A Comparison of Criteria Used in Gifted Identification in the Commonwealth of Virginia

Karen S. Palmer

Dissertation submitted to the faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

Doctor of Education

In

Educational Leadership and Policy Studies

Carol Cash, Chair

Wayne Tripp

Travis Twiford

Jim Roberts

November 4, 2009

Virginia Beach, Virginia

Keywords: gifted education, gifted, gifted minorities, gifted identification, identification practices of gifted, underrepresented gifted

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Abstract

In the Commonwealth of Virginia, gifted education plans are submitted to the state every five years for state approval. The plans must indicate the use of a minimum of four criteria out of the eight criteria provided by the Commonwealth in the identification process. The concept of using multiple criteria stems from research. Research has shown that the criteria used in the identification of gifted students affect the number of identified students as well as the proportions of the underrepresented (Donovan & Cross, 2002). Research has also shown that the use of multiple criteria leads to a higher proportion of underrepresented students identified (Callahan, Hunsaker, Adams, Moore, and Bland, 1995). The purpose of this study was to compare the gifted identification criteria used within the Commonwealth of Virginia's public school divisions and analyze the effects of the criteria on the percentages of underrepresented gifted within the divisions.

In this study, the researcher analyzed the numbers of each minority in the total populations against the total gifted minority populations to identify those divisions that were proportional for traditionally underrepresented minorities. All aspects of the gifted identification process for each division were then analyzed. The aspects were then used to compare the proportional divisions to the non-proportional divisions for commonalities in the identification process. Findings revealed that there were no divisions with reported minorities that were proportional in all traditionally underrepresented ethnicities. In addition, no one specific standardized measure was successfully used in identifying non-traditionally gifted minorities in all ethnic groups. The implication that can be drawn from this research is that despite all attempts to put research into practice by using multiple criteria in the identification of the gifted,

there is no one criterion that ensures the proportional identification of underrepresented minorities.

Acknowledgements

I sincerely thank all of my committee members for taking the time to be a part of my journey through the doctoral process. A special thanks goes to Dr. Carol Cash, chair of my committee, for her dedication to my success in this endeavor. I appreciate Dr. Cash's support, encouragement, and hours of dedicated effort to my learning experience.

Dedication

To my family for the sacrifices that they have made in order for me to achieve my goal.

To my family and friends for their support in my effort to achieve my goal.

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Chapter 1: Introduction

There are many studies on the topic of gifted education that focus on the underrepresentation of minorities and students from low socio-economic (SES) backgrounds (Castellano, 2003; Romey, 2006). The studies focus on the issue of underrepresentation and the use of multiple criteria in the gifted identification process. A 2003 report from the Ohio Legislative Office of Education Oversight (LOEO) reported on 11 aspects of gifted education throughout the state. The information and data collected in the report served as the impetus to revamp the entire state's gifted education plans, identification criteria, and services (Legislative Office of Education Oversight, 2003). Just as the Ohio report focused on the entire state's gifted education plan, the researcher investigated each public school division's gifted education plan and gifted education identification data within the Commonwealth of Virginia.

The Commonwealth of Virginia requires each school division to submit a five-year gifted education plan that is drafted from the state-issued template. Each spring, the Commonwealth requires each division to submit an annual summary report collections sheet. That record sheet indicates areas of giftedness and ethnicity for each child identified within the division. This study was a comparative analysis of the areas of giftedness, multiple criteria, and standardized measures used among the districts and the percentages of identified ethnicities as compared to their representation within the total populations.

Historical Perspectives

When Sputnik was launched in 1957, the United States not only focused on mathematics and science education, but also on educating the country's brightest students. Educating the brightest students was seen as a way to ensure that the country would continue to be a world power as indicated by the 1958 National Defense Education Act (NDEA) (Ed. gov., n.d.b). It

was the 1972 Marland Report that initiated the spotlight on gifted education in America. S.P. Marland, Jr. was the commissioner of education under President Nixon. This report contained a definition of giftedness that continues to be used today. When research on issues dealing with gifted education was conducted and a report was presented to Congress, it was evident that the needs of the gifted student were not being met. The Marland Report indicated that federal, state, and local governments did not regard gifted education with high priority (Marland, 1972). The outcome of the report was a major factor in focusing attention on the needs of gifted students. Although guidelines for gifted education were recommended, states were not required to implement gifted education programs.

Over a decade later, Congress once again focused on gifted students and passed The Jacob Javits Gifted and Talented Students Education Act of 1988 (Javits). The Act highlighted the importance of identifying all students, in particular, minority, English language learner (ELL), and low SES students by providing competitive grants. The grants were awarded to state, local, and higher education institutions conducting research in the field of underrepresented gifted children (National Association for Gifted Children, 2005). The only Javits funded research center, the National Research Center on the Gifted and Talented (NRC/GT), was housed at the University of Connecticut, and collaborated with the University of Virginia and other major universities in conducting research projects. Current research studies have focused on identification assessment issues, implemented gifted education programs, teacher education, and gifted curricula (Ed.gov, 2007). Even with 20 years of federally funded gifted education research, the outcomes of the Javits studies have shown growth to be slow in the area of identifying proportionately represented minority and ELL gifted students.

Although all aspects of gifted programming have been an inconsistent part of public school education for over thirty years, changes have been made within gifted education since the Marland Report. Many research projects funded through the Jacob Javits Gifted and Talented Students Education Act have shed new light on gifted identification and the implementation of programs. The research conducted through grant partnerships, has affected gifted education implementation at all levels of government: national, state, and local. Even though change has occurred, statistical data and reports continue to illuminate the need for awareness and educational progress within the field of gifted education. As recently as 2006, a study by VanTassel-Baska found that in one state and across 20 different school districts within the same state, there were inconsistencies in the identification procedures, the delivery of services to gifted students, and the implementation of programs for gifted students.

Even when gifted education was at the forefront in the educational field during the Marland years, there were differences among states' gifted definitions, identification criteria, and gifted programs. Gifted students moving from one state may not be identified as gifted in another state, and gifted students within a state may not be identified as gifted when moving from one division to a different district. Additionally, the gifted program of services in one school district may not match the services in a neighboring district. With all the research on gifted education, there are still questions to be answered.

Significance of the Study

Virginia is one of 22 states that mandates gifted education for students and also partially funds the implementation of the gifted program (Davidson Institute's GT-CyberSource, 2008). Virginia requires each school division to submit a five-year plan based on a state template. Within the template, there are many individual division choices that allow for variation in gifted

identification criteria. The state offers the eligibility areas of general intellectual aptitude, specific academic aptitude, practical and technical arts aptitude, and visual and performing arts aptitude. In each school division, students can be found gifted in any or all of the four areas of giftedness depending on what the specific division sets as the gifted eligibility criteria (Virginia Department of Education, 2005a).

In addition to choices within the four areas of giftedness, the template lists eight multiple criteria that can be used in the process of identifying students for gifted services. Of the eight multiple criteria that can be used to compile a profile of the student, at least four criteria have to be utilized. The eight multiple criteria listed on the template are: assessment through portfolios or student products; record of observations; rating scales, checklist, and questionnaires; individual interviews; aptitude tests; achievement tests; awards, honors, grades; or other valid and reliable measures (Virginia Department of Education, 2005a).

Once a division determines its area(s) of giftedness, and the four or more multiple criteria to use in identification, there is still the choice of which standardized measures to use as indicators of giftedness for each criteria. In this step of the identification process, there may be several standardized assessment measures used within each criteria.

The degree of variance through choice in each of the steps of the identification process leads to the question, what, if any, relationships exist between the areas of giftedness, the numbers of multiple criteria, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations. This study compares the components of each of Virginia's 132 public school divisions' gifted education plans to each division's gifted ethnic distribution as reported on the Commonwealths end-of-year students' record collection

form. With the results of this study, each division can make an informed decision concerning the selection of the components used to identify gifted students. Other states with gifted education also may use this research to guide multiple criteria requirements for identification purposes.

Purpose of the Study

The purpose of this study was to determine what, if any, relationships exist between the areas of giftedness, the numbers and types of multiple criteria, and the standardized measures used for the identification of gifted students in the divisions of the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations. The study's outcome was expected to show that either the criteria used for identification purposes did affect the numbers of normally underrepresented students, or that there was no specific correlation between the use of the multiple options and the numbers of traditionally underrepresented gifted.

Research Questions

The overarching research question is: What, if any, relationships exist between the areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations?

The subquestions include:

- Which areas of giftedness result in proportionality for traditionally underrepresented ethnicities?
- What is the relationship between the inclusion of more than four multiple criteria and the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?

- Of the eight multiple criteria issued by the VDOE for use in the gifted eligibility process, which combinations of criteria increase the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?
- Which combinations of standardized measures used by the school divisions result in proportionality of traditionally underrepresented gifted minorities?

Figure 1 illustrates the Conceptual Framework for this research. Based upon the number and types of criteria used in the identification of gifted students, the resulting number of identified underrepresented students could either be above, below, or equal to the percentage of students in the total population of the division. The total number of combinations that could exist for identification purposes would be affected by the number of criteria and the variance in the types of tests and measures used in the identification process. Bélanger and Gagné (2006) found that the more criteria utilized in the identification process, the more likely it was that underrepresented populations would be identified.

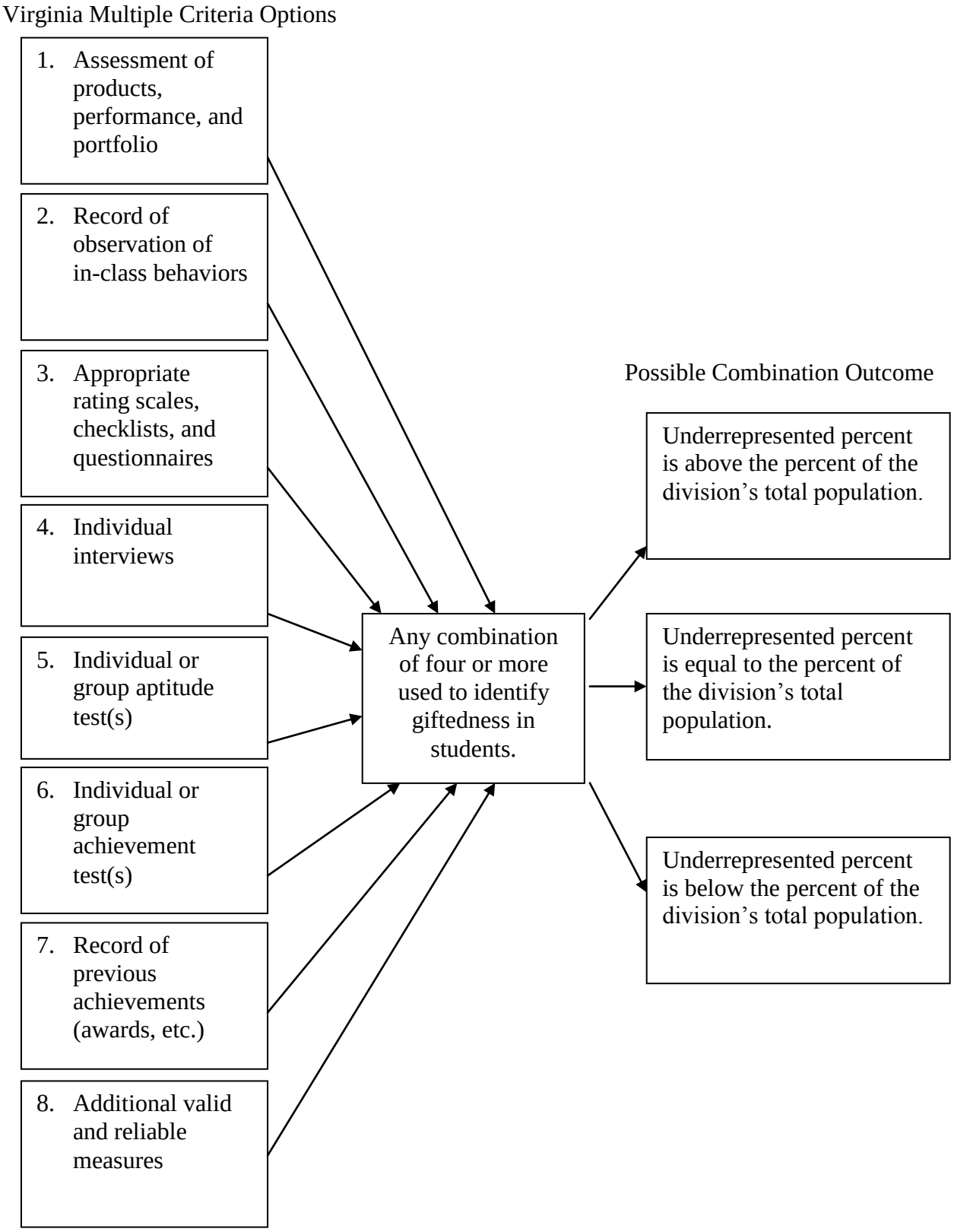

Figure 1. Conceptual Framework: A Comparison of Criteria used in Gifted Identification

Definition of Terms

The following terms come from the Virginia Administrative Code from the Department of Education (Virginia Administrative Code: 8 VAC 20-40-20).

