who qualified for the gifted program based on their scores on the performance tasks. The researchers conducted a similar analysis of student profiles over 3-year and 2-year performance in an earlier study (VanTassel-Baska, Feng, & Evans, 2007). An important facet in the development of an instrument for use in identification is its predictive value; in other words, how well does the instrument identify students it intends to identify? Subsequently, the consequential validity of the instrument becomes the concern of both researchers and stakeholders. One cannot help asking if the consequences of using the instrument are responsive to educational goals. Given the broader access to gifted program services through alternative identification, how well did these targeted student populations fare in the gifted program?

Specific research questions addressed through this study were:

1. What are the demographic patterns and performance trends of performance task-identified students during the years 2000–2005?

2. How do the profiles and patterns of performance of performance task-identified students compare to traditionally identified gifted students and performance-task-nominated but nonidentified students?

Review of the Literature

It is often cited as best practice that multiple criteria and information sources be used when identifying gifted children in any context (Coleman, 2003; Robinson, Shore & Enersen, 2006). These might include test scores, grades, interviews, performance tasks, recommendations, and several other possible identification tools. Although this is recommended for all gifted students, research reviews suggest that traditional assessment methods, including standardized IQ tests, teacher recommendations, and parent questionnaires, are particularly insufficient in identifying gifted minority and low-income students (Naglieri & Ford, 2003; Passow & Frasier, 1996).

Multiple forms of assessment clearly need to be used when assessing these students. The approach may include portfolios, traditional and nontraditional standardized measures, nominations, grades, and inventories and checklists (Borland & Wright, 1994; Hadaway & Marek-Schroer, 1992). What all these elements should do is to help create a clearer and more comprehensive picture of the talents and abilities that a student possesses and not eliminate the student based on socioeconomic, racial or cultural background. The Office for Civil Rights, the College Board, and the American Psychological Association are all in support of this multiple criteria approach (Ford & Trotman, 2000). Pfeiffer (2003), more recently, conducted a survey of experts in the field of gifted education who indicated that typical measures are inadequate for culturally diverse students, including those who do not speak English in the home, as well as low-income students and students from rural areas.

One type of nontraditional assessment that has been used as a part of a multiple criteria approach is a nonverbal intelligence test, which decreases possible language barriers. Bracken and McCallum (1998) developed such a test for individual administration and found the norms comparable across ethnic and socioeconomic

groups of gifted students. Lewis (2001) looked at studies using the Culture Fair Intelligence Tests (CFIT), the Naglieri Nonverbal Ability Test (NNAT; Naglieri, 2002), and the Raven's Progressive Matrices (Raven, Court, & Raven, 1983), all of which are nonverbal intelligence assessments. Although all of these were useful individually in identifying diverse students, she found that it was most advisable to use more than one of them during the assessment process, as each identifies some students that the others missed. More recently, Naglieri and Ford (2003) found that the NNAT can be useful in ensuring diversity in gifted identification. Their administration of the test to more than 20,000 students identified similar percentages of White (5.6%), Black (5.1%), and Hispanic (4.4%) students as being in the 95th percentile. Lohman (2005) recommended the use of achievement measures of academic accomplishment and reasoning ability tests for the identification of both majority and minority populations. However, he suggested that cut-off scores should be determined within group rankings for minority and White students to determine who is likely to develop academic excellence.

Part of the process of nontraditional assessment involves trying to tap into fluid rather than crystallized abilities. Dynamic assessment is one such nontraditional approach used to assess cognitive abilities that are frequently not apparent when most forms of traditional standardized tests are used. This type of assessment usually consists of a test-intervention-retest format, with the focus on the improvement students make after an intervention, specifically based on their learning cognitive strategies related to mastery of the testing task (Feuerstein, 1986; Kirschenbaum, 1998). A multiple criteria approach that included a dynamic administration of the NNAT was used by Lidz and Macrine (2001) to increase a school's gifted identification rate of underrepresented population from 1% to 5%, a number more consistent with the rate of the district as a whole.

Another type of assessment that draws on fluid abilities is the use of performance tasks, such as those used in this South Carolina study (VanTassel-Baska et al., 2002) and in Project Discover (Maker, 2005). Such tools have shown promise in identifying minority and low socioeconomic status (SES) students (Callahan, Tomlinson, Moon, Tomchin, & Plucker, 1995; Sarouphim, 2002, 2003). Performance assessments focus on challenging open-ended problems and put an

emphasis on the process the student uses to come to an answer rather than whether or not the student can quickly find the right answer.

Campbell and Ramey (1994), in a longitudinal study of students from the North Carolina Abecedarian project, showed that the effects of early intervention could still be seen 7 years later. These effects included higher IQ scores and higher verbal achievement test scores. Such findings underscore the need to identify and provide services for these students as early as possible. Swanson (2006) reported findings of increased student achievement from participation in Project Breakthrough that raises the question about placing too much emphasis on identifying students versus allocating more resources for curriculum that is more challenging for all students. However, even with improved achievement, minority students were still not being identified as readily.

