



suggestions regarding the implementation and development of gifted education programs. Additionally, a study of current literature and practice from the field of gifted education informed the process.

The 2007 proposed regulations included:

1. Additions to and revisions of definitions for critical terms;
2. Realignment of aspects of the screening, referral, identification, and placement components of the 1993 regulations;
3. Addition of parental rights, notification, consent, and appeals information;
4. Revision of components of the local plan for the education of the gifted;
5. Revision of the role and function of the local advisory committee for the education of the gifted to comply with Section 22.1-18.1 of the *Code of Virginia*; and
6. Addition of annual report expectations to comply with Section 22.1-18.1 of the *Code of Virginia*.

A public comment period on the proposed *Regulations Governing Educational Services for Gifted Students* was conducted from June 23 – September 26, 2008. The Department of Education received 815 comments, which reflected 37 speakers at the public hearings, 46 e-mailed comments, 44 letters, and 688 Town Hall submissions. Comments from these stakeholders were incorporated into the *Regulations* that were approved for final review by the Virginia Board of Education on March 26, 2009.

Upon signing the *Regulations*, Governor Kaine directed the Department of Education to initiate a study to analyze disproportionately low representation of minority students in gifted education. The *Regulations* were then posted to the Town Hall on February 1, 2010. During the required 30-day posting to the Town Hall, the *Regulations* were petitioned and suspended pursuant to Section 2.2-4007 of the *Code of Virginia*. As a result of the petition, the *Regulations* were resubmitted to the Town Hall for an additional 30-day comment period, beginning on March 29, 2010, and ending on April 28, 2010. The Department of Education received sixty-three comments on the Town Hall and two e-mails. A summary of public comments from the additional 30-day comment period can be found within the attached Town Hall Final Regulations Agency Background Document (Attachment A). The proposed revised *Regulations Governing Educational Services for Gifted Students* can be found in Attachment B. The disproportionality study conducted by the Regional Educational Laboratory – Appalachia (REL-A) can be found in Appendix C.

### **Summary of Major Elements**

The majority of the comments for the 30-day extended period addressed disproportionate representation of minority and low socioeconomic groups in gifted programs throughout the Commonwealth. In combination with the recommendations of the REL-A disproportionality study and public comment, the following changes are proposed:

8 VAC20-40-60. Local plan, local advisory committee, and annual report:

- School divisions shall provide an operational definition of giftedness that is applicable to their local program for gifted education.
- School divisions shall use information from the review of program effectiveness to develop a statement of program goals and objectives intended to support the achievement of equitable representation of students in gifted education programs.
- School divisions shall provide professional development based on the teacher competencies outlined in 8 VAC20-542-310 related to gifted education.

- The annual review of program effectiveness shall include the review of program procedures toward the achievement of equitable representation of students.

If the Board of Education approves the proposed revised *Regulations Governing Educational Services for Gifted Students* as amended, they will be published in the *Virginia Register*. Following a 15-day adoption period, they will become final. Department of Education staff will then begin to work with school divisions on steps required to revise their local gifted education plans and submit them to the Department for technical review on a scheduled determined by the Department as outlined in the approved regulations.

**Superintendent's Recommendation:**

The Superintendent of Public Instruction recommends that the Board of Education approve the revised proposed changes to the *Regulations Governing Educational Services for Gifted Students* as amended and authorize staff of the Department of Education to proceed with the remaining steps required by the Administrative Process Act.

**Impact on Resources:**

The impact on resources for the revision of these *Regulations* is not expected to be significant.

**Timetable for Further Review/Action:**

The Department of Education will notify school divisions of the changes in the *Regulations* when the *Regulations* become final, pursuant to the requirements of the Administrative Process Act.



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## Final Regulation Agency Background Document

<b>Agency name</b>	Virginia Department of Education
<b>Virginia Administrative Code (VAC) citation</b>	<u>8 VAC20-40-10</u> through <u>8VAC20-40-10-70</u>
<b>Regulation title</b>	Regulations Governing Educational Services for Gifted Students
<b>Action title</b>	Revision of regulations school divisions must meet in their gifted education programs, K - 12
<b>Date this document prepared</b>	May 2010

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 36 (2006) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual*.