Gifted students: are those students in public elementary and secondary schools beginning with kindergarten through graduation whose abilities and potential for accomplishment are so outstanding that they require special programs to meet their educational needs. These students will be identified by professionally qualified persons through the use of multiple criteria as having potential or demonstrated abilities and who have evidence of high performance capabilities, which may include leadership, in one or more of the following areas:

1. Intellectual aptitude or aptitudes. Students with advanced aptitude or conceptualization whose development is accelerated beyond their age peers as demonstrated by advanced skills, concepts, and creative expression in multiple general intellectual abilities or in specific intellectual abilities.
2. Specific academic aptitude. Students with specific aptitudes in selected academic areas: mathematics; the sciences; or the humanities as demonstrated by advanced skills, concepts, and creative expression in those areas.
3. Technical and practical arts aptitude. Students with specific aptitudes in selected technical or practical arts as demonstrated by advanced skills and creative expression in those areas to the extent they need and can benefit from specifically planned educational services differentiated from those provided by the general program experience.

4. Visual or performing arts aptitude. Students with specific aptitudes in selected visual or performing arts as demonstrated by advanced skill and creative expression who excel consistently in the development of a product or performance in any of the visual or performing arts to the extent that they need and can benefit from specifically planned educational services differentiated from those generally provided by the general program experience (8 VAC 20-40-20, pgs. 1-3).

- *Identification*: is the process of reviewing student data collected at the screening level and conducting further evaluation of student potential to determine the most qualified students for the specific gifted program available (8 VAC 20-40-20, pgs. 3).
- *Performance measures*: are assessment pieces that involve students in authentic activities that require students to show what they can do. The assessment pieces require students to use higher order thinking skills (McBrien & Brandt, 1997).
- *Placement:* means the determination of the appropriate educational option for each eligible student (8 VAC 20-40-20, pgs. 2).
- *Screening*: is the process of creating the pool of potential candidates using multiple criteria through the referral process, review of test data, or from other sources. Screening is the active search for students who should be evaluated for identification (8 VAC 20-40-20, pg. 2).
- *Service options*: include the instructional approach or approaches, setting or settings, and the staffing selected for the delivery of appropriate service or services that are based on student needs (8 VAC 20-40-20, pg. 2).

- *Traditionally underrepresented*: for the purpose of this research, traditionally underrepresented will encompass the following ethnicities: American Indian, Hispanic, Black, and Hawaiian (U.S. Department of Education, 2007).
- *Underrepresentation:* a racial/ethnic group that has a number of its members in some condition in fewer numbers than would be expected based on their representation in the population of interest (The Equity Project at Indiana University, 2008).
- *Disproportionate:* For the purpose of this study, a variance of 20% below the represented total in the population will be considered indicative of disproportionate numbers in identification and that subgroup will be referred to as underrepresented. This percent was selected because it has been used as the tolerance factor by the Commonwealth of Virginia to indicate disproportionate representation relative to race for students with disabilities (Virginia Department of Education, 2002).

Limitation of the Study

Each division within the Commonwealth submits an annual gifted education report. The report indicates the numbers of gifted students identified by ethnicities. In compliance with Privacy Protection, Title VI of the Civil Rights Act of 1964, categorical statistics with fewer than 10 members are not entered into the research database by the Commonwealth of Virginia. Therefore, "numerical and percentage 'totals' may not 'add up' precisely to the exact sum of the row or column to which the total refers" (U.S. Department of Education, 2007). The numbers in the unspecified ethnicity are excluded from any ethnic subgroups.

All reported numbers of gifted identified students by each ethnicity for the 2006-2007 school year were based on each division's most current approved gifted education plan. While most divisions' gifted education plans are consistent between each five-year plan, numbers

reported in the 2006-2007 data could have included students identified under previous plans' criteria.

Delimitations of the Study

Contingent upon the criteria used by other states in the identification process, the results of the research may not be applicable. Other states may not utilize the same criteria or numbers of required criteria in the identification process as those utilized on Virginia.

Organization of the Study

This study is organized into five chapters. Chapter 1 includes the introduction, history of this study, significance of the study, research questions, conceptual framework, definition of terms, limitations of the study, delimitations of the study, and organization of the study. Chapter 2 is a review of the literature with background information, significant studies, research themes, and summary of the research. Chapter 3 is the methodology of the study. It includes a purpose, review of research questions, research design, population, and data collection treatment. It also includes the data treatment, management, and data analyses. Chapter 4 is the report of the findings with an overview of the process, data findings, and summary. Chapter 5 includes the summary and conclusions. There is a review of the purpose and previous research, the summary of the findings with implications for practice, and suggestions for future studies. The chapter concludes with the researcher's reflections.

Chapter 2: Review of the Literature

What, if any, relationships exist between the areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations? In order to find information related to this research question, the following key words were researched: gifted education, gifted, gifted minorities, gifted identification, identification practices of gifted, and underrepresented gifted. A review of the literature began with searches initiated through Google and the Virginia Polytechnic Institute and State University libraries search engines such as Addison. The resulting information gathered from dissertations, research, books, educational journals, government documents, and national gifted education organizations was organized according to three themes that continued to be prominent throughout the research.

In order to understand the connections among the three themes and their impact on gifted education identification, the themes and their connections will be delineated. The three themes are: (1) all children should have access to an equitable education, (2) there are underrepresented populations in gifted education, and (3) multiple criteria can increase identification of underrepresented populations. The themes serve as the basis of research for the study to determine what, if any, relationships exist between areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia.

Background Information

In this country's history, scholars have viewed education as the way to escape tyranny and poverty, and to create a better world. Jefferson stated, *"If a nation expects to be ignorant*

and free, in a state of civilization, it expects what never was and never will be" (Coates, 1995-99, Educating the People section, ¶ 8). Our country has continued to look to education as the means of reaching prosperity and freedom. The first body of educational research focused on the need for education. As our country grew, the need for the education of students who had been found to have abilities and potential that required special educational services, the gifted students, also grew. The second body of research, underrepresented populations in gifted education, developed as the issue of equitable identification of minority students arose. The third body of research, multiple criteria in the identification process, emerged as some minorities continued to be underrepresented, and includes research projects funded through Jacob K. Javits federal grants. These research projects were supported by federal grants, which bring us back to the first theme of this research: our government was interested in educating all students, and interested in equitable gifted identification.

Equitable education for all children.

In 1954, the National Association of Gifted Children was created to support research on gifted education and assist in the disbursement of information covering numerous aspects of the education of gifted students (National Association of Gifted, 2008). After Sputnik was launched, the United States took an aggressive stance and made education for the brightest students in the areas of science and mathematics a high priority (Institute for Defense Analyses Science & Technology Policy Institute, 2006. Since Sputnik, major strides have been taken in the field of gifted education.

It was pointed out in the historic Marland Report of 1972 that gifted education was not being considered an important educational priority from the top administration in schools to the teachers. Based on the findings of the Marland Report, Congress created the Office of Gifted

and Talented in the United States Office of Education. This focus on gifted education resulted in a small allocation of funding to support research and development projects.

In 1982, research on identification found that equity in identification was a major issue. Locally created instruments used in the identification process were either not validated for all subgroups, or were not used as intended (Richert, 1982).

Javits grants.

Under the Elementary and Secondary Education Act, the Jacob K. Javits Gifted and Talented Students Education Act (Javits) (P.L. 100-297) was authorized, and money was appropriated for gifted education. Currently, Javits is the only federal program through which grants to support gifted education are funded. Javits is funded through the No Child Left Behind Act (NCLB) of 2001 (National Association for Gifted Children [NAGC], 2007). The purpose of the Javits gifted education research grants is to enable research in the areas of underrepresented gifted minorities, English Language Learners(ELL), and students with disabilities (Ross & Parker, n.d.) (Office of Communications, 2007). Many of the grants have gone to universities and institutions of research. However, over the years the money for the implementation and funding of the grants has waned. There have been years where no new grants have been issued, and only previously funded grants were continued throughout their initial projected terms.

Since Javits grants require affiliation with school divisions, universities and/or federal institutions, a plethora of research studies on various topics in gifted education have been carried out and published, and noted centers of gifted education research have been established. Both the University of Virginia and the College of William and Mary have noted gifted education research centers and experts in the field of gifted education.

Recent initiatives.

The focus on gifted education continued with the United States Department of Education's 1993 publication, National Excellence: A Case for Developing America's Talent. The publication focused on the need to challenge gifted students in the educational setting. Several important recommendations came from the publication. Those recommendations included the need to provide opportunities for the underrepresented populations in order to exhibit their giftedness, and to broaden the criteria used in identifying giftedness (U.S. Department of Education, 1993) (Ross & Parker, n.d.).

In 1996, the Office of Civil Rights (OCR) published a manuscript on the issue of equity in gifted education for all students, specifically minority students, who traditionally are underrepresented in gifted programs. The research conducted by the OCR covered the years 1992 through 1995, and used formally written complaints submitted to the OCR, which dealt with discrimination of minority gifted as the basis of the study. The 1964 Title IX law stated that discrimination based on race, color, or national origin was prohibited, and any agency that received federal funds must adhere to the stipulations of Title IX of the Office of Civil Rights (Ed. gov., 1998).

As our country progressed, so did the evolution of the importance of gifted education. Education of the youth of the nation had always been a focus, but with new foci on laws and understandings in education, equity in education for all was elevated to a higher standard. Gallagher (1995) asserts that across the different cultures there should be an equal distribution of gifted. If this is not the case then, he contends there are discriminatory factors that influence the unequal distribution.

Bennett, et al. (2004) point out " Arguably, the most critical problem in education faced by minority students is the gap in academic achievement known to exist between minority and nonminority students. This problem is manifested at all achievement and socioeconomic levels" (p. 29). Bennett, et al. suggest that affirmative development of academic ability needs to be provided for all students, from all ethnicities. "Affirmative development of academic ability is the deliberate effort to equip students with strategies that build knowledge and develop techniques to solve both common and novel problems in pursuit of high academic achievement" (p.41). The recommendations made by the Bennett National Study Group were made for all students in order to have the same educational experiences that would enable them to meet their true potentials. Recommendations included change at the national, state, and local levels of education that influenced teacher preparation for meeting the needs of multicultural students.

Underrepresented populations in gifted education.

Over 40 years ago when the Elementary and Secondary Education Act of 1965 was passed, underrepresented populations in education were a focus. Those underrepresented populations were students from low income households with limited English proficiency or disabilities (Ed. gov. 2007); (Ed. gov. n.d.). In 1993, the government report, National Excellence: A Case for Developing America's Talent, acknowledged that gifted students could come from all cultures and socio-economic groups, and that giftedness within the various cultural and socioeconomic groups might be exhibited in diverse manners. Within the report, it was suggested that alternative means of identification would be needed in order to identify students from different socio-economic groups (United States Department of Education, 1993). Data gathered from the Office of Civil Rights revealed that in 1998 the disproportionate percentages of the gifted underrepresented were as follows: 3.04% of the Black population were

identified, 3.57% of the Hispanic population were identified, and 4.86% of the American Indian/Alaskan population were identified in comparison to 7.47% of the White population, and 9.98% of the Asian/Pacific Islander population being identified as gifted (as cited in Donovan & Cross, 2002).

Table 1

Percent of Gifted Total Populations Showing Traditionally Underrepresented Ethnicities as Compared to More Proportionately Identified Ethnicities 1998

Traditionally Underrepresented			More Proportional	
Black	Hispanic	American Indian/Alaskan	White	Asian/Pacific Islander
3.04%	3.57%	4.86%	7.47%	9.98%

Note. Created from data gathered from the Office of Civil Rights 1998 as cited in Donovan & Cross, 2002.

The data illustrate the disparity in the identification of gifted students in public schools. The case that some minorities and students from low-income households are underrepresented in gifted education is clear, and continues to be a persistent issue in gifted education. The achievement gap according to Bennett, et al. (2004) is "the statistical phenomenon of predictable lower performance on standardized tests by African-American, Hispanic, Native American, and low-income students as compared to their White, Asian, and more economically advantaged peers" (p. 41). Several states have taken on internal studies in order to begin the process of finding problem areas in the achievement of minorities and then using that information to bring about change to the underrepresentation of gifted minorities (Legislative Office of Education Oversight, 2003; McKenzie, 1986; Romey, 2006; VanTassel-Baska, Feng, & Evans, 2007).

In 1998, South Carolina took a vanguard approach to finding possible solutions to the issue of underrepresented minorities and low-socio-economic-status (SES) students in gifted education programs. Identification was a starting point and leadership at the state level contracted with the College of William and Mary to pilot a project throughout the state. The project, which added a third dimension to the already existing criteria used to identify gifted students, allowed for students to be identified through a combination of aptitude and performance tasks, or achievement and performance tasks. The resulting study, by VanTassel-Baska, Feng, and Evans (2007), highlighted the success of identifying more African-American and low SES students through the implementation of performance tasks.