History of the Development of the South Carolina Performance Tasks

In 1998, the State Department of Education in South Carolina contracted with the Center for Gifted Education at the College of William and Mary to develop performance task protocols as a pilot project to assess their efficacy in identifying low-SES and African American students within the state. Based on pilot, field test, and state-wide implementation data from the project, the performance tasks, used in tandem with lowered threshold scores on traditional ability and achievement measures, proved to be useful tools toward this end, finding in the range of 12–18% more underrepresented students (VanTassel-Baska et al., 2002). The internal consistency reliability of the instrument ranged from .72 to .89 across levels and domains. The content validity of these tasks were assessed through a review of the math and verbal components by content experts, methodological experts, and gifted experts, resulting in a high level of agreement on the relevance of content, clarity of wording, and formatting appropriateness.

Based on the success of these performance tasks in locating more underrepresented students for gifted programs, they were officially adopted as a third dimension of the state identification system (Dimension C) in 1999. Now, students in South Carolina

may be admitted to gifted programs through meeting specified criteria on a group or an individual ability measure (Dimension A), a group achievement measure in the verbal or mathematical domain (Dimension B), and/or verbal or nonverbal performance tasks (Dimension C). Verbal performance-based assessments in this study refer to verbal reasoning tasks that require written responses or correct manipulation of words. Nonverbal performance-based assessments in the context of this study refer to mathematical and spatial tasks. All of the performance-based assessment tasks are verbally mediated and assisted through a preteaching process on the test item prototype.

Traditionally identified gifted students in this study refers to students who qualified either (1) through reaching the 96th percentile or above on an ability test or (2) through meeting the criteria of a combination of 90th percentile or higher on an ability test and 94th percentile or higher on an achievement measure. *Performance task-identified students* were defined as gifted students who qualified (1) through meeting the criteria of 80% correct rate on verbal or nonverbal performance tasks and (2) through meeting the standard of the 90th percentile on an ability test or the 94th percentile on an achievement test but not on both. Table 1 illustrates these three dimensions of assessment and qualification criteria for gifted program services under current regulations in the state.

Method

Participants

Since the inception of statewide use of performance assessments for identification of gifted students in the 1999–2000 school year, all school districts have participated in the testing. The data used for this study contain student identification information from 20 school districts from 2000 to 2005 across the state of South Carolina, approximately 25% of the school districts in the state. The sample comprised a total of 30,526 gifted students that have been identified as gifted students during

Table 1
Identification Test Dimensions and Threshold Criteria

Dimension ¹	Traditionally Identified Gifted Students		Performance Task-Identified Gifted Students	
	A	A & B	A & C	B & C
Types of Tests	Aptitude	Aptitude & Achievement	Aptitude & Performance Tasks	Achievement & Performance Tasks
Criteria Threshold	A ≥ 96 percentile	(96 percentile > A ≥ 90 percentile) & (B ≥ 94%ile)	(96% percentile > A ≥ 90 percentile) but (B < 94 percentile) & (C ≥ 80%)	(B ≥ 94 percentile) but (A < 90 percentile) & (C ≥ 80 percentile)

Note. ¹In the state where this study was conducted, a student can qualify for gifted program services by passing the threshold on two assessment dimensions, namely, an ability or aptitude test (Dimension A), an achievement test (Dimension B), and/or performance tasks (Dimension C). If the aptitude test score is at or above 96th percentile, this criterion alone allows the student to participate.

2000–2005, including 22,671 (74.3%) traditionally identified students and 7,855 (25.7%) performance task-identified students.

The GIFT Data Set

The South Carolina GIFT Data Set is a database created for recording gifted students' identification information. It is composed of 169 fields from basic demographics to the qualifying dimensions, types of tests taken, qualifying test scores, and the date and the grade level when they were tested and placed into gifted programs. Information on students who were eligible for retesting yet did not qualify was also recorded. Each school district in South Carolina was provided the GIFT data template and requested to record their current gifted students' information accordingly. The current analysis constitutes an assembled data set from 20 school districts in the state; students' performance on the state assessment test (PACT) from 2001 to 2004 in

the areas of English language arts and mathematics were also merged into the GIFT data set for this follow-up study.