### Brief summary

*Please provide a brief summary (no more than 2 short paragraphs) of the proposed new regulation, proposed amendments to the existing regulation, or the regulation proposed to be repealed. Alert the reader to all substantive matters or changes. If applicable, generally describe the existing regulation. Also, please include a brief description of changes to the regulation from publication of the proposed regulation to the final regulation.*

The *Regulations Governing Educational Services for Gifted Students* provide definitions; criteria for screening, referral, and identification of gifted students; delivery of services parameters; and elements of appropriately differentiated curriculum and instruction necessary to meet the learning needs of these students. The regulations also provide requirements for professional development of instructional personnel, the school division's local plan for the education of the gifted, the annual report, and the local advisory committee for the education of the gifted. Additional information is provided about the Department of Education's technical review of local plans for gifted programs and the funding of gifted programs to school divisions through the Appropriation Act.

On March 26, 2009, the proposed *Regulations Governing Educational Services for Gifted Students* were approved by the Virginia Board of Education. Upon signing the *Regulations*, Governor Kaine directed the Department of Education to initiate a study to analyze disproportionately low representation of minority students in gifted education. The *Regulations* were then posted to the Town Hall on February 1, 2010. During the required 30-day posting to the Town Hall, the *Regulations* were petitioned and suspended pursuant to Section 2.2-4007 of the *Code of Virginia*. As a result of the petition, the *Regulations* were resubmitted to the Town Hall for an additional 30-day comment period, beginning on March 29, 2010, and ending on April 28, 2010. The Department of Education received sixty-three comments on the Town Hall and two e-mails. A summary of public comments

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from the additional 30-day comment period can be found within the attached Town Hall Final Regulations Agency Background Document (Attachment A). The proposed revised *Regulations Governing Educational Services for Gifted Students* can be found in Attachment B.

### Statement of final agency action

*Please provide a statement of the final action taken by the agency including (1) the date the action was taken, (2) the name of the agency taking the action, and (3) the title of the regulation.*

The Board of Education adopted proposed revisions to the *Regulations Governing Educational Services for Gifted Students* on March 26, 2009. As a result of a petition pursuant to Section 2.2-4007 of the *Code of Virginia*, the *Regulations* were resubmitted to the Town Hall for an additional 30-day comment period, beginning on March 29, 2010, and ending on April 28, 2010.

### Legal basis

*Please identify the state and/or federal legal authority to promulgate this proposed regulation, including (1) the most relevant law and/or regulation, including Code of Virginia citation and General Assembly chapter numbers, if applicable, and (2) promulgating entity, i.e., agency, board, or person. Describe the legal authority and the extent to which the authority is mandatory or discretionary.*

Section 22.1-16 of the *Code of Virginia* vests the Board of Education with the authority to adopt bylaws for its own government and promulgate such regulations as may be necessary to carry out its powers and duties and the provisions of Title 22.1.

### Purpose

*Please explain the need for the new or amended regulation. Describe the rationale or justification of the proposed regulatory action. Detail the specific reasons it is essential to protect the health, safety or welfare of citizens. Discuss the goals of the proposal and the problems the proposal is intended to solve.*

This action is essential to ensure that gifted students in the Commonwealth are provided with an education that is commensurate with their abilities. The state definitions and provisions found in the *Regulations Governing Educational Services for Gifted Students* establish the basic expectation for school divisions' services for gifted students. These Regulations ensure that school divisions' programs respond appropriately to the learning needs of gifted students and equitable representation of students in the division, including those students with economically disadvantaged backgrounds, those with limited English language proficiency, or those with disabilities. The proposed revised Regulations provide clarification to the definitions and to the program operations in order to assist school divisions in providing educational services to gifted students.