There were four ways in which students could be identified as gifted. These four ways included aptitude only (A), aptitude and achievements (AB), aptitude and performance task (AC), and achievement and performance task (BC). Scoring on an aptitude test at the 96th percentile or higher automatically enabled the students to be identified. Achievement on an aptitude test at the 90th percentile or higher plus achievement on the South Carolina statewide assessment instrument, Palmetto Achievement Challenge Test (PACT), or other nationally normed achievement tests at the 94th percentile or above, automatically enabled the students to be identified. The newly added third criterion, the performance task, in conjunction with either the aptitude at the 90th percentile or higher, or an achievement level at the 94th percentile or higher plus performance tasks at the 80th percentile or higher, automatically enabled the students to be identified (VanTassel-Baska, Feng, & Evans, 2007).

With the implementation of the study's performance task added to the gifted identification criteria, the resulting statistics showed that more female students were identified. The increase in female students being identified as gifted continued throughout the three-year

study. Another consistency over the study's three-year period was that more students who were on free or reduced lunch programs were identified through performance tasks. The goal of the study, to find out if adding performance tasks to the criteria used for the identification of giftedness would increase the number of low SES and minority students identified as gifted, was successful. The percentage of African-American students identified through performance tasks, and the percentage of identified low-income students increased over the three-year period, 5% and 3% respectively. A 30% increase in the number of students identified through performance tasks was seen between the years of 2000-2002. Although this study was successful at finding more African-American and low SES students as gifted through performance task criteria, the majority of the students ultimately identified continued to be the students who were Caucasian and from higher SES families.

In 2006, the Romey study of the Alabama gifted identification process also investigated ways to increase the state's underrepresented gifted identification statistics. Alabama was chosen because the state had designated gifted identification criteria to be used which were required by the Office of Civil Rights in 1999. A previous study by Pearson (2001) had also utilized the Alabama matrix data of identification criteria to indicate the significance of the use of the matrix in increasing the numbers of identified African-American and Hispanic students. Romey's study expanded upon the Pearson study by adding additional information into the matrix and looking for specific correlations between the indicators used for identification and culturally diverse groups of students.

Of the 202 educational districts used in Romey's study, 85 showed proportional representation of culturally diverse students with more than 40 students in the database. The indicators that emerged as successful with respect to identifying culturally diverse students were

the use of the Wechsler Intelligence Scale for Children (WISC), Naglieri Nonverbal Ability Test (NNAT), and the Otis-Lennon School Ability Test (OLSAT) for aptitude. Nearly all districts relied on the behavior rating scale from Hawthorne Educational Services. A few districts used the *Gifted and Talented Evaluation Scale* (GATES) or *Traits, Aptitudes, and Behaviors* (TABs), with almost all districts using only one rating scale exclusively. The most common characteristics rated were intelligence, academic aptitude, and leadership. The most common indicators of performance were grades, motivation, work samples, and leadership (Romey, 2006).

After the analyses of the compiled districts' statistics were reviewed, the impact of the influence of race and gender on identification was apparent. Black females were found to be under-identified in some districts, and the different tests and criteria used for identification substantiated both the Pearson (2001) and Romey (2006) studies in clarifying the need for a variety of tests and measures to be used. The tendency for districts to use specific tests over others for certain racial groups could positively influence the identification outcome. Divisions using the Naglieri test with minority groups showed proportional representation in identification. The research showed that selected tests and criteria affected the various populations differently (Romey, 2006, p. 62).

The Alabama gifted matrix, which is composed of multiple criteria for identification, was intended to increase the identification of students from culturally diverse backgrounds. The study indicated the usefulness of multiple criteria in identifying students across race and gender lines within the districts.

The study by VanTassel-Baska (2006) also dealt with the underrepresented populations in gifted education. In this study, the researcher analyzed the findings of 20 gifted programs.

The districts used in the analysis were located in various regions of the United States and varied in socio-economic status and size. The problems in gifted education were numerous as indicated by the study. The research disclosed issues with the process of identification. Not only were identification procedures found to be too strict or too lenient, but stakeholders had no vision as to how to solve the problem. The research did show that the underrepresented populations in the gifted programs were from students in the free or reduced lunch status. Other problems in identification dealt with test measures used at the elementary level that were not bias free from language barriers.

Adverse themes that emerged included the lack of understanding in the identification system, the lack of knowledge in the types of multiple criteria to be used in identification, and the lack of program structure from identification and programming to consistency throughout school districts. The programs that fell under gifted identification were still not reaching all gifted students. In terms of fairness and equity, the first problem, identification, needed to be resolved. The author of the study proposed that if attention failed to be given to the area of identification in conjunction with other areas in gifted education, gifted programs might suffer.

The instruments used in identifying students for gifted education directly affected the underrepresented populations. A study by Callahan, Hunsaker, Adams, Moore & Bland, (1995), was a three-part study of instruments used in gifted identification. The study focused on current practices in the evaluation of gifted programs, and on investigating the factors that make evaluation more useful to people involved in making decisions for gifted education.

The initial study analyzed gifted education departments throughout the United States. All information from the local education and state gifted agencies was sent to The National Research Center on the Gifted and Talented at the University of Virginia in Charlottesville, Virginia, and

was entered into a National Repository. Once the repository was established, evaluations of the studies occurred.

At the district level, the schools that had agreed to participate with the National Research Center on the Gifted and Talented Projects, were asked to provide any instruments used in identifying gifted students. The districts were asked to share their identification procedures, demographic information on the students, copies of the evaluations of the program, and the names of the instrument developers. The review of the instruments indicated that there was little validity relating to the assessment of gifted constructs on many of the instruments used to identify gifted students. Most school districts were using locally developed checklists and rating scales, or an adaptation of the scales for rating the characteristics of superior students without collecting reliable or valid evidence. Problems included the use of out-of-date testing material, incorrect use of testing instruments, and use of testing instruments to identify constructs of giftedness that were not intended for that purpose. The most widely used definition of giftedness was the Marland definition, but not all districts reported a definition; several districts had no definition at all. The most widely used construct was general intellectual ability. Intelligence tests were still the most widely used assessment tool. Checklists, rating scales, and portfolio measures were all indicated as used throughout all school districts.

The major outcome from the Callahan et al. (1995) study indicated that although research was present on gifted identification procedures, many of the recommended procedures were still being ignored or not fully implemented. An important finding from this study suggested that information regarding gifted education identification criteria was available for assessment, but not evaluated. The instruments used for identification purposes had little validity in relationship to the specific criteria identified in gifted definitions. Another finding indicated that school

systems were using variations of already established rating scales; however, they were not establishing validity for their school division prior to using the scales, and they were using their locally created checklists without the benefit of first establishing validity. In the area of intelligence testing, out of date tests were used and group tests were used over individualized tests. Individualized testing was found to be mainly used in cases where a definite decision of identification could not be made using the established criteria. Such was the case with individualized testing specifically used for underserved populations. Almost all the school districts used locally developed checklists, rating scales, and portfolio measures. The problem with the checklists, rating scales, and portfolio measures was that these items had not been checked for reliability or validity. Multiple criteria were used; however, they were, in a variety of instances, used incorrectly.

Guidelines for identification practices were an outcome of this study. The first guideline was to establish a clear definition of giftedness. The research led to the use of multiple indicators of giftedness and having no single cutoff score for identification or screening purposes. The second guideline indicated that once the identification process was started, there should be no quota that would inhibit students from being placed and having their needs met. Another guideline was to use different testing methods in order to evaluate the different areas of giftedness, and to be cognizant that giftedness may look differently across cultures, just as was stated in National Excellence: A Case for Developing America's Talent (1993).

These same problems in identification were apparent in a 1982 national report on identification. The national report on identification found that because of the inadequate identification practices, students from economically disadvantaged backgrounds, English-language learners, and disabled students were not being identified (Richert, 1982).

In 1999 Ohio recognized the inadequate identification practices which led to minority populations being underrepresented. The need for standardized gifted identification practices was apparent, and new requirements in the area of gifted identification and services were created. The Amended Substitute House Bill 282 (Am. Sub. H.B 282) created standardized identification procedures for students and established procedures to use in order to identify traditionally underrepresented student groups. Each school division was to submit a gifted education plan to the state which encompassed its strategies, processes, and measures used for identification purposes. If the district did not have its own gifted education plan, a basic template was provided by the state. Once the plans were in place, they were reviewed and analyzed by the Legislative Office of Education Oversight (LOEO). The resulting data were compiled over a two-year period.

In 2000, additional requirements were added to the Ohio Legislature's amendments: Am. Sub. H.B 282. Two gifted education manuals were written. The first manual served as a guide for the identification of children in Ohio, and the second manual focused on measures used in the identification process. In 2001, Ohio was asked to conduct a study that included the analysis of the identification plans of the districts and encapsulated the identification methods used by the districts and numbers of identified students. The statistical information on the number of students identified in Ohio came from their Education Management Information System (EMIS) (LOEO, 2003).

Each school district's identification plan and the surveys were examined. Once the information was gathered, it was organized into a database and analyzed for patterns (LOEO, 2003). The Legislative Office of Education Oversight also examined the other 49 states' information regarding gifted identification practices, which they obtained from state department

websites, the analysis of reports, and Department of Education officials. This information was placed into a comparison grid in order to check for identification mandates and mandates for services for gifted students (LOEO, 2003).

Analyses of identification plans submitted to the state were completed along with the analyses of the percentage of gifted students reported to EMIS. A comparison was conducted of the conventions used by other states in their gifted identification plans to Ohio's gifted identification plan criteria (LOEO, 2003).

As a result of the mandated gifted education plan, there was an increase in the overall percent of identified students from 10.7% in 1999 to 13% by the year 2002. This increase was attributed to a broader range in the definition of giftedness, and earlier identification which was carried out throughout all grades. Prior to the mandate by Ohio, most districts were only identifying students in either cognitive ability or academic ability. With the implementation of the Senate House Bill 282, students could be identified in the areas of creative thinking ability, visual performing arts ability, and, in the realm of academics, students could be identified not only in reading and mathematics, but also science and social studies. Even though there was an increase from 1999 to 2000 in the overall numbers of students identified, an analysis of the findings still showed that the majority of students were identified in the academic ability areas of mathematics and reading, and also the cognitive ability area. Also, a larger proportion of White students were identified in these areas as compared to other ethnicities. This area of the study indicated that something must occur in order to ensure that proportionally equal numbers of students representing the population of minorities in Ohio’s schools were represented in gifted education.

The third result of the study was related to the factors that contributed to differences in proportions across the districts in the numbers of identified gifted students. School districts' socio-economic status affected the numbers of students identified. Lower socio-economic status districts found fewer gifted students. The concept of testing entire grade levels as opposed to individualized testing positively affected the numbers of gifted students identified. When entire grade levels were tested, there were more students identified. If teachers were trained in the identification of gifted students, there was a positive outcome in the identification. The district's level of implementation of the gifted identification requirements affected the numbers of identified students from the district. The closer the district was to full implementation, the larger the number of students identified for gifted services.

Educators in gifted education continue to seek ways to identify proportional numbers of underrepresented minorities and seek answers to the issues of underrepresentation. Javits research grants, which were created to ensure the identification of traditionally underrepresented groups in gifted education, are carried out in conjunction with Yale, the University of Virginia, the University of Connecticut, and State Departments of Education Ed.gov. (2007).

The use of multiple criteria in the identification process.

Within each of the previous research reports, multiple criteria in terms of tests of intellect, aptitude, observation and performance tasks were used to define giftedness. The Romey (2006) study of Alabama's gifted matrix identification process indicated the usefulness of using multiple criteria to identify students across race and gender. The same importance in using multiple criteria in order to better identify underrepresented populations was found in the 1995 study by Callahan, Hunsaker, Adams, Moore, & Bland. In their study, it was found that the

instruments used for identification purposes had little validity in relationship to the specific criteria identified in gifted definitions.

If gifted students are defined as students coming from every culture and socio-economic background and if there is a need for the use of multiple criteria in the identification process as noted in the 1993 government report, National Excellence, then the instruments used for identification purposes must have validity. From National Excellence: A Case for Developing America's Talent (1993), an understanding was developed that gifted students could come from all cultures and socio-economic groups, and because of these differences in culture and socio-economic status, giftedness could be exhibited in different forms (United States Department of Education, 1993).

The National Association for Gifted Children's publication, Aiming for Excellence: Gifted Program Standards edited by Landrum, Callahan, and Shaklee (2005) cites the research of Callahan and McIntire as including the general principles that should be used for student identification for gifted services. The general principles are as follows:

> 1) using measures that go beyond a narrow route conception of talent; 2) using separate and appropriate identification strategies to identify different aspects of giftedness; 3) using reliable and valid instruments and strategies for assessing the construct of talent underlying the definition; 4) using appropriate instruments with underserved populations; 5) viewing each child as an individual and recognizing the limits of a single score on any measure; 6) using the multiple-measure/multiple-criteria approach to identification; 7) recognizing the serious limitations of using matrices in the identification process and appreciating the value of the individual case study; and 8) identifying and placing

> students based on students need and ability, rather than on numbers that can be served by a program. (p. 39)

The term giftedness is a social construct and is defined by the criteria agreed upon by the society (Pfeiffer, 2003) (Borland, 1997). Encompassing a broader definition of giftedness to include multiple criteria in the identification process has been an ongoing educational process. The National Report on Identification (1982) (as cited in Davis & Rimm, 1998) contained over 60 instruments that could be used in the identification process. These instruments included tests of achievement and aptitude, checklists, inventories, and rating scales. The study suggested that there should be a broad definition of giftedness and that as many gifted learners as possible should be identified and served.