*The Three Dimensions of Assessment
Measures Used in Identification*

Dimension A assessment refers to the use of an individual or a group measure of aptitude/ability to assess high aptitude (90th national age percentile or above) in one or more of these areas: verbal, nonverbal, quantitative, and/or a composite of the three. Three major ability measures, the Test of Cognitive Skills (34.9%; CTB McGraw-Hill, 1992), the Otis-Lennon School Ability Test, 7th Edition (28.7%; Otis & Lennon, 1989), and the Cognitive Ability Tests (20.7%; Lohman & Hagen, 2001) were most frequently used by local school districts to assess ability during 2000–2005; other ability measures that have been used less frequently include the Raven's Progressive Matrices (11.9%; Raven et al., 1983), the Naglieri Nonverbal Ability Test (2.3%; Naglieri, 2002), and the Wechsler Scales (WISC-III, WAIS, WISC-R; 0.4%; Wechsler, 1967, 1974, 1991).

Dimension B assessment refers to the use of a nationally normed or a South Carolina statewide assessment instrument to assess high achievement (94th national percentile and above, or advanced status on the state test) in reading and/or math. The most frequently used achievement measures employed for identification are the Metropolitan Achievement Tests, 7th Edition (23.4%; Barlow, Farr, & Hogan, 1992), Palmetto Achievement Challenge Test (23.2%; South Carolina State Department of Education, 2006), and TerraNova CAT 2nd Edition (20.9%; CTB McGraw-Hill, 1999). A number of other achievement tests, such as Measures of Academic Progress (16.9%; Northwest Evaluation Association, n.d.), Iowa Tests of Basic Skills (12.8%; Hoover, Dunbar, & Frisbie, 2001), and the Stanford Achievement Test Series (1.4%; Thorndike, Hagen, & Sattler, 1985) as well as others have also been used, but less frequently.

Dimension C assessment in this study refers to the use of performance tasks. Eligible students score at the 80% and above in grades 2–5 in verbal and/or nonverbal domains of performance tasks. Performance tasks require students to demonstrate advanced under-

standing and thinking on challenging problems. The tasks also require students to articulate their problem-solving and thinking processes.

Description of the Palmetto Achievement Challenge Test

The Palmetto Achievement Challenge Test (PACT) is the statewide assessment program used to measure student performance on the state standards. The PACT is administered to all students in grades 3 to 8 each year, in the subject areas of English language arts (ELA), mathematics, science, and social studies. The current study examined gifted students' performance pattern on PACT 2001 through PACT 2004 in the subject areas of English language arts and mathematics, the only data available when this study was started. The reliability for PACT, using Cronbach Alpha, ranged from .91 to .94 for English language arts and .88 to .92 for mathematics (South Carolina State Department of Education, 2006). There are four levels of proficiency of PACT in each subject area: below basic, basic, proficient, and advanced.

Results

Identification Profiles of Performance Task-Identified Students

The identification profiles of performance task-identified students (26%) were examined in terms of their demographic distribution by gender, SES (i.e., free and/or reduced lunch status), race, and area of strength being identified in comparison to students who were identified through traditional methods (74%).

The results showed that a great majority of gifted students came from middle class or above family backgrounds regardless of the identification method employed over 6 years (81.4% traditional method vs. 77% performance tasks). However, performance task protocols identified a greater percentage of students (23%) who were on free or reduced lunch programs than traditional methods did (18.6%), and this pattern was consistent across 6 years. Performance tasks also identified higher percentages of African American students than the traditional identification method (14% vs. 11%), which has been a

consistent pattern since 2001. Moreover, the results also showed that a higher percentage of female students were identified through performance tasks (54%) than male students (46%) across the years, and a slightly higher percentage of male students were identified through traditional methods (52.4% males vs. 47.6% females); this pattern was consistent for 6 years of implementation of the state regulations for identification (see Table 2).

Identification Profile by Method and Verbal or Nonverbal Domain Strength

Except for students who were qualified for gifted services through a 96th percentile or above on an ability measure, the current gifted regulations allowed students to be identified through the combination of either a verbal or a nonverbal (i.e., mathematical, quantitative, or spatial) score from any two types of assessment, namely, ability (Dimension A), achievement (Dimension B), or performance tasks (Dimension C).

Comparing performance task-identified and traditionally identified students in the strength domain being identified (see Table 3), a higher percentage of performance task-identified students (40.5%) than traditionally identified students (20.8%) fell into the category of being identified through one strength domain only, suggesting a higher proportion of unbalanced identification profiles (verbal or nonverbal only) among performance task-identified students, doubling what was found among traditionally identified students. Interestingly, a large majority of both groups of gifted students, regardless of identification approaches, qualified for the program through the nonverbal area (quantitative, mathematical, or spatial).