### Substance

*Please identify and explain the new substantive provisions, the substantive changes to existing sections, or both where appropriate. A more detailed discussion is required under the "All changes made in this regulatory action" section.*

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8 VAC20-40-60. Local plan, local advisory committee, and annual report:

1. School divisions shall provide an operational definition of giftedness that is applicable to their local program for gifted education.
2. School divisions shall use information from the review of program effectiveness to develop a statement of program goals and objectives intended to support the achievement of equitable representation of students in gifted education programs.
3. School divisions shall provide professional development based on the teacher competencies outlined in 8 VAC20-542-310 related to gifted education.
4. The annual review of program effectiveness shall include the review of program procedures toward the achievement of equitable representation of students.

### Issues

*Please identify the issues associated with the proposed regulatory action, including:*

- 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions;*
  - 2) the primary advantages and disadvantages to the agency or the Commonwealth; and*
  - 3) other pertinent matters of interest to the regulated community, government officials, and the public.*
- If there are no disadvantages to the public or the Commonwealth, please indicate.*

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The primary advantages of the proposed regulations for the public or the Commonwealth:

1. School divisions shall provide an operational definition of giftedness that is applicable to their local program for gifted education for increased public understanding.
2. School divisions shall use information from the review of program effectiveness to develop a statement of program goals and objectives intended to support the achievement of equitable representation of students in gifted education programs throughout the community.
3. School divisions shall provide professional development based on the teacher competencies outlined in 8 VAC20-542-310 related to gifted education, thereby increasing teacher awareness of effective practices in identifying and serving all eligible gifted students.
4. The annual review of program effectiveness shall include the review of program procedures toward the achievement of equitable representation of students from across the locality.

### Changes made since the proposed stage

*Please describe all changes made to the text of the proposed regulation since the publication of the proposed stage. For the Registrar's office, please put an asterisk next to any substantive changes.*

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The changes are as follows:

Section number	What has changed	Rationale for change
<b>8VAC20-40-60. Local plan, local advisory committee, and annual report.</b>	Change: 1. A statement of philosophy for the gifted education program to . . . 1. A statement of philosophy for the gifted education program <b>and the local operational definition of giftedness for the school division.</b>	Language change requires an operational definition of giftedness for the school division to support identification practices and informational dissemination to the public.
	Change: 2. A statement of the school division's gifted program goals and objectives for identification, delivery of services, curriculum and instruction, professional development, and parent and community involvement to . . . 2. A statement of the school division's gifted program goals and objectives for identification, delivery of services, curriculum and instruction, professional development, <b>equitable representation of students</b> , and parent and community involvement.	Language changed to shift school divisions toward the achievement of equitable representation of students within gifted programs.
	Change: 13. Evidence that school divisions provide professional development based on the competencies specified in 8VAC20-542-310, Gifted education (add-on endorsement), for instructional personnel who deliver services within the gifted education program; and to . . . <b>13. Evidence that school divisions provide professional development based on the teacher competencies outlined in 8VAC20-542-310 related to gifted education; and</b>	Language changed to support professional development of staff within the division who may be involved in the screening, referral, or instruction of students who may be gifted.
	Change: 14. Procedures for the annual review of the effectiveness of the school division's gifted education program, including review of student outcomes and the academic growth of gifted students to . . . 14. Procedures for the annual review of the effectiveness of the school division's gifted education program, including <b>the review of screening, referral, identification, and program procedures toward the achievement of equitable representation of students</b> , the review of student outcomes, and the academic growth of gifted students.	Language changed to shift school divisions toward the achievement of equitable representation of students within gifted programs.

### Public comment

Please summarize all comments received during the public comment period following the publication of the proposed stage, and provide the agency response. If no comment was received, please so indicate.

These comments represent the comments received during the extended 30-day comment period from March 29, 2010 through April 28, 2010.