A 2008 New York Times article highlighted the disparity in the identification of gifted minorities through the use of a single test used to gain admission to any of three of New York's public schools for the gifted. Multiple criteria were not considered, and admission was granted based on the highest scores achieved on an entrance exam. Of the students who took the entrance exam, only six percent of the Black ethnicity and seven percent of Hispanic ethnicity were offered admission to any of the three schools. These percentages were in stark contrast to 35 percent of students of the Asians ethnicity and 31 percent of White students being offered entrance to the gifted high schools. The limitation to the use of one construct of giftedness, academic, and the lack of multiple criteria used has led to an outcry from parents for revisions in the admission process (Hernandez, 2008).

Virginia mandates that each school division identify students for gifted education using multiple criteria. The multiple criteria, of which at least four criteria must be used, include

achievement tests, aptitude test, checklists, observations, rating scales, interviews, and previous accomplishments.

Summary of Research

In order to have equitable identification for all gifted students, research indicates that multiple criteria in identification be used to meet student diversity. Organizations such as the National Association for Gifted Children and The National Research Center on the Gifted and Talented at the Curry School of Education at the University of Virginia are committed to conducting research that will lead to a more equitable identification of the underrepresented populations in gifted education (Lockwood, 2007).

The National Association for Gifted Children (NAGC) student identification standards guiding principles has minimum and exemplary standard measurements. While the NAGC has five guiding principles for student identification, the guiding principles that are related to student identification are numbers two, four, and five as shown in Table 2. As the exemplary standards of the principles indicate, the National Association is concerned with the use of fair measures, multiple measures, and the use of quantitative and qualitative measures for identification purposes.

Table 2

Gifted Education Programming Criterion on: Student Identification

Guiding Principles	Exemplary Standards
2. Instruments used for student assessment to determine eligibility for gifted education services must measure diverse abilities, talents, strengths, and needs in order to provide students an opportunity to demonstrate any strengths.	2.1E Measures should be responsive to students' economic conditions, gender, developmental differences, handicapping conditions, and other factors that mitigate against fair assessment practices.
4. All student identification procedures and instruments must be based on current theory and research.	4.0E Student assessment does she come from multiple sources and include multiple assessment methods. 4.1E Student assessment data should represent an appropriate balance of reliable and valid quantitative and qualitative measures.
5. Written procedures for student identification must include, at the very least, provisions for informed consent, student retention, student reassessment, student exiting, and appeals procedures.	5.0E Student placement data should be collected using an appropriate balance of quantitative and qualitative measures with adequate evidence of reliability and validity for the purpose of identification.

Note. Adapted from the National Association for Gifted Children (2000).

As of 2005b, the Virginia's administrative code 8VAC 20-40-60 used by each school division in the statewide plan for the education of the gifted, addressed identification in one or up to four areas of giftedness. At least four criteria per student are used for identification purposes. Similar to the National Association for Gifted Children standards, the Virginia plan for the education of the gifted addressed equitable gifted education for all, in order to identify the underrepresented populations through the use of multiple criteria.

Chapter 3: Methodology

This chapter reviews the purpose of the study and provides rationale for the chosen research design. The research questions are once again introduced in order to allow connections to be made to the research design. The research design chosen for the study was a quantitative, non-experimental comparative methodology. Data collection and analysis methodology are provided along with a timeline for the completion of the study. The chapter ends with a summary.

Purpose for the Study

Research has shown that the criteria used in the identification of gifted students affects the numbers of identified as well as the proportions of the underrepresented (Donovan & Cross, 2002). Research has also shown that the use of multiple criteria leads to a higher proportion of underrepresented students identified (Callahan, Hunsaker, Adams, Moore, and Bland, 1995). The purpose of this study was to determine, what, if any relationships exist between the areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations.

Research Questions

The questions that were addressed in this study stemmed from the overarching question of: What, if any, relationships exist between the areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate ration of traditionally underrepresented minority populations? Subordinate questions were:

- Which areas of giftedness have proportionality for traditionally underrepresented ethnicities?

- What is the relationship between the inclusion of more than four multiple criteria and the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?
- Of the eight multiple criteria issued by the VDOE for use in the gifted eligibility process, which combinations of criteria increase the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?
- Which combinations of standardized measures used by the school divisions result in proportionality of traditionally underrepresented gifted minorities?

Research Design

Since the focus of this study was to determine if there was a relationship between the identification criteria used to identify gifted students and the proportionate representation of the traditionally underrepresented populations, a quantitative, non-experimental comparative research design was used. In a comparative research study, relationships among variables are compared for similarities or differences. Quantitative non-experimental research design uses statistical procedures to answer questions about the relationships between the independent and dependent variables (Hittleman & Simon, 2002). A non-experimental approach to the research was used since the data in the research already existed and no treatment was applied. A quantitative, non-experimental comparative research design was used to investigate the relationship between the types of criteria used, the independent variables, and the numbers of underrepresented students identified, the dependent variables.

Population

The population of this study was all 132 public school divisions in the Commonwealth of Virginia. There were 1,859 public schools in Virginia. The student population as of the 2006-2007 state summary report was 1,220,597 (Virginia Department of Education, 2006). All data

for student enrollment were retrieved from the Virginia Department of Education (VDOE) web site under data and reports. The academic year 2006-2007 was chosen because of the availability of complete information on the student population for the Commonwealth in both the total school population and gifted identified population. The complete data for gifted education services included gifted education plans with identification criteria and numbers of students identified in each ethnicity for each division.

Virginia's total public school student population.

The student population as of the 2006-2007 state summary report was 1,220,597. The state total student population for the unspecified ethnicity was 27,111, or 2% of the total population. The American Indian subgroup comprised 3,905 students, or .3% of the population. The Asian student population comprised 63,188 students, or 5% of the total public school population, while the Black population consisted of 319,063 students, or 26.1%. Hispanic students were at 98,699 students, or 8.1%. The White student population consisted of 707,538 students, or 58%, and students of Hawaiian or Asian-Pacific decent comprised 1,093 of the student population, or .09%. The data submitted for analysis excludes part-time students, students enrolled in the schools for the deaf and blind, and students in the department of correctional education facilities. Table 3 indicates the total student population within the Commonwealth and its ethnic demographics as reported to the VDOE in September 2006.

Table 3

Total Population and Percentage of Public School Students in the Commonwealth of Virginia by Ethnicities 2006-2007

Total public school population: 1,220,597

Unspecified	American Indian	Asian	Black	Hispanic	White	Hawaiian	Total
27,111	3,905	63,188	319,063	98,699	707,538	1,093	1,220,597
(2%)	(.3%)	(5%)	(26%)	(8%)	(58%)	(.09%)	

Note. Adapted from the Virginia Department of Education (2007).

Virginia's total public school gifted identified student population.

The student gifted identified population as of the 2006-2007 annual total summary report was 176,649. The state total gifted identified student population for the American Indian subgroup was 449 students, the Asian student population was at 18,837 students, Blacks comprised 21,147 students, Hispanic students were at 7,993, White students were at 123,306 and students of Hawaiian or Asian-Pacific decent composed 185 of the student population. In compliance with Privacy Protection, Title VI of the Civil Rights Act of 1964, category statistics with memberships less than 10 were not entered into the research database by the Commonwealth of Virginia. Therefore, "numerical and percentage 'totals' may not 'add up' precisely to the exact sum of the row or column to which the total refers" (U.S. Department of Education, 2007).

Table 4 indicates the total gifted identified student population within the Commonwealth and its ethnic demographics as reported by the state department. As noted, the American Indian population made up .3% of the total population and .25% of the gifted population. The Asian

population made up 5% of the total population and 10.7% of the gifted population. The Black population was 26% of the total population of public school students, but only 12% of the identified population. The Hispanic population was 8% of the total population, but only 4.5% of the gifted population, while the White student population was 58% of the total and 69.8% of the gifted population. The Hawaiian student population was .08% and .1% made up the gifted population.

Table 4

Total Population and Percentage of Gifted Identified Public School Students in the Commonwealth of Virginia by Ethnicity Subpopulations in 2006-2007

Total public school gifted population: 176,649

Unspecified	American Indian	Asian	Black	Hispanic	White	Hawaiian	Total
4732	449	18,837	21,147	7,993	123,306	185	176,649
(3%)	(.25%)	(10.7%)	(12%)	(4.5%)	(69.8%)	(.1%)	

Note. Adapted from the Virginia Department of Education (2007).

Table 5 indicates the numbers for the total school populations for each ethnicity, the total school gifted populations, and the percent of each ethnic population identified as gifted. The unspecified ethnicity population was 27,111 with 4,732 identified gifted. The percent gifted of the total unspecified ethnicity was 17%. The American Indian population was 3,905 with 449 American Indian students identified gifted. This represented 11% of the total American Indian population. There were 63,188 Asian students with 18,837 of them identified gifted. This represented 30% of the Asian population as identified. The Black population was 319,063 with 21,147 students identified. This represents only 6% of the total Black population as identified. The Hispanic population was 98,699 with 7,993 Hispanic students identified gifted. This was

8% of the Hispanic population. The White population was 707,538 with 123,306 of them identified gifted. This represents 17% of the White population as gifted. There were 1,093 Hawaiian students with 185 of them identified. The percentage gifted of the Hawaiian population was 17%. In the Commonwealth, 176,649 students were identified gifted out of 1,220,597 public school students. The percent of public school students identified gifted in the Commonwealth was 14%.

Table 5

Comparison of the Total Number and Percentage of Public School Students to Gifted Identified Public School Students in the Commonwealth of Virginia by Ethnicity Subpopulations in 2006-2007

Total public school population: 1,220,597

Total public school gifted population: 176,649

Gifted percent of total specific ethnicity identified

Unspecified	American Indian	Asian	Black	Hispanic	White	Hawaiian	Total
27,111	3,905	63,188	319,063	98,699	707,538	1,093	1,220,597
4732	**449**	**18,837**	**21,147**	**7,993**	**123,306**	**185**	**176,649**
(17%)	*(11%)*	*(30%)*	*(6%)*	*(8%)*	*(17%)*	*(17%)*	*(14%)*

Note. Adapted from the Virginia Department of Education (2007).

Data Collection

Each year the 132 school divisions within the Commonwealth of Virginia are required to submit an annual gifted summary report to the Virginia Department of Education (VDOE). The annual gifted summary report is submitted each spring to the Commonwealth and lists the areas of giftedness and numbers of ethnicities by grade level. The 2006-2007 information from all 132

VDOE annual summary reports that were used for this research included gifted identified students' grade levels and students' ethnicities. The gifted annual summary report was retrieved from the VDOE site: http://www.doe.virginia.gov/VDOE/Publications/Gifted/2007_Gifted.pdf.

Every five years each division is required to submit a five-year gifted education plan, which is reviewed by the VDOE and kept on file at the department. The five-year plans contain the procedures used in identification, areas of identification, the multiple criteria, and the standard measures used in identification. For this research, both the gifted education plans and the annual summary reports were required for the statistical analysis. Prior to any collection of data, training in human subjects protection was completed along with the Institutional Review Board (IRB) at Virginia Polytechnic Institute and State University approval was sought and obtained (see Appendices B and C).

School division gifted education plans were collected through two procedures. E-mails were sent to all 132 supervisors or coordinators of the gifted in each division to request copies of gifted education plans and spring data reports. Not all of the necessary data were collected in a timely manner through e-mail correspondences. In order to compare the criteria used for identification purposes for each division, local divisions' gifted education plans, which are also submitted to the VDOE, were retrieved either from the division's supervisor of gifted education or the VDOE. A personal visit to VDOE was necessary to complete the data base information for each division. Finally, personal phone calls were made to divisions that had not submitted gifted data to VDOE by the time of the research data collections. A comparison was made between the numbers of identified for each ethnicity in each division and the criteria required for identification purposes by each division.

Data treatment.

Each division's annual gifted education data report and gifted education plan were sent to the VDOE and were public information. The plans were available at the VDOE, and many divisions had their local gifted education plans accessible on their websites. A request for local gifted education plans was made to each division's supervisor or coordinator of gifted education through the division's web address prior to obtaining the information through a personal visit to VDOE. In order to ensure that confidentiality was maintained, each division was prescribed a number during the data collection process. A comparative analysis was carried out using a statistical function in Excel.

Data management.