Performance Task-Identified Students' Performance Pattern on PACT: 2001–2004

In order to examine how well performance task-identified students fared in gifted programs in terms of academic outcomes, their performances on the English and mathematics portion of the state standardized test (PACT) were examined in comparison to those of

Table 2
Gifted Student Profile: Demographics¹ (2000–2005)

	2000		2001		2002		2003		2004		2005		2000–2005	
	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.
Gender														
Male	50.9	44.4	51.5	48.4	52.5	46.0	50.9	46.9	54.3	44.1	54.7	44.9	52.4	45.8
Female	49.1	55.6	48.5	51.6	47.5	54.0	49.1	53.1	45.7	55.9	45.3	55.1	47.6	54.2
Low SES														
Free or reduced lunch	15.9	16.8	17.6	26.5	19.9	23.2	20.1	24.9	20.0	22.3	15.8	21.1	18.6	23.0
Race														
Asian	2.1	1.7	2.1	2.0	2.3	0.8	1.9	1.8	3.1	2.1	3	2.8	2.4	2.0
Black	12.3	7.8	12.9	19.9	12	12.3	12.7	14.5	11.5	14.1	8.2	12.8	11.8	14.0
Hispanic	1.2	0.5	1.5	1.4	1.7	2.2	1.6	2.3	2	2.9	1.9	1.7	1.6	2.1
White	83.7	89.1	82.8	76.1	82.9	84.3	82.4	80.2	81.9	79.2	84.6	80.4	82.9	80.6
Native American	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0	0.1	0.2	0.0	0.1	0.0
Pacific Islander	0	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.2	0.2	0.1	0.2
Multiracial	0.5	0.7	0.3	0.5	0.7	0.7	0.7	0.7	1.1	1.3	1.5	1.8	0.8	1.0
Other	0.0	0.0	0.0	0.0	0.1	0.1	0.6	0.1	0.2	0.3	0.5	0.3	0.2	0.2

Note. ¹The percentage under each demographic category (e.g., gender, race) may not add up to 100% due to incomplete information in the GIFT dataset. For SES variable, only the percentage of students on free or reduced lunch (i.e., low SES) was indicated in the table.

Table 3
Gifted Student Profile: Strength Area¹ (2000–2005)

	2000		2001		2002		2003		2004		2005		2000–2005	
	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.	Trad.	Perf.
	<i>n</i> = 272	<i>n</i> = 217	<i>n</i> = 790	<i>n</i> = 406	<i>n</i> = 541	<i>n</i> = 864	<i>n</i> = 820	<i>n</i> = 980	<i>n</i> = 656	<i>n</i> = 717	<i>n</i> = 548	<i>n</i> = 4,712	<i>n</i> = 3,188	
				1,086										
Nonverbal	60.7	85.7	81.5	71.4	79.3	76	73.4	65	85.8	77.1	86.8	73.9	80	73.1
Verbal	39.3	14.3	18.5	28.6	20.7	24	26.6	35	14.2	22.9	13.2	26.1	20	26.9

Note. ¹The strength area of a gifted student was defined as an area (e.g., verbal) where he or she qualified through the same component of at least two dimensions of the assessment tools (i.e., the verbal component of both an aptitude and an achievement test or the verbal component of both the aptitude and performance tasks and the verbal component of both the achievement test and the performance tasks assessment). The same rule applies to the nonverbal strength areas. Those who qualified through both the verbal and nonverbal component of any two dimensions of the test were defined as gifted with both areas of strengths.

traditionally identified students longitudinally. Proficiency level distributions across 2001–2004 were compared.

It is also important to note that PACT, as a state standardized achievement test, was also used as an assessment tool for identification purposes under the Dimension B criterion. Therefore, some gifted students in our study sample who were identified through the Dimensions A & B or B & C route became eligible for gifted programs through performing at the advanced level on PACT English or mathematics at grades 3 or 4. Because the outcome measures in this study were PACT English and mathematics, we excluded students so identified in the analyses of PACT performance patterns across 2001–2004 to maintain the independence of measures.

PACT Proficiency Level Distribution by Identification Route

The proficiency distribution results show that students who qualified through a 96th percentile performance on an ability test (Dimension A) represented the highest proportion of students at the advanced status of performance on the state test in English language arts (13–19%) and in mathematics (50–60%), followed by those who were identified through a combination of an ability test and an achievement test (Dimensions A & B), ranging from 3–10% in English to 31–42% in math, then by those who were qualified through the combination of an achievement test and performance tasks (Dimensions B & C), ranging from 2–9% in English to 24–32% in math across the 4 years ($\chi^2 = 118.4\text{--}289.9$, $p < .001$). Students who qualified for the program through a combination of an ability test and performance tasks (Dimensions A & C) appeared to rank the lowest in respect to the proportion of them being at the advanced level on PACT (1.9–4% in English; 17–28% in math). However, about 10–25% of the gifted students who were identified under Dimension A (96th percentile or above) performed at the basic level of the test in English and 10–15% of the same group of students performed at the basic level of the PACT test in mathematics during the years 2001–2004. Even higher percentages of students identified through the other three routes performed at the basic level of the PACT assessment. These longitudinal data on the state standardized tests suggest that a substantial proportion of gifted students, regardless of the identification route, have

much room to improve to meet the academic expectations set for the academically gifted student population at the advanced level.