Issue	Source	Comments	VDOE Response
<b>8VAC20-40-20 Definitions</b>  <i>1 comment</i>	1 Concerned Citizen           <i>(1 comment)</i>	Request: Provide an operational definition of a gifted student to facilitate accurate and uniform demographic data collection of gifted programs between school divisions and the VDOE as required by the Code of Virginia Section 22.1-18.	Language changes are reflected in the <i>Regulations</i> .
<b>8VAC20-40-40. Screening, referral, identification, and placement.</b>  <i>14 comments</i>  Paragraph A	1 Concerned Citizen           <i>(1 comment)</i>	Change: A. Each school division shall establish uniform procedures for screening, to . . . A. Each school division <b>should not</b> establish uniform procedures for screening,	No change.
Paragraph D.3	2 NAACP Members 1 Teacher 4 Concerned Citizens 1 Former Student    <i>(8 comments)</i>	Recommend: Subparagraph D.3 be replaced with specific language that establishes how to weight the criteria relied upon for gifted identification	No change.
	4 Concerned Citizens           <i>(4 comments)</i>	Change: include at least three measures from the following category to: . . . <b>include at least four measures from the following category, one of which should be a nontraditional, non-biased assessment tool.</b>	No change.

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Issue	Source	Comments	VDOE Response
	1 NAACP Member  <i>(1 comment)</i>	Change: include at least three measures from the following category to: . . . <b>include at least four measures from the following category, two of which must be qualitative.</b>	No change.
<b>8VAC20-40-60. Local plan, local advisory committee, and annual report.</b>  <i>1 comment</i>  Paragraph A.13	1 NAACP Member  <i>(1 comment)</i>	Recommend: require divisions to train teachers to identify gifted students from all backgrounds and to promote parent and student engagement in the identification process	Language changes in the <i>Regulations</i> require additional professional development for teachers related to gifted education.
<b>General Remarks</b>	4 NAACP Members 3 Teachers 1 Parent 15 Concerned Citizens 3 Former Students  <i>(26 comments)</i>	Recommend: VDOE must report annually on school divisions with regard to disproportional identification in gifted programs of racial, ethnic, and low-income student populations	Not a regulatory change. VDOE will report the requested data with its other summary reports.
	5 NAACP Members 4 Teachers 1 Parent 17 Concerned Citizens 3 Former Students  <i>(30 comments)</i>	Recommend: If disproportionality exists, regulations should require divisions to revise their policies, procedures, and practices and dedicate resources toward reducing disproportionality	Language changes in the <i>Regulations</i> require that, as part of their annual review of program effectiveness, divisions include a review of program procedures toward the achievement of equitable representation of students.
	4 NAACP Members 3 Teachers 1 Parent 16 Concerned Citizens 3 Former Students  <i>(27 comments)</i>	Recommend: In divisions with significant disproportionality, VDOE shall require school divisions to comply with regulations addressing disproportionality and to report publicly on the revisions to policies, procedures, and practices	Language changes in the <i>Regulations</i> require that school divisions post their local gifted education plans to their public Web site. The VDOE will also provide technical assistance in helping school divisions develop strategies that increase equitable representation of students.
	4 NAACP Members 3 Teachers 1 Parent 16 Concerned Citizens 3 Former Students  <i>(27 comments)</i>	Recommend: divisions should be required to reserve 15% of gifted funds to address any existing disproportionality in gifted programs	While the Appropriation Act does not give the VDOE the authority to require a set-aside of funds to address disproportionality, local funds could be used in this manner.

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Issue	Source	Comments	VDOE Response
	1 Concerned Citizen  <i>(1 comment)</i>	Recommend: gifted education regulations be amended to provide the rules governing the administration of Governor's School programs which are a component of gifted education programs	Governor's Schools operate under the provisions within Section 22.1-26 of the <i>Code of Virginia</i> for a joint school, and their policies and procedures are determined by a joint governing board representing the participating school divisions.
	1 Concerned Citizen  <i>(1 comment)</i>	Recommend: regulations allowing school divisions to include as part of their gifted plan the use of geographical representation in all gifted programs and Governor's Schools	School divisions and joint governing boards of Governor's Schools determine the number of Governor's School slots available to each school division.
	2 Concerned Citizens  <i>(2 comments)</i>	Recommend: require divisions to serve culturally and linguistically gifted students that are represented in their general population	Language changes in the <i>Regulations</i> require school divisions to include in their local plans ways to address equitable distribution of students, including culturally and linguistically diverse students.
	1 NAACP Member 1 Parent 6 Concerned Citizens 1 Former Student  <i>(9 comments)</i>	Revise: regulations to support equitable representation in gifted education programs	Language changes to the <i>Regulations</i> throughout address this comment.
	1 Concerned Citizen  <i>(1 comment)</i>	Recommend: a provision requiring all Governor's School budgetary information be reported on the VDOE database in a manner similar to that of all school division budget information	No specific regulatory change related to gifted education requested.
	2 Concerned Citizens  <i>(2 comments)</i>	Recommend: the Board of Education report, with specificity, in its 'Annual Report on the Conditions and Needs of Public Schools in Virginia' the disproportionate representation of low-income and minority students in gifted education	No specific regulatory change related to gifted education requested.
	1 Concerned Citizen  <i>(1 comment)</i>	Recommend: require VDOE to collect data on school division gifted programs, level of gifted services, Governor's School programs, summer regional programs, and Math/Science Innovation Center programs.	No specific regulatory change related to gifted education requested.