The annual gifted education report data from each division that were collected from the VDOE were maintained in an Excel file for statistical purposes. The numbers of gifted identified in each ethnicity data for the 2006-2007 year came from the VDOE in an Excel spreadsheet. The data indicated the division, the number identified by each grade level in each ethnicity, and the total number identified in each division. Information received from VDOE for divisions with fewer than 10 students in any ethnicity indicated none present. In order to protect student confidentiality, this was done to ensure compliance with the Family Education Rights and Privacy Act. The criteria used for identification purposes collected from each division's gifted education plan were compiled into an Excel spreadsheet for comparison purposes. The data in the spreadsheet included the areas of giftedness, multiple criteria used, and the specific standardized measures used for identification purposes for each division. Once divisions with proportionality in one or more of the traditionally underrepresented subgroups were identified, continued analyses on the areas of giftedness, multiple criteria, and standardized measures used in the identification process were run.

Data analysis.

The original data composed of gifted identification criteria used by divisions and numbers of minorities identified were obtained from the Department of Education of the Commonwealth of Virginia, or through personal correspondences with specific divisions. The school divisions were coded for anonymity and the data were entered and organized in Excel. The number and percent of gifted identified by each ethnicity in each division were compared to the number and percent of the total population of each ethnicity in each division using an Excel function. Divisions were considered to be proportional for an ethnicity when the percent identified as gifted was within 20% of the expected number based on the percentage of that group within the school population for that division. Divisions that had a discrepancy of no greater than 20% between the number of identified gifted in an ethnicity and the proportionally represented total in the population were coded as showing a positive relationship between criteria used and identification. For example, for the Black ethnicity a logical function was created in Excel and used to compare the two comparison expressions of 20% above and 20% below the expected number of gifted students in that ethnicity. The logical function was run for each ethnicity to find proportional divisions. Proportionality had been set at 20% based on the tolerance factor percent accepted by the superintendent of public instruction for the Commonwealth of Virginia, and used for reporting disproportionate representation relative to race for students with disabilities (Virginia Department of Education, 2002).

The first subquestion of the research asked which areas of giftedness result in proportionality for traditionally underrepresented ethnicities. Using Excel, those divisions showing proportionality from the first analysis were grouped according to the areas of giftedness used and analyzed for commonalities in the selection of the types of criteria used.

Once divisions were identified as showing proportionality and the areas of giftedness were identified for each division, a custom sort in Excel was used to separate the specific areas that were common among them. After the areas of giftedness were analyzed, the data were reorganized through a custom sort to yield the multiple criteria and then the standardized measures used by proportional divisions. The same custom sort was run for each ethnic group of proportional divisions.

The proportional divisions' data were compared to the nonproportional divisions' data. According to the Bélanger and Gagné (2006) study, the more criteria utilized in the identification process, the more likely underrepresented populations would be identified. Table 6 aligns the research questions to the custom sort formats performed in Excel. All data were collected through each division's gifted education plan and annual gifted education report submitted to VDOE.

In this chapter, the methodology and a brief statistical background on education within the Commonwealth were given along with the historical gifted education data obtained from each school division. The method of obtaining data for the research and management of the data was presented. An explanation of the type of analysis performed in order to address the research questions was provided. A table of the subquestions with the Excel custom sort procedures used to compile the data was included.

Table 6

Research Questions with Excel Custom Sort Procedures

Research questions	Custom sort
1. Which areas of giftedness have proportionality for traditionally underrepresented ethnicities?	• All divisions $N = 132$ • Divisions proportional by specific ethnicity: $n = 4$ American Indian, $n = 8$ Black, $n = 6$ Hispanic, $n = 1$ Hawaiian • Custom sort for each proportional ethnicity by areas of giftedness.
2. What is the relationship between the inclusion of more than four multiple criteria and the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?	• Divisions proportional by specific ethnicity: $n = 4$ American Indian, $n = 8$ Black, $n = 6$ Hispanic, $n = 1$ Hawaiian • Custom sort for each proportional ethnicity by number of criteria used.
3. Of the eight multiple criteria issued by the VDOE for use in the gifted eligibility process, which combinations of criteria increase the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?	• Divisions proportional by specific ethnicity: $n = 4$ American Indian, $n = 8$ Black, $n = 6$ Hispanic, $n = 1$ Hawaiian • Custom sort for each proportional ethnicity by multiple criteria used.

4. Which combinations of standardized measures used by the school divisions result in proportionality of traditionally underrepresented gifted minorities?	• Divisions proportional by specific ethnicity: *n* = 4 American Indian, *n* = 8 Black, *n* = 6 Hispanic, *n* = 1 Hawaiian • Custom sort for each proportional ethnicity by standardized measures used adding levels.

Chapter 4: Report of Findings

In this chapter, the researcher presents the results of the data analysis. The chapter is divided into three sections. The first section gives a brief overview of the process used to compile the data. The second section includes the data findings for each research question. A summary concludes the chapter.

Overview of the Process

The purpose of this study was to determine what, if any, relationships exist between the areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations. The overarching question was answered through the delineation of the following subquestions:

- Which areas of giftedness have proportionality for traditionally underrepresented ethnicities?
- What is the relationship between the inclusion of more than four multiple criteria and the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?
- Of the eight multiple criteria issued by the VDOE for use in the gifted eligibility process, which combinations of criteria increase the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?
- Which combinations of standardized measures used by the school divisions result in proportionality of traditionally underrepresented gifted minorities?

Each question is answered in a discussion and through the use of charts.

As of the 2006-2011 gifted education plan requirements set by The Virginia Department of Education (VDOE), all divisions within the Commonwealth are to specify which area(s) of

giftedness they included in the identification process. In addition, divisions were required to indicate which of the four or more multiple criteria were used for identification. Within each multiple criteria area used, divisions were required to specify which assessment standardized measure(s) was/were used. Divisions were not required to use any specific standardized measures, nor were they given a specific list of standardized measures from which to choose. The identification requirements and options are illustrated in Figure 2.

In order to answer the overarching question and subquestions, there were four major pieces of data that were required for analysis. The data on areas of giftedness, multiple criteria, and standardized measures used for each division came from each division's gifted education plan. All data were retrieved from the VDOE either electronically, through the state website, or through a personal visit to the VDOE. All data received were for the 2006-2007 school year. The data for the 2006-2007 school year were chosen because they were the most current complete data submitted to the VDOE in gifted education. The state gifted education data indicating the numbers of identified students in each ethnicity for each school division with totals were retrieved electronically from VDOE. For the Gifted Ethnicity by School Division dataset retrieved from VDOE, membership in any ethnicity with a representation of fewer than 10 could not be reported. In compliance with the Family Educational Rights and Privacy Act, (FERPA), in order to protect student confidentiality, ethnic subgroups with fewer than 10 were not reported. The Annual Total Report for Gifted Education within the Commonwealth, and the Student Membership by Division and Race data sets were retrieved through the VDOE website. Each school division's local gifted education plan that indicated the areas of giftedness used, the multiple criteria used, and the standardized measures used in the identification process were retrieved through a visit to VDOE. Divisions, whose local gifted education plans were not on

file with the state department at the time of the visit, were accessed through electronic requests to those specific divisions. Data for all 132 public school divisions were received.

2006-2011 VDOE Gifted Education Plan Template Requirements

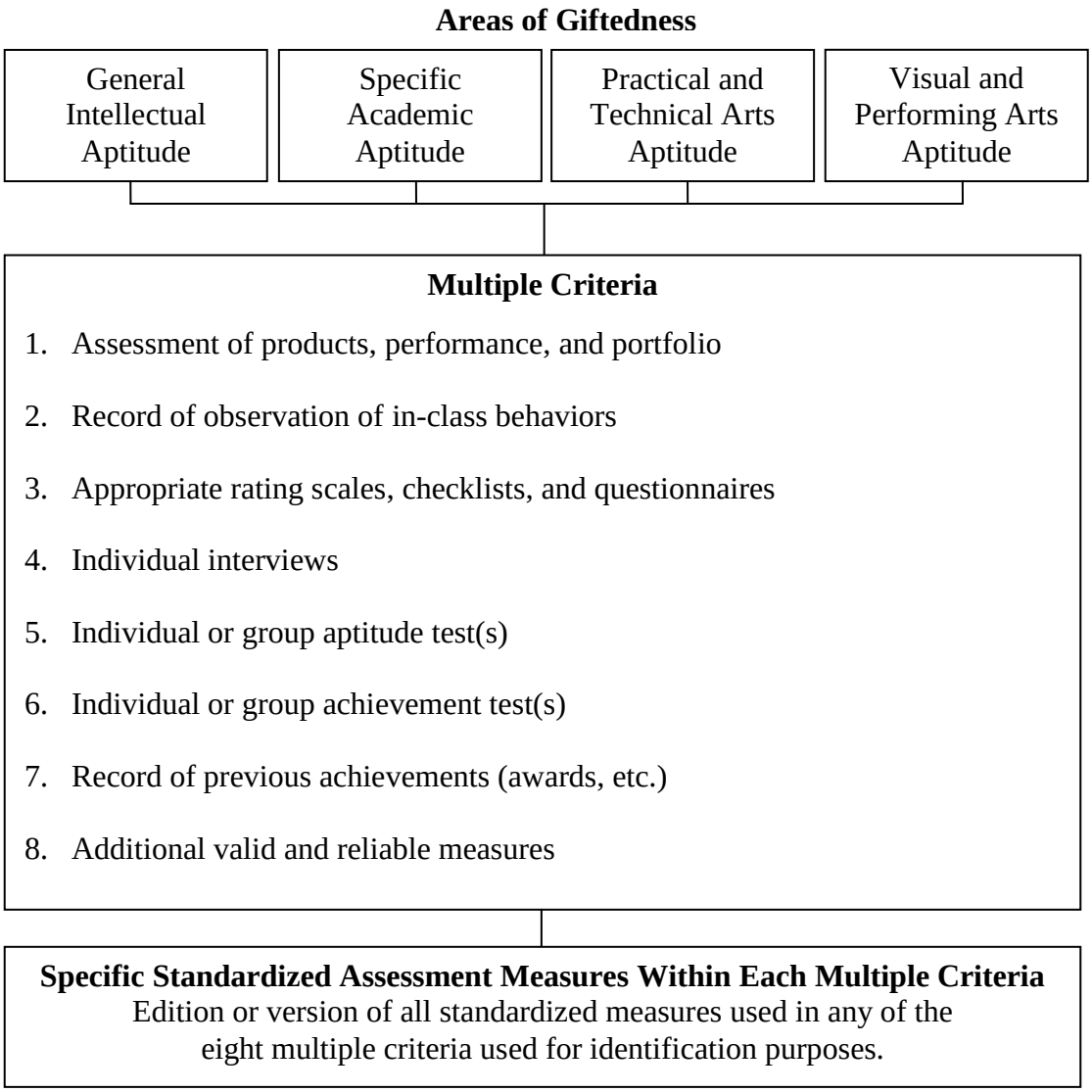

Figure 2.

Data Findings

Subquestion 1: Which areas of giftedness have proportionality for traditionally underrepresented ethnicities?

Table 7

Numbers of Divisions with Proportionality in a Specific Ethnic Category and Percent of those Divisions Identifying in Specific Areas of Giftedness

Ethnicity	Areas of Giftedness							
	General Intellectual Aptitude		Specific Academic Aptitude		Practical/ Technical Aptitude		Visual/ Performing Arts Aptitude	
	n/n	%	n/n	%	n/n	%	n/n	%
American Indian (4)	4/4	100	3/4	75	0/4	0	1/4	25
Hispanic (6)	6/6	100	3/6	50	1/6	17	4/6	67
Black (8)	7/8	88	5/8	63	1/8	13	4/8	50
Hawaiian (1)	1/1	100	1/1	100	0/1	0	1/1	100

Table 7 identifies the number of proportional divisions and percents of those divisions in a specific ethnicity and areas of giftedness used in identification. There were four divisions with proportionality for the American Indian population. Of those divisions, all four identified in the general intellectual aptitude area of giftedness, three of the four divisions identified in the specific academic aptitude area, none of the divisions used the practical/technical aptitude area of giftedness, and only one division identified in the visual/performing arts aptitude area.

For the Hispanic ethnicity, six divisions showed proportionality. All six divisions identified in the general intellectual aptitude area of giftedness, half of the six divisions identified in the specific academic aptitude area, one division out of the six identified in the practical/technical aptitude area, and four of the six divisions identified in the visual/performing arts aptitude area of giftedness.

Eight divisions were proportional in the Black ethnicity. Seven of the eight divisions identified students in the general intellectual aptitude area of giftedness, five of the eight divisions also used the specific academic aptitude area, one of the divisions used practical/technical aptitude area, and half of the eight divisions used the visual/performing arts aptitude area of giftedness.

For the Hawaiian ethnicity, one division showed proportionality. That division identified students in the areas of general intellectual aptitude, specific academic aptitude, and visual/performing arts aptitude.

According to the VDOE gifted education plan template, divisions could identify students as gifted in any or all of the following areas of giftedness: general intellectual aptitude, specific academic aptitude, practical/technical aptitude, visual/performing arts aptitude. The eight multiple criteria options in order were: portfolios, observations, rating scales, interviews, aptitude tests, achievement tests, previous achievements, and additional measures. Seventeen of the 132 public school divisions showed proportionality in identifying the gifted in one or more areas of giftedness for the traditionally underrepresented ethnicities. Two divisions were proportional in two ethnicities. No divisions were proportional in all ethnicities. Table 8 shows the numbers of multiple criteria, the areas of giftedness, and the ethnicity of the 17 different proportional divisions. Division numbers were randomly assigned in the Excel database.