PACT Performance Mean Differences 2001–2004

A three-way (Identification Route x Gender x Ethnicity) multivariate analysis of variance (MANOVA) was conducted to investigate the extent of difference on academic performance in relationship to dimensions through which students were identified, gender, and ethnicity. Because the PACT scale score had a different range at each grade level (grades 3–8), all scale scores were converted into the same psychometric scale with a mean of 100 and a standard deviation of 15. Therefore, the PACT performance data could be combined across grade levels to perform MANOVA analysis, retaining needed statistical power that would otherwise be significantly reduced if separate by-grade-level MANOVAs were performed. The eight standard scores of PACT English and mathematics (2001–2004) were the dependent variables, and gifted identification qualification route, gender, and ethnicity were independent variables (or between-subject factors) of the multivariate test.

The multivariate tests showed that there was a statistically significant identification route effect ($F = 3.32, p = .000, \eta^2 = .008$), a gender effect ($F = 4.53, p = .000, \eta^2 = .011$), and an ethnicity effect ($F = 3.99, p = .000, \eta^2 = .01$). There were no significant interactions between and among the identification method, gender, and ethnicity ($p > .05$). These results suggested that there were overall performance differences on the English language arts and math component of PACT 2001 to PACT 2004 between students who were identified through different methods, among students who were of different ethnicities, and between male and female students (see Table 4). The performance mean differences among students identified through different dimensional combinations ranged from 3 to 9 points in English language arts and 3 to 11 points in mathematics across 4 years (2001–2004), translating into .2 to .6 differences on Cohen's d effect size index. Using Cohen's conventional criteria on the magnitude of effect size indicators, an effect size of .2, .5, and .8 would be regarded as small, medium, and large effect sizes respectively (as cited in Newton & Rudestam, 1999). There seemed to be a

range of variability in terms of practical importance of the differences reflected in gifted students' PACT performance. The data showed that Dimension A-identified students outperformed students designated as gifted through all other combinations on both English and mathematics. Table 4 presents descriptive statistics of gifted students' performance on PACT English and mathematics from 2001 to 2004 by identification approach, gender, and ethnicity.

Post hoc analyses on the identification method suggested that statistically significant mean differences were found between students under each of the two identification approaches in PACT English across 4 years ($p < .001$), with Dimension A-identified students performing the best, on average, followed by students who were identified under Dimensions A & B, Dimensions B & C, and Dimensions A & C. A similar descending order was found in PACT mathematics except that no statistically significant differences were found between students identified by Dimensions B & C and A & C across 4 years ($p > .05$).

However, the effect sizes between each two groups of students varied. Students' performance in English ranged from .4–.6 between Dimension A and Dimensions A & C to .06 between Dimensions A & B and B & C; the between-group effect size differences in PACT mathematics ranged from .67–.80 between Dimension A and Dimensions A & C to .1–.2 between Dimensions A & B and B & C groups. These data suggest that the PACT performance differences were fairly large between traditionally identified students who qualified through the 96th percentile on an ability test and performance task-identified students who qualified in combination with an ability test. By contrast, performance task-identified students who qualified in combination with an achievement test performed closely to traditionally identified students qualifying through the combination of an ability and an achievement measure.

Post hoc analyses on the ethnicity variable suggested that there were significant performance differences ($p < .001$) between White and Black students, favoring White students on PACT English language arts for 4 years. Asian students outperformed Black students on PACT 2003–2004 in the area of English language arts ($p = .001, .013$, respectively; $d = .12-.26$). There were no statistically significant performance differences between Asian and White students on PACT English language arts (2001–2004). No significant

Table 4
PACT Performance in English and Math (2001–2004) by Identification Route, Gender, and Ethnicity