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Issue	Source	Comments	VDOE Response
	1 Concerned Citizen  (1 comment)	Recommend: require divisions to annually report demographic data on service options provided to gifted students	No specific regulatory change related to gifted education requested.
	4 Concerned Citizens  (4 comments)	Recommend: require divisions to report specific procedures utilized to ensure equitable access to local, regional, and state gifted services	No specific regulatory change related to gifted education requested.
	1 NAACP Member  (1 comment)	Encourage Governor McDonnell and his administration to rectify statistically proven disparities in gifted education policies and programs in Virginia	No specific regulatory change requested.
	1 NAACP Member  (1 comment)	The Virginia Board of Education's second objective is to eliminate the achievement gap . . . there are too few low-income and minority students in gifted education	No specific regulatory change requested.
	2 Concerned Citizens  (2 comments)	Minority students have always been under represented in school divisions that are predominately Caucasian	No specific regulatory change requested.
	3 NAACP Members 1 Teacher 15 Concerned Citizens 4 Former Students (23 comments)	General statement of the ethnic percentages of gifted students in particular school divisions	No specific regulatory change requested.

### All changes made in this regulatory action

*Please detail all changes that are being proposed and the consequences of the proposed changes. Detail new provisions and/or all changes to existing sections.*

Current section number	Current requirement	Proposed change and rationale
8VAC20-40-60. Local plan.	1. A statement of philosophy;	1. A statement of philosophy for the gifted education program and the local operational definition of giftedness for the school division. The proposed revision provides for an operational definition of giftedness at the division level.

Current section number	Current requirement	Proposed change and rationale
8VAC20-40-60. Local plan.	2. A statement of program goals and objectives;	2. A statement of the school division's gifted program goals and objectives for identification, delivery of services, curriculum and instruction, professional development, equitable representation of students, and parent and community involvement. The proposed revision changed to support the achievement of equitable representation of students within gifted programs.
8VAC20-40-60. Local plan.	13. Other information as required by the Department of Education.	13. Evidence that school divisions provide professional development based on the teacher competencies outlined in 8VAC20-542-310 related to gifted education; and The proposed revision assures that school divisions provide professional development based on competencies specified in 8VAC20-542-310 related to gifted education.
8VAC20-40-60. Local plan.	No current requirement.	14. Procedures for the annual review of the effectiveness of the school division's gifted education program, including the review of screening, referral, identification, and program procedures toward the achievement of equitable representation of students, the review of student outcomes, and the academic growth of gifted students. Such review shall be based on multiple criteria and shall include multiple sources of information. The proposed new language assures that school divisions review annually the effectiveness of the school division's gifted education program based on multiple criteria and sources of information.

### Regulatory flexibility analysis

*Please describe the agency's analysis of alternative regulatory methods, consistent with health, safety, environmental, and economic welfare, that will accomplish the objectives of applicable law while minimizing the adverse impact on small business. Alternative regulatory methods include, at a minimum: 1) the establishment of less stringent compliance or reporting requirements; 2) the establishment of less stringent schedules or deadlines for compliance or reporting requirements; 3) the consolidation or simplification of compliance or reporting requirements; 4) the establishment of performance standards for small businesses to replace design or operational standards required in the proposed regulation; and 5) the exemption of small businesses from all or any part of the requirements contained in the proposed regulation.*

The current *Regulations Governing Educational Services for Gifted Students* do not impact small businesses; consequently, these revisions do not change the effect on small business.