Table 8

Divisions with Proportionality in a Specific Ethnic Category with the Multiple Criteria Numbers and Specific Areas of Giftedness Used in Identification

Division #	Criteria	Ethnicity	Areas of Giftedness			
			General Intellectual	Specific Academic	Practical / Technical	Visual / Performing Arts
37	1-3, 5-7	B		Y		Y
66	1-3, 5,7	B	Y	Y		Y
114	1-7	B	Y	Y		
115	1-8	B	Y			
89	2-3, 5-7	B, S	Y			
66	1-3, 5-7	B	Y			
24	1-8	B	Y	Y	Y	Y
107	1-8	B	Y	Y		Y
12	1-8	A	Y	Y		
93	2,3, 5-8	A	Y			
73	1-8	A	Y	Y		
43	1-8	A, H	Y	Y		Y
133	1-3, 5-8	S	Y	Y	Y	Y
17	1, 3-6	S	Y	Y		
58	1-3, 5-8	S	Y			Y
116	1-8	S	Y	Y		Y
98	1-5, 7-8	S	Y			Y

Note. B = Black; S = Hispanic; A = American Indian; H = Hawaiian; Y = area of giftedness used.

Overall, the 17 divisions with proportionality for traditionally underrepresented used the general intellectual aptitude area of giftedness 94% of the time, the specific academic aptitude 65% of the time, the practical/technical aptitude 12% of the time, and the visual/performing arts aptitude area of giftedness 53% of the time for identification purposes. Although divisions could use any or all areas of giftedness to identify, only 12% of the proportional divisions in any ethnicity used all four areas of giftedness to identify, while 24% of the divisions with proportionality used three areas of giftedness to identify, 41% of the divisions used two areas of giftedness to identify, and 24% of the proportional divisions used one area of giftedness in order

to identify. Seventeen of the 132 public school divisions showed proportionality in one or more than one traditionally underrepresented ethnicity. The remaining 115 divisions were not proportional in any traditionally underrepresented ethnicity as noted in Table 8.

There were 128 divisions that were nonproportional for the American Indian ethnicity. One hundred-five divisions out of the 128 divisions that were nonproportional, or 82%, identified students in the general intellectual aptitude area of giftedness. Eighty divisions or 63% identified American Indians using the specific academic aptitude area, while five divisions or 4% identified in the practical/technical aptitude area of giftedness. Forty-three divisions or 33% identified using the visual/performing arts aptitude area of giftedness.

For the Hispanic ethnicity, 103 out of the 126 of the nonproportional divisions, or 82%, identified using the general intellectual aptitude area of giftedness, while 80 divisions, or 63% used the specific academic aptitude area. Four divisions out of the 126, or 3% of the divisions identified using the practical/technical aptitude area, and 40 divisions, or 32% identified Hispanics using the visual/performing arts aptitude area of giftedness.

One hundred two of 124 nonproportional divisions, or 82% of the divisions identified the Black ethnicity using the general intellectual aptitude area of giftedness. Seventy-eight divisions or 63% used the specific academic aptitude area of giftedness, while four divisions or 3% used the practical/technical aptitude area of giftedness. Forty divisions, out of the 124 nonproportional divisions, or 32% used the visual/performing arts aptitude area of giftedness for identifying the Black ethnicity.

With only one division proportional for the Hawaiian ethnicity, the remaining 131 divisions were nonproportional. Of the remaining 131 divisions, 33% identified students using the visual/performing arts aptitude area of giftedness for the Hawaiian ethnicity. The percents for the proportional divisions as compared to the nonproportional divisions that identified in the

general intellectual, specific academic, practical/technical, and/or the visual performing arts aptitudes are listed in Table 9.

Table 9

Comparison of Proportional and Nonproportional Divisions Identifying in Specific Areas of Giftedness

Areas of Giftedness	Ethnicity	Fractions (Percents)			
		Proportional		Nonproportional	
General Intellectual Aptitude					
	American Indian	4/4	(100)	105/128	(82)
	Hispanic	6/6	(100)	103/126	(82)
	Black	7/8	(88)	102/124	(82)
	Hawaiian	1/1	(100)	108/131	(82)
Specific Academic Aptitude					
	American Indian	3/4	(75)	80/128	(63)
	Hispanic	3/6	(67)	80/128	(63)
	Black	5/8	(50)	78/124	(63)
	Hawaiian	1/1	(100)	82/131	(63)
Practical/Technical Aptitude					
	American Indian	0/4	(0)	5/128	(4)
	Hispanic	1/6	(17)	4/126	(3)
	Black	1/8	(13)	4/124	(3)
	Hawaiian	0/1	(0)	5/131	(4)
Visual/Performing Arts Aptitude					
	American Indian	1/4	(25)	43/128	(32)
	Hispanic	4/6	(67)	40/126	(32)
	Black	4/8	(50)	40/124	(32)
	Hawaiian	1/1	(100)	43/131	(33)

For the American Indian ethnicity, 100% of the proportional divisions used the general intellectual aptitude as compared to 82% of the nonproportional divisions using the area of giftedness for identification purposes. The percents for proportional and nonproportional divisions using the general intellectual aptitude area of giftedness were the same for the Hispanic and Hawaiian ethnicities as for the American Indian ethnicity. For the divisions proportional for the Black ethnicity, 88% used general intellectual aptitude for identification as compared to 82% of the nonproportional divisions using this area of giftedness.

For the second area of giftedness, specific academic aptitude, the American Indian ethnicity, 75% of the proportional divisions used the specific academic aptitude area of giftedness as compared to 63% of the nonproportional divisions using this area of giftedness. For the Hispanic ethnicity, 50% of the divisions that were proportional used the specific academic aptitude as an area of giftedness as compared to 63% of the nonproportional divisions using the same area. Both the proportional and nonproportional divisions identifying in the Black ethnicity used the specific academic aptitude area of giftedness 63% of the time. The one division that was proportional in the Hawaiian ethnicity used the specific academic aptitude area of giftedness to identify compared to 63% of the nonproportional divisions.

The percent of divisions using the practical technical aptitude area of giftedness to identify were lower for both proportional and nonproportional divisions. None of the divisions that were proportional used the practical/technical aptitude area of giftedness to identify for the American Indian ethnicity as compared to 4% of the nonproportional divisions using this area. Seventeen percent of the proportional divisions used the practical/technical aptitude area of giftedness for the Hispanic population as compared to 3% of the nonproportional divisions using this area. Thirteen percent of the proportional divisions identifying the Black ethnicity used the practical/technical aptitude area of giftedness as compared to 3% of the nonproportional

divisions using this area. The one proportional division for the Hawaiian ethnicity did not use the practical/technical aptitude area of giftedness to identify, and 4% of the nonproportional divisions used this area of giftedness to identify.

In the visual/performing arts aptitude area of giftedness, 25% of the proportional divisions used the visual/performing arts aptitude area as compared to 33% of the nonproportional divisions for the American Indian ethnicity. Sixty-seven percent of the proportional divisions in the Hispanic ethnicity used the visual/performing arts aptitude area of giftedness as compared to 32% of the nonproportional of divisions. Half of the divisions that were proportional in the Black ethnicity used the visual/performing arts aptitude area giftedness as compared to 32% of the nonproportional divisions that used this area of giftedness for identification purposes. The division that was proportional for the Hawaiian ethnicity used the visual/performing arts aptitude area of giftedness as compared to 33% of the nonproportional divisions that used this area for identification purposes.

Subquestion 2: What is the relationship between the inclusion of more than four multiple criteria and the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?

Table 10

Mean Numbers and Ranges of Multiple Criteria Used in Divisions with Proportionality for Traditionally Underrepresented Ethnicities

Ethnicity	Divisions in proportion		Range	
		M	Low	High
American Indian	4	7.5	6	8
Hispanic	6	6.8	5	8
Black	8	6.6	5	8
Hawaiian	1	8.0		

M = Mean number of multiple criteria used in identification

According to the VDOE gifted education plan template, after divisions indicated which areas of giftedness were used in their identification process, the divisions were to list at least four and up to eight multiple criteria options used in identification. The eight multiple criteria were listed as the following: assessment of products, performance, and portfolio; record of observation of in-class behaviors; appropriate rating scales, checklists, and questionnaires; individual interviews; individual or group aptitude test(s); individual or group achievement test(s); record of previous achievements (awards, etc.); and additional valid and reliable measures (Virginia Department of Education, 2005a).

The mean number of multiple criteria used for the four divisions that showed proportionality in the American Indian ethnicity was 7.5, and the range of criteria used was from six to eight. For the Hispanic ethnicity, the mean number of multiple criteria used for the six divisions in proportionality was 6.8, and the range of criteria used was five to eight. The mean number of criteria used for the eight divisions in proportionality in the Black ethnicity was 6.6, with a range of five to eight criteria options used. The division in proportion for the Hawaiian ethnicity used all eight multiple criteria options.

The number of divisions in proportion for traditionally underrepresented ethnicities was seventeen with two divisions proportional in more than one ethnicity. The mean number of multiple criteria used was 6.9 out of the eight options listed by the VDOE. The lowest number of multiple criteria used by the proportional divisions was five and the greatest number of multiple criteria used was all eight. Forty-one percent of the proportional divisions used all eight multiple criteria, 24% used seven multiple criteria, 18% used six of the criteria, and 18% used five of the multiple criteria for identification purposes.

As of the 2006 VDOE multiple criteria requirements, divisions were required to use at least four multiple criteria for identification purposes. The numbers of divisions, means for the

multiple criteria used in each ethnicity, and ranges for nonproportional divisions are listed in Table 11. There was one division that used only three multiple criteria.

Table 11

Mean Numbers and Ranges of Multiple Criteria Used in Nonproportional Divisions for Traditionally Underrepresented Ethnicities

Ethnicity	Number of nonproportional divisions		Range	
		M	Low	High
American Indian	128	6.6	3	8
Hispanic	126	6.6	3	8
Black	124	6.6	3	8
Hawaiian	131	6.6	3	8

M = Mean number of multiple criteria used in identification

In all traditionally underrepresented ethnicities for all nonproportional divisions, the mean number of multiple criteria used was 6.6 criteria. The range of multiple criteria used by the nonproportional divisions was from three to all eight criteria used in the identification process. The required number of multiple criteria to be used by each division was four. Not all divisions followed this requirement.

Subquestion 3: Of the eight multiple criteria issued by the VDOE for use in the gifted eligibility process, which combinations of criteria increase the likelihood that a more proportionate number of traditionally underrepresented minorities will be identified?

Table 12 contains the data for subquestion 3. As of the 2006-2007 VDOE gifted education plan requirements, no single testing instrument or assessment may include or exclude a student from eligibility for gifted identification (Virginia Department of Education, 2005b). In order for each school division's local gifted education plan to be approved by the state, the division must use at least four of the eight multiple criteria for identification purposes. Any

combinations of multiple criteria could be used, and no specific criteria to be used were issued by VDOE. The multiple criteria options were 1) student products/portfolios 2) observations 3) rating scales; checklists 4) interviews 5) aptitude tests 6) achievement tests 7) previous achievements and 8) additional measures. The data presented was for traditionally underrepresented ethnicities that were in proportion and the combinations of multiple criteria used for identification for the 2006-2007 school year.

Table 12

Multiple Criteria Combinations for Divisions with Proportionality

Combinations of multiple criteria	Number of divisions
1-8	7
1-7	1
1-5,7,8	1
1-3,5-8	2
1-3,5-7	2
1-3,5,7	1
1,3-6	1
2,3,5-8	1
2,3,5-7	1

The combinations of criteria used most often by the divisions with proportionality for all ethnicities was the use of all eight multiple criteria options. At least one division in each traditionally underrepresented ethnicity used the combination of all eight multiple criteria for identification purposes. No combination of criteria was effective in identifying traditionally underrepresented populations proportionally for all ethnicities.

A comparison of the multiple criteria options used by the proportional and nonproportional divisions is listed in Table 13. There were 31 different multiple criteria options

used by the divisions. Proportional and nonproportional divisions used all eight multiple criteria most often.

Table 13

Comparison of Multiple Criteria Combinations for All Divisions

Combinations of multiple criteria	Proportional divisions	Nonproportional divisions
1-8	7	34
1-7	1	13
1-6	0	2
1-6,8	0	3
1-5,7,8	1	0
1-3,5-8	2	14
1-3,5-7	2	5
1-3,5,7	1	2
1-3,5,7,8	0	1
1-3,8	0	1
1,2,4-6	0	1
1,2,5-7	0	1
1,3-6	1	0
1,3-7	0	1
1,3-8	0	3
1,3-6,8	0	1
1,3-5,7	0	1
1,3,4,7,8	0	1
1,3,5-8	0	6
1,3,5-7	0	11
1,3,5,6,8	0	1
1,3,5,6	0	1
1,3,4	0	1
2-8	0	2
2-5,8	0	1
2,3,5-7	1	2
2,3,5-8	1	1
2,3,5,6,8	0	1
3-6	0	1

3,5-7	0	2
3,5,6,8	0	1

Subquestion 4: Which combinations of standardized measures used by the school divisions result in proportionality of traditionally underrepresented gifted minorities?