Identification Route	PACT English				PACT Mathematics			
	2001	2002	2003	2004	2001	2002	2003	2004
A (<i>n</i> = 1,245)	116.3 (10.7)	117.4 (11.2)	116.1 (10.5)	116.5 (8.0)	117.5 (9.8)	121.4 (9.5)	117.3 (10.0)	117.9 (9.8)
A & B (<i>n</i> = 974)	113.3 (9.9)	113.8 (10.6)	112.5 (9.6)	112.4 (9.8)	114.1 (9.6)	113.8 (9.2)	113.9 (9.3)	113.1 (8.6)
A & C (<i>n</i> = 524)	109.0 (9.8)	108.2 (10.4)	108.4 (9.2)	108.7 (9.8)	109.5 (9.4)	109.4 (8.7)	109.9 (8.8)	109.6 (8.7)
B & C (<i>n</i> = 503)	112.0 (9.7)	111.9 (10.7)	110.4 (9.3)	110.8 (10.6)	110.9 (9.9)	110.7 (9.3)	110.6 (9.3)	109.8 (9.4)
Gender								
Male (<i>n</i> = 1,584)	111.7 (10.1)	111.9 (11.0)	110.9 (10.1)	110.7 (10.4)	114.8 (10.0)	114.5 (9.9)	114.6 (9.9)	114.3 (9.9)
Female (<i>n</i> = 1,662)	115.3 (10.6)	115.9 (11.0)	114.8 (10.0)	115.5 (10.4)	113.5 (10.3)	113.6 (9.7)	113.5 (10.0)	113.5 (9.8)
Ethnicity								
Asian (<i>n</i> = 55)	112.3 (11.9)	113.5 (11.6)	115.9 (10.0)	115.1 (10.8)	116.2 (10.6)	118.4 (9.8)	118.6 (10.1)	119.2 (7.9)
African American (<i>n</i> = 401)	110.7 (10.5)	109.4 (10.5)	110.0 (10.3)	110.2 (10.9)	110.7 (9.9)	110.9 (9.5)	110.6 (9.6)	110.9 (9.3)
Hispanic (<i>n</i> = 29)	112.2 (12.0)	111.9 (10.6)	108.7 (10.3)	111.7 (10.4)	113.5 (10.3)	111.2 (10.3)	112.3 (12.0)	112.1 (10.3)
White (<i>n</i> = 2,761)	114.0 (10.4)	114.7 (11.2)	113.3 (10.2)	113.5 (10.6)	114.6 (10.1)	114.3 (9.8)	114.5 (9.9)	114.2 (9.9)

performance differences were found between Hispanic and African American gifted students in the English language arts of the PACT assessment for 4 years ($p > .05$). In the area of mathematics, Asian students performed significantly better on mathematics than any other ethnic group ($p = .000-.018$; $d = .1-.4$) except for 2001, when no statistically significant mean differences were found between Asian and White students.

Female gifted students demonstrated statistically significant better performance on PACT English 2001–2004 ($p = .011-.018$; $d = .24-.33$); male students performed significantly better than their female counterparts on PACT math in 2004 ($p = .033$; $d = .06$).

PACT Performance by Strength Area

Because the performance-based protocol was used to identify students in one domain only, the distribution of PACT performance among performance task-identified students was compared with those who were identified in the verbal domain and those who were identified through the nonverbal domain. MANOVAs were conducted to examine South Carolina gifted students' PACT performance by verbal or nonverbal areas of strength. Table 5 presents means and standard deviations of the analysis. The results show that there were statistically significant performance differences on PACT English language arts (2001–2004) between verbally identified and nonverbally identified students, favoring students with verbal strength. The magnitude of difference was moderate ($d = .4$).

In the area of mathematics, there was an overall statistically significant performance difference, favoring nonverbally identified students. However, the magnitude of difference was small ($d = .06-.2$). By the year 2004, there was no statistically significant difference on PACT mathematics between verbally and nonverbally identified gifted students (see Table 5).

Identification and Performance Profiles of Low-Income African American Students

One question of interest of this second follow-up study was to examine patterns of identification and performance of low-income African

Table 5
PACT English Language Arts and Math by Verbal/Nonverbal Strength Area: 2001–2004

Identification Method	<i>n</i>	2001		2002		2003		2004	
		PACT English Mean (<i>SD</i>)	PACT Math Mean (<i>SD</i>)	PACT English Mean (<i>SD</i>)	PACT Math Mean (<i>SD</i>)	PACT English Mean (<i>SD</i>)	PACT Math Mean (<i>SD</i>)	PACT English Mean (<i>SD</i>)	PACT Math Mean (<i>SD</i>)
Verbal	197	114.3 (8.4)	109.1 (9.6)	114.9 (9.2)	109.2 (9.9)	113.2 (9.2)	108.8 (9.5)	113.9 (9.3)	109.4 (8.8)
Nonverbal	670	108.4 (11.1)	111.3 (9.9)	107.3 (10.9)	111.5 (9.7)	107.1 (10.0)	111.4 (9.5)	106.7 (10.2)	110.5 (10.0)

American students who were identified through performance tasks in comparison to those nominated but not identified. There were a total of 1,347 low-income African American students who qualified for the program, directly or through retesting, representing 57.1% of performance task-identified African American students and 43.1% of performance task-identified students on the free or reduced lunch program. These data suggest that more than half of the performance task-identified African American students were from low-income backgrounds; 43.1% of performance task-identified students of low-income backgrounds were African American.

Consistent with findings in the whole population of gifted students, higher percentages of female African American students (61–63%) were identified through performance tasks. A greater percentage of African American students were qualified for the gifted program through the nonverbal area (84.6%), suggesting that a greater percentage of low-income African American students possess a strength area in the mathematical/quantitative/spatial domain.