### Family impact

*Please assess the impact of the proposed regulatory action on the institution of the family and family stability including to what extent the regulatory action will: 1) strengthen or erode the authority and rights of parents in the*

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*education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one's spouse, and one's children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.*

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The primary advantages of the proposed revised regulations for families may include:

1. Greater access to gifted services for all students;
2. Increased access to academic challenges; accelerated coursework; and entry into college-level opportunities for growth;
3. Increased earning power associated with the acquisition of educational advancement; and
4. Increased direct responsibility for the local school division and local advisory committee in the development, review, and approval of the comprehensive local plan for the education of the gifted.

8VAC20  
CHAPTER 40

REGULATIONS GOVERNING EDUCATIONAL SERVICES FOR GIFTED STUDENTS

8VAC20-40-10

8VAC20-40-10. Applicability.

This chapter shall apply to all local school divisions in the Commonwealth, regarding their gifted education services for students from kindergarten through twelfth grade.

Statutory Authority

§22.1-16 of the Code of Virginia.

Historical Notes

Derived from VR270-01-0002 §1.1, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995.

8VAC20-40-20

8VAC20-40-20. Definitions.

The words and terms when used in this chapter shall have the following meanings, unless the context clearly indicates otherwise:

"Appropriately differentiated curriculum and instruction" means curriculum and instruction adapted or modified to accommodate the accelerated learning aptitudes of identified students in their areas of strength. Such curriculum and instructional strategies provide accelerated and enrichment opportunities that recognize gifted students' needs for (i) advanced content and pacing of instruction; (ii) original research or production; (iii) problem finding and solving; (iv) higher level thinking that leads to the generation of products; and (v) a focus on issues, themes, and ideas within and across areas of study.

Such curriculum and instruction are offered continuously and sequentially to support the achievement of student outcomes, and provide support necessary for these students to work at increasing levels of complexity that differ significantly from those of their age-level peers.

"Eligible student" means a student who has been identified as gifted by the identification and placement committee for the school division's gifted education program.

"Gifted students" means those students in public elementary, middle, and secondary schools beginning with kindergarten through twelfth grade who demonstrate high levels of accomplishment or who show the potential for higher levels of accomplishment when compared to others of the same age, experience, or environment. Their aptitudes 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 aptitudes in one or more of the following areas:

1. General intellectual aptitude. Such students demonstrate or have the potential to demonstrate superior reasoning; persistent intellectual curiosity; advanced use of language; exceptional problem solving; rapid acquisition and mastery of facts, concepts, and principles; and creative and imaginative expression across a broad range of intellectual disciplines beyond their age-level peers.
2. Specific academic aptitude. Such students demonstrate or have the potential to demonstrate superior reasoning; persistent intellectual curiosity; advanced use of language; exceptional problem solving; rapid acquisition and mastery of facts, concepts, and principles; and creative and imaginative expression beyond their age-level peers in selected academic areas. Specific academic areas include English, history and social science, mathematics, or science.
3. Career and technical aptitude. Such students demonstrate or have the potential to demonstrate superior reasoning; persistent technical curiosity; advanced use of technical language; exceptional problem solving; rapid acquisition and mastery of facts, concepts, and principles; and creative and imaginative expression beyond their age-level peers in career and technical fields.

4. Visual or performing arts aptitude. Such students demonstrate or have the potential to demonstrate superior creative reasoning and imaginative expression; persistent artistic curiosity; and advanced acquisition and mastery of techniques, perspectives, concepts, and principles beyond their age-level peers in visual or performing arts.

"Identification" means the multistaged process of finding students who are eligible for service options offered through the division's gifted education program. The identification process begins with a divisionwide screening component that is followed by a referral component, and that concludes with the determination of eligibility by the school division's identification and placement committee(s). The identification process includes the review of valid and reliable student data based on criteria established and applied consistently by the school division. The process shall include the review of information or data from multiple sources to determine whether a student's aptitudes and learning needs are most appropriately served through the school division's gifted education program.