Within the eight multiple criteria, the standardized measures used by each division must be indicated. No one criterion can include or exclude a student from eligibility for gifted services. The VDOE template does not specify any particular standardized measures, but does request that the measure(s) be listed in the division's gifted education plan. The standardized measures used in divisions showing proportionality for the traditionally underrepresented Black and Hispanic ethnicities are presented in Table 14.

Table 14

Standardized Measures Used by Divisions with Proportionality Identifying Traditionally Underrepresented Black and Hispanic Ethnicities

	KOI	Renzulli	OLSAT	NNAT (1996)	Raven (2004)	PIAT-R (1998)	WRAT (1994)	Stanford 10	SOL	ITBS
Black fraction	4/8	1/8	6/8	3/8	1/8	1/8	1/8	4/8	2/8	1/8
%	50	13	75	38	13	13	13	50	25	13
Hispanic fraction	1/6	2/6	4/6	5/6	1/6	1/6	1/6	2/6	2/6	1/6
%	17	33	67	83	17	17	17	33	33	17

Eight divisions were proportional for the Black ethnicity, and six divisions were proportional for the Hispanic ethnicity. One division was proportional for both the Black and Hispanic ethnicities. The standardized measures used by the divisions with proportionality in the Black and Hispanic ethnicities included the following: Kingore Observation Inventory (KOI), Renzulli-Hartman Rating Scale, Otis-Lennon School Ability Test (OLSAT), Naglieri Nonverbal

Ability Test (NNAT), Raven's Progressive Matrices, Peabody Individual Achievement Test-Revised (PIAT-R), Wide Range Achievement Test (WRAT), Stanford Achievement Test, Tenth Edition, Standards of Learning (SOL), and the Iowa Test of Basic Skills (ITBS).

The standardized measure used by 75% of the divisions with Black proportionality was the OLSAT. Both the KOI and Stanford 10 standardized measures were used in 50% of the divisions proportional in the Black ethnicity. The NNAT measure was used with 38% of the divisions proportional in the Black ethnicity, and the SOL measure was used with 25% of the divisions. The Renzulli, Raven, PIAT-R, WRAT, and ITBS measures were used 13% of the time with each of the divisions proportional in the Black ethnicity.

The same standardized measures were used in the gifted identification of the Hispanic ethnicity, but at different percentages. For the Hispanic ethnicity, the NNAT was used 83% of the time, while the OLSAT was used with 67% of the divisions in proportionality. The Renzulli, Stanford 10, and SOL standardized measures all were used 33% of the time in the proportional identification of the Hispanic ethnicity. The KOI, Raven, PIAT-R, WRAT, and ITBS standardized measures were used 17% of the time in the identification of gifted Hispanics. The division that was proportional for both the Black and Hispanic ethnicities used the NNAT, WRAT, and OLSAT standardized measures.

The standardized measures used in the divisions showing proportionality for the traditionally underrepresented American Indian, and Hispanic ethnicities are presented in Table 15. There were nine tests common to the divisions.

Table 15

Numbers and Percents of Divisions with Proportionality Using Standardized Measures for Traditionally Underrepresented American Indian, and Hispanic Ethnicities

	GRS	OLSAT	CogAT 6	NNAT (1996)	Raven (2004	PIAT-R (1998)	Stanford 10	SOL	ITBS
American Indian fraction	1/4	2/4	2/4	3/4	1/4	1/4	2/4	2/4	1/4
%	25	50	50	75	25	25	50	50	25
Hispanic fraction	1/6	4/6	1/6	5/6	1/6	1/6	2/6	2/6	1/6
%	17	67	17	83	17	17	33	33	17

Note. GRS = Gifted Behaviors Rating Scales; OLSAT = Otis-Lennon School Ability Test; CogAT = Cognitive Abilities Test; NNAT = Naglieri Nonverbal Ability Test; Raven = Raven Progressive Matrices; PIAT-R = Peabody Individual Achievement Test-Revised; SOL = Standards of Learning; ITBS = Iowa Test of Basic Skills.

The standardized measures used in the divisions showing proportionality for the traditionally underrepresented American Indian, Hispanic, Black and Hawaiian ethnicities are presented in Table 16. There were three tests that were common to the divisions. The tests were the OLSAT, NNAT (1996), and Stanford 10.

Table 16

Numbers and Percents of Divisions with Proportionality Using Standardized Measures for Traditionally Underrepresented American Indian, Hispanic, Black, and Hawaiian Ethnicities

	OLSAT	NNAT (1996)	Stanford 10
American Indian			
fraction	2/4	3/4	2/4
%	50	75	50
Hispanic			
fraction	4/6	5/6	2/6
%	67	83	33
Black			
fraction	6/8	3/8	4/8
%	75	38	50
Hawaiian			
fraction	1/1	1/1	1/1
%	100	100	100

Comparison tables of the standardized measures for proportional and nonproportional divisions for each traditionally underrepresented ethnicity are located in the Appendix. The types of standardized measures used among the proportional and nonproportional divisions varied little. Out of 21 standardized measures used by the proportional divisions in the American Indian ethnicity, 20 were common to both proportional and nonproportional. The one assessment used by the proportional division that was not used by the nonproportional division was advanced placement. There were 22 common measures out of 24 standardized measures used for the Hispanic ethnicity. The GSA auditions and $KeyMath_3$ measures were used by

proportional divisions, but not the nonproportional divisions. For the Black ethnicity, there were 22 measures used. The Basic Achievement Skills and Benchmark measures were used by the divisions with proportionality, but not the nonproportional divisions. There were seven measures used by the division proportional in the Hawaiian ethnicity. All seven measures were also used by the other 131 nonproportional divisions identifying the Hispanic ethnicity.

Summary

This chapter organized the gifted education data gathered from the VDOE for all 132 public school divisions. The data covered the numbers of students identified in each ethnicity, the areas of giftedness used by each division, the numbers and combinations of the eight possible criteria used by each division, and the specific standardized measures used by each division for identification purposes. Chapter 5 includes a summary of the findings for each question presented, recommendations for practice, implications for future research, and reflections.

Chapter 5: Summary and Conclusions

Review of the Purpose

The purpose of this study was to determine what, if any, relationships exist between the areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations. The most complete VDOE data were for the 2006-2007 school year. Data that were missing from the VDOE database were collected through the researcher's direct correspondence with divisions.

This chapter shares the analysis of the data and is divided into the review of previous research, summary of the findings, implications for practice, and suggestions for future studies on the topic. The final section, reflections, consists of the researcher's reflections on the process of the study.

Review of Previous Research

The federal government acknowledges that there is an underrepresentation in the group of top performing students from some minorities. The Javits grants' opportunities were specifically created to focus research on this issue of underrepresentation (Fed. Reg., 2000). The Office of Civil Rights 2006 data report indicates that 7.9% of the White population of public school students was identified as gifted as compared to 3.5% of the Black population, 4.2% of the Hispanic population, 13% of the Asian population, and 5.2% of the American Indian population (National Center for Education Statistics, 2008).

In the search for a more equitable means of identifying traditionally underrepresented minorities, the use of multiple criteria in assessing students for identification purposes has been recommended by researchers (Zappia, 1989; Frasier, Garcia, & Passow, 1995). The Virginia

Administrative Code, 8VAC20-40-50 (VDOE, 2005b), criteria for screening and identification states:

> Eligibility of students for programs for the gifted shall be based on multiple criteria for screening and identification established by the school division, and designed to seek out high aptitude in all populations. Multiple criteria shall include four or more of the following categories (Virginia Department of Education, 2005b, p. 6).

The categories are the eight multiple criteria choices from which public school divisions in Virginia may choose from for identification purposes.

Summary of Findings

This research analysis was designed to address the question: What, if any, relationships exist between the areas of giftedness, the numbers of multiple criteria used, and the standardized measures used for the identification of gifted students in divisions within the Commonwealth of Virginia and the proportionate representation of traditionally underrepresented minority populations? The following findings were outcomes of the research study.

1. No divisions that were proportional for any traditionally underrepresented minorities used all the same multiple criteria in all sub-categories.
2. No divisions that reported groups who were traditionally underrepresented were proportional for all groups.
3. Proportional and nonproportional divisions identified students using the areas of giftedness in the same rank order: general intellectual aptitude, specific academic aptitude, visual /performing arts and practical/technical aptitude.
4. Four areas of giftedness are acknowledged by the Commonwealth; however, the areas of giftedness used most often by both proportional and nonproportional divisions were general intellectual aptitude and specific academic aptitude.

5. The practical/technical aptitude and visual /performing arts aptitude areas of giftedness are currently used by few divisions.
6. On average, proportional divisions used more criteria. The mean number of criteria used in proportional divisions was greater by .3 of a point. The range of the numbers of criteria used for proportional divisions was three, as compared to the nonproportional divisions' range of five. Proportional divisions used from five to eight multiple criteria and nonproportional divisions used from three to eight multiple criteria.
7. The majority of proportional and nonproportional divisions used all eight multiple criteria.
8. There was no unique test used by all the divisions that indicated proportionality. A study by Frasier and Passow (1994) advocated the use of intelligence, achievement, and authentic assessments for identification.
9. Fourteen different types of achievement tests were used with proportional divisions. The achievement standardized measures used most often were Stanford 10 and SOL. The Stanford 10 and SOL were used with 47% and 35% of the proportional divisions respectively. Advance placement, KeyMath$_3$, Basic Achievement Skills and Benchmark assessments were all used by proportional divisions. These assessments are all tests of achievement.
10. Fifteen different types of aptitude tests were used with proportional divisions. The aptitude standardized measures used most often were OLSAT and NNAT. The OLSAT and NNAT were used with 68% and 59% of the proportional divisions respectively. Romey's 2006 study of Alabama's identification process found that assessments used successfully in identifying culturally diverse students were the WISC, OLSAT, and the NNAT.

11. Overall, there were 47 different standardized measures used by the proportional divisions across the traditionally underrepresented ethnicities. Bélanger and Gagné (2006) found that the more criteria utilized in the identification process, the more likely underrepresented populations would be identified. Bélanger and Gagné also found that without specifying the type of program and looking at the types of assessments used in identification, not only would more traditionally underrepresented ethnicities be identified, but also more traditionally represented ethnicities. If careful selection of programs and assessments used in identification did not occur, proportionality would not be obtained. A study by Kitano and Kirby (1986) addressed the issue of using multiple measures to identify students and to match the assessments to the construct of giftedness and the program.
12. In the American Indian ethnicity, advanced placement was used by the proportional divisions, but not by the nonproportional divisions. Using standardized measures that are culturally fair and standardized to a specific ethnic subgroup, improving teacher understanding and knowledge of giftedness and varied cultures, and removing test biases are among the many suggestions made to clarify the importance of selecting standardized measures (Castellano, 2002; Ford & Grantham, 2003; Ford, & Harris, 1999; Lohman, 2005; VanTassel-Baska, 2006).
13. For the Hispanic ethnicity, the Governor's School Auditions (GSA) and KeyMath$_3$ standardized measures were used in the proportional divisions and not in the nonproportional divisions. KeyMath$_3$ is an assessment designed to evaluate critical math concepts and application of math skills (Connolly, 2009). Standardized measures should be researched prior to their utilization to ensure that they have been normed for the specific underrepresented population taking the assessment (Zappia, 1989).

14. The GSA, Basic Achievement Skills and Benchmark measures were used by the divisions that were proportional for the Black ethnicity, but not by the nonproportional divisions. GSA is neither an academic ability nor aptitude tests. It is an audition to show ability in the multiple areas of fine arts. The Basic Achievement Skills and Benchmark measures are assessments of academic ability. A study by VanTassel-Baska, Feng, and Evans (2007), found that performance tasks were a better assessment choice when identifying African-American and low SES students.

Implications for Practice

The following practical implications are based upon the findings of this study.

1. The practical/technical aptitude and visual/performing arts aptitude areas of giftedness should be considered for inclusion in the identification process by more divisions. These areas of giftedness are identified using rating scales and performance assessments instead of aptitude assessments.
2. The Virginia gifted education identification plan template requires all divisions to use multiple criteria. While this research was inconclusive regarding the effectiveness of multiple criteria, previous research supports their continued use.
3. More divisions should consider using the OLSAT and NNAT because they were used by all divisions successful in proportionality for underrepresented ethnicities.
4. Divisions should consider using achievement assessments like SOL and KeyMath$_3$.
5. Divisions should consider the implementation of teacher training in the characteristics of giftedness and identification practices. Perhaps, if teachers were more aware of gifted characteristics they would be better able to identify and cultivate the characteristics of giftedness in their students.

Suggestions for Future Studies

The following suggestions for future studies on the topic of gifted identification criteria are recommended as a result from this study.