*Low-Income African American Student PACT Performance:
Performance Task-Identified Versus Nominated*

For low-income African American students who qualified for the program through performance-task testing, a great majority of them obtained Basic (34–51%) to Proficient (35–41%) status in mathematics, fluctuating year by year; approximately 20% of this group of students achieved advanced status on PACT mathematics in 3 years except for 2004, when a dip occurred. In the area of English language arts, the range for low-income African American gifted students was basic (28–58%) to proficient (37–68%) and advanced (below 5%) across 4 years. Due to a lack of PACT data of performance-task-nominated students who did not pass the threshold criteria on the tasks (< 80%), comparative analyses between low-income African American students who qualified for the program through performance tasks and those who took the tasks but did not qualify for the program were not possible.

Discussion

The study results suggest that the performance-based protocols used in South Carolina are consistent across time in locating a higher percentage of students from a number of categories. Although more low-income and minority students are being located, the protocol is also identifying more majority students who have strong verbal and nonverbal aptitude. For the minority of the students who qualified for the program through one strength area only, a great majority of them qualified through the nonverbal area (73.1–80%), suggesting a need for instructional accommodations for these students.

The finding that there was a higher proportion of uneven identification profiles among performance task-identified students in comparison to their counterparts identified through traditional methods suggests that flexible instructional accommodations might be more appropriate for performance task-identified students. Therefore, a relatively unique group of gifted learners with more demands for accommodations have created challenging tasks for gifted classroom teachers to meet the needs of a more diversified group of gifted learners.

It is not a surprising result that traditionally identified gifted students performed better than performance task-identified students, given that the latter group already started at a lower ability score level (below 90th percentile) or achievement score (below 94th percentile). However, in our focus group studies with teachers and selected gifted students of different ethnicity and SES profiles, we found remarkable similarities between traditionally identified and performance task-identified students in terms of their academic performance (GPAs), work ethic, self-esteem, program impact, and creative outlets (VanTassel-Baska, Feng, Chandler, Quek, & Swanson, 2005).

Achievement gaps by ethnicity appear to exist in the gifted population in South Carolina, with White and Asian students performing better than African or Hispanic students. However, the lack of educationally significant differences on multiyear standardized state tests (PACT English and math) across ethnicity groups seemed to suggest a shrinking achievement gap by ethnicity membership in the South Carolina gifted population.

In any statewide identification system, a mechanism designed to be more inclusive will likely increase the overall percentages of students identified. This situation clearly happened in South Carolina, with the overall percentage of students served inching up to 11% of the population statewide (South Carolina Department of Education, 2006). Moreover, the larger number of students identified created two kinds of problems for districts: (1) the existing gifted service delivery mechanism had to absorb these students, leading to higher pupil-teacher ratios in a pull-out setting and greater diversity in student functional levels, and (2) in some locales, the new performance-based protocol neither enhanced ethnic nor SES diversity, thus failing to produce a greater representation of these students in gifted programs at selected local levels (VanTassel-Baska & Feng, 2003). In order to employ equitable identification procedures at the state level, it is apparent that inequalities of outcome may result at the local level in some districts.

When we examined the implications for individual districts, the results varied, depending on the representation of these under-represented groups within a given school district. In districts where percentages were small to begin with, little change occurred. In fact, more higher SES White students were identified. In districts where the percentage of low-income and some African American students was greater than 20%, district data reflected even higher percentages of change. This reality illustrates the importance of follow-up impact studies being conducted when any state policy has been changed, as it is likely to affect districts differentially.

Given the state control of the range of performance on group ability and achievement measures of the population to be assessed on performance tasks (i.e., all eligible students must be at the 90th percentile on a group ability measure or the 94th percentile in an achievement domain on a standardized battery), the results suggest that lowering scores on traditional group standardized measures and narrowing the focus to performance in one domain using performance tasks produces a group of students with promise but who have different aptitude and achievement profiles from traditionally identified learners. Clearly, the group as a whole is weaker than more typically identified gifted students in the verbal area, creating a dilemma

for teachers of the gifted who must tailor their programs to accommodate these learners.

The finding that a large percentage of performance task-identified students are identified in the nonverbal domain (72.5%) raises interesting questions about the nature of program interventions in South Carolina and their flexibility for including students with different profiles and needs. Most programs in the state are pull-out in nature, and many districts require students to be doing well in regular classes as a condition of being in the gifted program. Students with uneven profiles then may suffer doubly for being identified as gifted: (1) They must overcome their deficits sufficiently to function well in the regular classroom and in the pull-out program, and (2) they must try to benefit from a program designed primarily for more evenly functioning gifted students. It seems that merely to find more students from low-income and minority backgrounds is insufficient if programming mechanisms are limited or counterproductive to their success. For students whose major strength lies in the nonverbal domain, crafting program interventions in that domain may be critical to ensuring program success, combined with removing the “sword of Damocles” of contingent high-level performance in the regular classroom in other domains of learning.