"Identification and placement committee" means the building-level or division-level committee that shall determine a student's eligibility for the division's gifted education program, based on the student's assessed aptitude and learning needs. The identification and placement committee shall determine which of the school division's service options are appropriate for meeting the learning needs of the eligible student.

"Learning needs of gifted students" means gifted students' needs for advanced and complex content that is paced and sequenced to respond to their persistent intellectual, artistic, or technical curiosity; exceptional problem-solving abilities; rapid acquisition and mastery of information; conceptual thinking processes; and imaginative expression across a broad range of disciplines.

"Placement" means the determination of the appropriate educational options for each eligible student.

"Referral" means the formal and direct process that parents or legal guardians, teachers, professionals, students, peers, self, or others use to request that a kindergarten through twelfth-grade student be assessed for gifted education program services.

"Screening" means the annual process of creating a pool for candidates from kindergarten through twelfth grade using multiple criteria through the referral process, the review of current assessment data, or other information from other sources. Screening is the active search for students who are then referred for the formal identification process.

"Service options" means the instructional approaches, settings, and staffing selected for the delivery of appropriate service or services provided to eligible students based on their assessed needs in their areas of strength.

"Student outcomes" means the advanced achievement and performance expectations established for each gifted student, through the review of the student's assessed learning needs and the goals of the program of study, that are reviewed and reported to parents or legal guardians.

#### Statutory Authority

§22.1-16 of the Code of Virginia.

#### Historical Notes

Derived from VR270-01-0002 §1.2, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995.

8VAC20-40-30

8VAC20-40-30. (Repealed.)

#### Historical Notes

Derived from VR270-01-0002 §2.1, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995; repealed, Volume 24, Issue 21, 2008.

8VAC20-40-40

8VAC20-40-40. Screening, referral, identification, and service.

A. Each school division shall establish uniform procedures for screening, referring, identifying, and serving students in kindergarten through twelfth grade who are gifted in general intellectual or specific

academic aptitude. If the school division elects to identify students in general intellectual aptitude, it shall provide service options from kindergarten through twelfth grade. Identification in a specific academic aptitude area may occur as assessment instruments exist to support identification. If the school division elects to identify students in one or more selected academic aptitude areas, it shall provide service options through twelfth grade. School divisions may identify and serve gifted students in career and technical aptitude or visual or performing arts aptitude, or both, at their discretion.

B. These uniform procedures shall include a screening process that requires instructional personnel to review, at a minimum, current assessment data on each kindergarten through twelfth-grade student annually. Some data used in the screening process may be incorporated into multiple criteria reviewed by the designated identification and placement committee to determine eligibility, but those data shall not replace norm-referenced aptitude test data.

C. These uniform procedures shall permit referrals from parents or legal guardians, teachers, professionals, students, peers, self, or others. Such referrals shall be accepted for kindergarten through twelfth-grade students.

D. An identification and placement committee shall review pertinent information, records, and other performance evidence for referred students. The committee shall consider input from a professional who knows the child. The committee shall include classroom teachers, assessment specialists, gifted program staff, school administrators, or others with credentials or experience in gifted education. The committee shall (i) review data from multiple sources selected and used consistently within the division to assess students' aptitudes in the areas of giftedness the school division serves, (ii) determine whether a student is eligible for the division's services, and (iii) determine which of the school division's service options match the learning needs of the eligible student. The committee may review valid and reliable data administered by another division for a transfer student who has been identified previously.

1. Identification of students for the gifted education program shall be based on multiple criteria established by the school division and designed to seek out those students with superior aptitudes, including students for whom accurate identification may be affected because they are economically

disadvantaged, have limited English proficiency, or have a disability. Data shall include scores from valid and reliable instruments that assess students' potential for advanced achievement, as well as instruments that assess demonstrated advanced skills, conceptual knowledge, and problem-solving aptitudes.

2. Valid and reliable data for each referred student shall be examined by the building-level or division-level identification and placement committee. The committee shall determine the eligibility of each referred student for the school division's gifted education services. Students who are found eligible by the identification and placement committee shall be offered service options with appropriately differentiated curriculum and instruction by the school division.