1. Replication of this study to include a comparison of other states gifted identification criteria as compared to proportionality would increase the body of knowledge on areas of giftedness used, multiple assessments used, and standardized measures used for identification purposes.
2. Replication of this study to include a qualitative methodology would increase the body of knowledge on teacher impact in the identification process through testing and/or the nomination process.
3. A study should be conducted to ascertain the match between the area of giftedness and different ethnicities' learning styles, interests, and multiple intelligences. If a more proportionate identification is to be achieved, research on learning styles, interests, and multiple intelligences of minorities must be utilized in the identification process.
4. A study should be conducted on the validity of the tests used in identification in comparison to the gifted construct of the divisions. Previous research stated that reviewing the validity of the test to the gifted construct should be taken into consideration when assessing for identification (Callahan et al, 1995).
5. A study should be conducted on the effects of teacher training in identification on proportionality for traditionally underrepresented ethnicities.
6. A study should be conducted on the effects of the funding of gifted education on proportionality for traditionally underrepresented ethnicities.

Reflections

Conducting this research was rewarding and enlightening. Even though I had participated in the gifted education program as a specialist for over 10 years, this research opportunity afforded me the opportunity to look at the entire identification process through a much larger lens than just one division. The research broadened my understanding of the issues in identification, the current research, and what is happening across the Commonwealth of Virginia in gifted education. The research piqued my interest in continuing research in the use of alternative assessments for identification purposes.

The findings of this research brought to light the difficult task of identifying gifted minorities even with a plethora of research available. The findings were inconclusive and not what I had hypothesized. No one answer currently exists to combat the disproportionate identification percentages of traditionally underrepresented minorities. What the research did accomplish was to focus the spotlight on the vast complexities of gifted identification and the research effort that is ongoing to find ways to overcome the disproportionate numbers of traditionally underrepresented minorities in our education system. It is the researcher's belief that no children's ethnicity or economic circumstances should provide barriers to their academic excellence.

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Appendix A

Standardized Measures Used by Proportional and Nonproportional Divisions

Ethnicity	Standardized Measures	Fraction (Percents)			
		Proportional		Nonproportional	
American Indian					
	Gifted Behaviors Rating Scales	1/4	(25%)	5/128	(4%)
	Woodcock Johnson	1/4	(25%)	2/128	(2%)
	OLSAT	2/4	(50%)	70/128	(55%)
	COGAT	2/4	(50%)	26/128	(20%)
	WISC III	1/4	(25%)	14/128	(11%)
	NNAT	3/4	(75%)	50/128	(39%)
	Raven's	1/4	(25%)	18/128	(14%)
	SAT	1/4	(25%)	4/128	(3%)
	PIAT-R	1/4	(25%)	6/128	(5%)
	Stanford 10	2/4	(50%)	68/128	(53%)
	SOL	2/4	(50%)	32/128	(25%)
	CAT	1/4	(25%)	3/128	(2%)
	ITBS	1/4	(25%)	8/128	(6%)
	Social, economic, cultural disadvantage	1/4	(25%)	4/128	(3%)
	PSAT	1/4	(25%)	6/128	(5%)
	Progress report card	2/4	(50%)	3/128	(2%)
	Limited English proficiency	1/4	(25%)	2/128	(2%)
	Portfolios	1/4	(25%)	5/128	(4%)
	Advanced placement	1/4	(25%)	0	
	Writing component	1/4	(25%)	1/128	(1%)

Standardized Measures Used by Proportional and Nonproportional Divisions

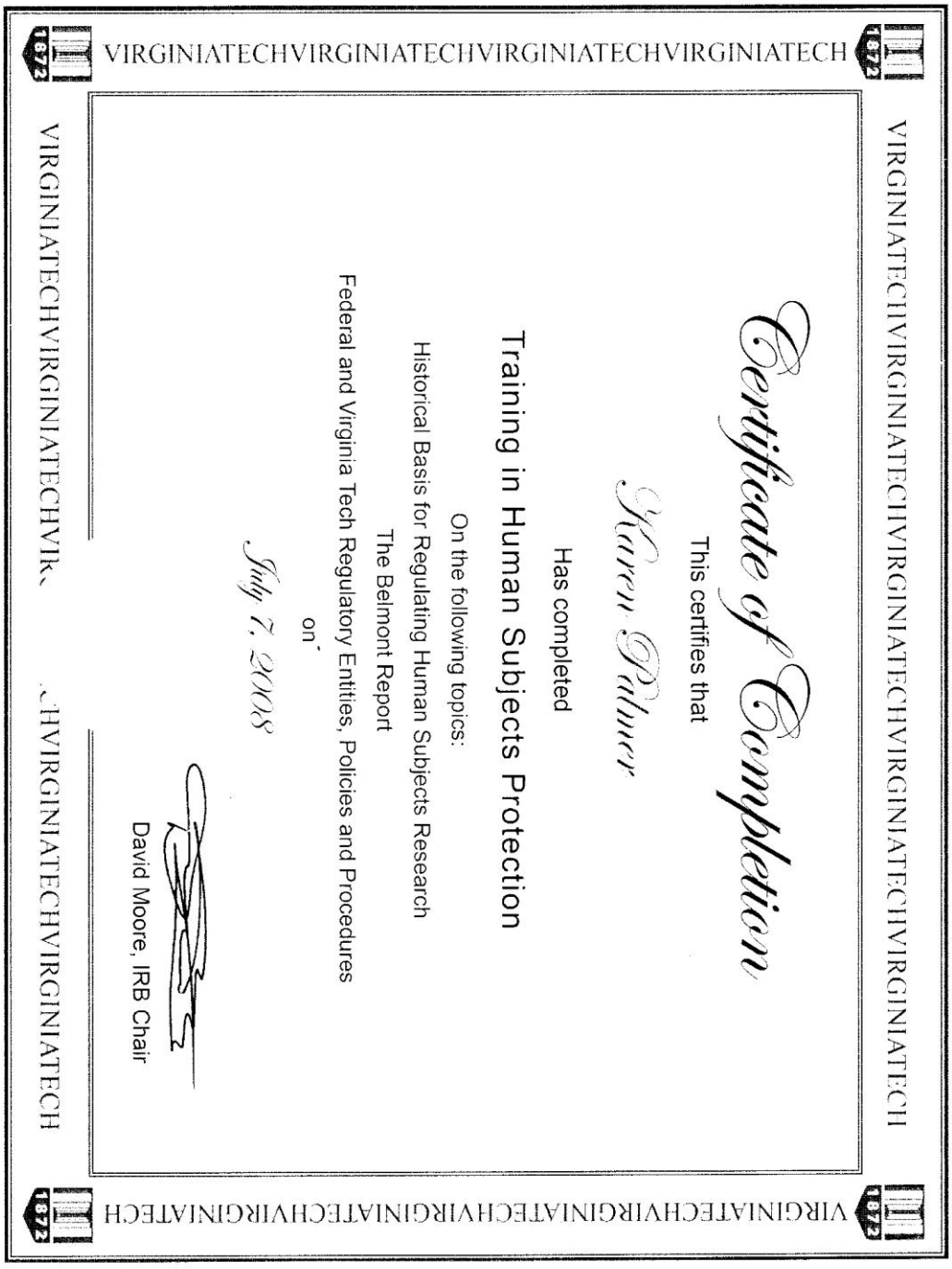
Ethnicity	Standardized Measures	Fraction (Percents)			
		Proportional		Nonproportional	
Hispanic					
	KOI	1/6	(17%)	8/126	(6%)
	GIA	1/6	(17%)	1/126	(1%)
	GSA	1/6	(17%)	0	
	Documentation	1/6	(17%)	2/126	(2%)
	Gifted Behaviors Rating Scales	1/6	(17%)	5/126	(4%)
	SIGS	1/6	(17%)	11/126	(9%)
	Renzulli	2/6	(33%)	20/126	(16%)
	Parent checklist	1/6	(17%)	5/126	(4%)
	OLSAT	4/6	(67%)	67/126	(53%)
	COGAT	1/6	(17%)	27/126	(21%)
	NNAT	5/6	(83%)	47/126	(37%)
	Raven's	1/6	(17%)	18/126	(14%)
	PSAT	1/6	(17%)	6/126	(5%)
	SAT	1/6	(17%)	4/126	(3%)
	SAGES P	1/6	(17%)	4/126	(3%)
	Orleans-Hanna Algebra	1/6	(17%)	1/126	(1%)
	PIAT-R	1/6	(17%)	6/126	(5%)
	WRAT-3	1/6	(17%)	2/126	(2%)
	Stanford 10	2/6	(33%)	67/126	(53%)
	SOL	2/6	(33%)	31/126	(25%)
	Key Math	1/6	(17%)	0	
	ITBS	1/6	(17%)	8/126	(6%)
	TerraNova	1/6	(17%)	3/126	(2%)
Black					
	KOI	4/8	(25%)	8/124	(6%)
	Renzulli	1/8	(13%)	21/124	(17%)

Standardized Measures Used by Proportional and Nonproportional Divisions

Ethnicity	Standardized Measures	Fraction (Percents) Proportional		Nonproportional	
	OLSAT	6/8	(75%)	66/124	(53%)
	TCS	2/8	(25%)	3/124	(2%)
	WISC III	3/8	(38%)	12/124	(10%)
	WISC IV	4/8	(25%)	26/124	(21%)
	UNIT	1/8	(13%)	4/124	(3%)
	NNAT	3/8	(38%)	49/124	(40%)
	Raven's	1/8	(13%)	18/124	(15%)
	KBIT	1/8	(13%)	24/124	(19%)
	PIAT-R	1/8	(13%)	6/124	(5%)
	WRAT-3	1/8	(13%)	2/124	(2%)
	SAGES-2	3/8	(38%)	23/124	(19%)
	Stanford 10	4/8	(50%)	65/124	(52%)
	SOL	2/8	(25%)	32/124	(26%)
	Woodcock Johnson III	1/8	(13%)	26/124	(21%)
	WIAT	1/8	(13%)	9/124	(7%)
	MAT 8	1/8	(13%)	11/124	(9%)
	ITBS	1/8	(13%)	8/124	(6%)
	Basic achievement skills	1/8	(13%)	0	(%)
	PALS	2/8	(25%)	10/124	(8%)
	Benchmark	1/8	(13%)	0	(%)
Hawaiian					
	OLSAT	1/1	(100%)	71/131	(54%)
	NNAT	1/1	(100%)	51/131	(39%)
	SAT	1/1	(100%)	4/131	(3%)
	Stanford 10	1/1	(100%)	68/131	(52%)
	PSAT	1/1	(100%)	6/131	(5%)
	Portfolios	1/1	(100%)	5/131	(4%)
	Writing component	1/1	(100%)	1/131	(.7%)

Note. SIGS = Scales for Identifying Gifted Students; COGAT = Cognitive Abilities Test; WISC III = Wechsler Intelligence Scale for Children, 3rd. ed.; WISC IV = Wechsler Intelligence Scale for Children, 4th. ed.; UNIT = Universal Nonverbal Intelligence Test; WAIS R = Wechsler Adult Intelligence Scale - Revised; TONI = Test of Nonverbal Intelligence; SAGES P = Screening Assessment for Gifted Elementary Students-Primary; SAT = Scholastic Aptitude Test; MAT 8 = Metropolitan Achievement Test, 8th. ed.; CAT = California Achievement Tests; PSAT = Preliminary Scholastic Aptitude Test; GIA = General Intelligence Test; GSA = Governor School for the Arts auditions; WRAT-3 = Wide Range Achievement Test, 3rd ed.; PALS = Phonological Awareness and Literacy Screening; WIAT = Wechsler Individual Achievement Test; TCS = Test of Cognitive Skills; KBIT = Kaufman Brief Intelligence Test.

Appendix B


VIRGINIATECHVIRGINIATECHVIRGINIATECHVIRGINIATECH
Certificate of Completion
This certifies that
Karen Palmer
Has completed
Training in Human Subjects Protection
On the following topics:
Historical Basis for Regulating Human Subjects Research
The Belmont Report
Federal and Virginia Tech Regulatory Entities, Policies and Procedures
on
July 7, 2008
David Moore, IRB Chair
VIRGINIATECHVIRGINIATECHVIRGINIATECHVIRGINIATECH

Appendix C

VirginiaTech

Office of Research Compliance
Carmen T. Green, IRB Administrator
2000 Kraft Drive, Suite 2000 (0497)
Blacksburg, Virginia 24061
540/231-4358 Fax 540/231-0959
e-mail ctgreen@vt.edu
www.irb.vt.edu

DATE: January 6, 2009

MEMORANDUM

TO: Carol Cash
Karen Palmer

FROM: Carmen Green

SUBJECT: **IRB Exempt Approval:** "A Comparison of Criteria Used in Gifted Identification in the Commonwealth of Virginia" , IRB # 08-783

I have reviewed your request to the IRB for exemption for the above referenced project. The research falls within the exempt status. Approval is granted effective as of January 6, 2009.

As an investigator of human subjects, your responsibilities include the following:

1. Report promptly proposed changes in the research protocol. The proposed changes must not be initiated without IRB review and approval, except where necessary to eliminate apparent immediate hazards to the subjects.

2. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

cc: File