The performance of traditionally identified gifted students on the statewide PACT test suggests a potential problem or mismatch between gifted programs in the state and the major content areas deemed important on these high-stakes measures. A full 10–20% of these traditionally identified gifted students performed only at the basic level in English language arts or math on the test during 2001–2004. Most educators of the gifted would deplore setting the bar for the gifted on these state tests at an “advanced” level; however, for high-ability students *not* to score at least at the proficient level on these tests suggests a potentially serious problem in our thinking about what gifted programs might do to address the standards. For example, 15% of the gifted students were at the basic level on the math portion of the test, suggesting that gifted interventions for these students may need to include more archetypal math problems consistent with the NCTM standards, a basis for both the South Carolina standards and PACT assessments.

The use of performance-based assessment in a state identification protocol raises two issues of interest. One issue relates to the efficiency of the approach. Is it worthwhile to expend the additional funds and resource time of multiple educators to use the approach as opposed to either (1) lowering cutoffs on traditional measures or (2) using an additional nonverbal test? One argument for using performance-based assessment is its authentic nature. Testers are teachers in schools who can see student results and use them to further instruction. Students demonstrated true understanding through these tasks rather than hypothetical understanding through a multiple-choice format. Moreover, the tasks require off-level and higher level thinking and problem solving, specifications not built into traditional measures. Therefore, efficiency in test taking is balanced against the easy and relevant use of test data to improve instruction directly for specific learners and to model gifted level task demands. The testing costs for scoring are provided by the state, thus reducing the burden of the cost of testing to individual districts.

Conclusion and Implications

The study suggests that, in general, performance-based assessment on a statewide basis has steadily contributed to greater numbers of both low-income and minority students being identified for gifted programs in South Carolina across 6 years than would have been found through existing protocols, although the majority of students identified are higher SES and Caucasian. Moreover, the profiles of students identified through nontraditional means are more heavily weighted toward nonverbal abilities, are slightly more likely to be female, and present an uneven profile of ability between verbal and nonverbal aptitudes. Performance on high-stakes state testing (PACT) suggests that these gifted students are less proficient and advanced than their traditionally identified counterparts across 4 years, although the differences between the two groups were educationally insignificant, compared to the self-reported long term positive program impact (VanTassel-Baska et al., 2005).

This study continues to demonstrate the value of merging statewide databases of identification and achievement to judge the per-

formance levels of both traditionally and nontraditionally identified gifted students on high-stakes measures as one calibration of their cognitive level and development over time. In-depth case studies of students with special needs documented that the development of their potential has been a complicated process under conditions of poverty, minority status, and/or learning disabilities. The researchers (VanTassel-Baska et al., 2005) found that many perspectives about these students are shared ones among teachers, parents, and the students themselves, suggesting the beneficial nature of gifted identification and programming for these students, ranging from being strong learners in several ways to being limited in motivation, organization, and the ability to work with peers.

An ongoing study of the identification and performance profiles of these students in combination with an ongoing study of student prototypes has provided an insightful venue to understand the promises and problems these gifted students are facing, the challenging tasks that teachers are facing, and strategies we might use to further develop gifted students' potential in their strength area(s).

It should be acknowledged that the outcome measures we used in this study, PACT English and mathematics (2001–2004), were standardized achievement tests, with a focus on content knowledge mastery. Gifted programs in South Carolina typically address higher level thinking, problem-solving skills, and research skills, which might represent a mismatch with the focus of the PACT assessment. Whereas using multiple approaches and off-level testing to assess gifted students' learning would be ideal, the PACT test was the only consistent outcome measure we had for analysis, creating a limitation to this study. Hence, it would be useful to examine the long-term impact on other student outcome variables of interest, such as grade point average (GPA) and PSAT scores, for performance task-identified students in comparison to traditionally identified learners. Moreover, it would be useful to continue following up with these learners, studying the pathway for continued growth and development as they traverse through high school.

At a practical level, the study continues to demonstrate the importance of using nontraditional assessments in tandem with traditional ones to find and serve underrepresented gifted students. It also challenges practitioners to match program intervention to abil-

ity and aptitude information in order to achieve an optimal match for students in programs.

Finally, it suggests an important subtext for analyzing gifted student performance, especially those students whose level of functioning may be atypical. Adjustment to higher expectations and performance takes time; it is not automatic and may require real effort and struggle for these students to be successful. However, long-term talent development is the goal, not short-term success. Thus, practitioners may need to adjust their own expectations for student success, plan more customized programs, and employ more longitudinal assessments of student progress.

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