3. The identification process used by each school division must ensure that no single criterion is used to determine a student's eligibility. The identification process shall include at least three measures from the following categories:

- a. Assessment of appropriate student products, performance, or portfolio;
- b. Record of observation of in-classroom behavior;
- c. Appropriate rating scales, checklists, or questionnaires;
- d. Individual interview;
- e. Individually administered or group-administered, nationally norm-referenced aptitude and/or achievement tests;
- f. Record of previous accomplishments (such as awards, honors, grades, etc.); or
- g. Additional valid and reliable measures or procedures.

4. If a program is designed to address general intellectual aptitude, an individually administered or group-administered, nationally norm-referenced aptitude test shall be included as one of the three measures used in the school division's identification procedure.

5. If a program is designed to address specific academic aptitude, an individually administered or group-administered, nationally norm-referenced aptitude or achievement test shall be included as one of the three measures used in the school division's identification procedures.

6. If a program is designed to address either the visual or performing arts or career and technical aptitude, a portfolio or other performance assessment measure in the specific aptitude area shall be included as part of the data reviewed by the identification and placement committee.

E. Within 90 instructional days, beginning with the receipt of a parent's or legal guardian's consent for assessment, the identification and placement committee shall determine the eligibility status of each student referred for the division's gifted education program and notify the parent or guardian of its decision. If a student is identified as gifted and eligible for services, the identification and placement committee shall determine which service options most effectively meet the assessed learning needs of the student. Identified gifted students shall be offered placement in an instructional setting that provides:

1. Appropriately differentiated curriculum and instruction provided by professional instructional personnel trained to work with gifted students; and
2. Monitored and assessed student outcomes that are reported to the parents and legal guardians.

#### Statutory Authority

§22.1-16 of the Code of Virginia.

#### Historical Notes

Derived from VR270-01-0002 §2.2, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995.

8VAC20-40-50

8VAC20-40-50. (Repealed.)

#### Historical Notes

Derived from VR270-01-0002 §2.3, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995.

8VAC20-40-55

8VAC20-40-55. Parental rights for notification, consent, and appeal.

A. School divisions shall provide written notification to and seek written consent from parents and legal guardians to:

1. Conduct any required assessment to determine a referred student's eligibility for the school division's gifted education program;
2. Announce the decision of the identification and placement committee regarding a referred student's eligibility for and placement in the school division's gifted education program; and
3. Provide services for an identified gifted student in the school division's gifted education program.

B. Each school division shall adopt a review procedure for students whose cases are appealed. This procedure shall involve a committee, the majority of whose members did not serve on the initial identification and placement committee, and shall inform parents or legal guardians, in writing, of the appeal process. Requests filed by parents or legal guardians to appeal any action of the identification and placement committee shall be filed within 10 instructional days of receipt of notification of the action by the division. The process shall include an opportunity to meet with an administrator to discuss the decision.

1. A parent or legal guardian of a student who was referred but not identified by the identification and placement committee as eligible for services in the school division's gifted education program shall be informed, in writing, within 10 instructional days after receipt of the appeal, of the school division's process to appeal the committee's decision.

2. A parent or legal guardian of an identified gifted student may appeal any action taken by the school division to change the student's identification for, placement in, or exit from the school division's gifted education program.

C. Following the notification and consent of a parent or legal guardian, the identification and placement committee shall apprise school administrators of each student's eligibility status.

Statutory Authority

§22.1-16 of the Code of Virginia.

Historical Notes

Derived from VR270-01-0002 §2.2, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995.

8VAC20-40-60

8VAC20-40-60. Local plan, local advisory committee, and annual report.

A. Each school board shall submit a comprehensive plan for the education of gifted students to the Department of Education (DOE) for technical review on a schedule determined by the Department. Each school board shall approve a comprehensive plan for the education of gifted students that includes the components identified in these regulations. The development process for the school division's local plan for the education of the gifted shall include opportunities for public review of the school division's plan. The approved local plan shall be accessible through the school division's Web site and the school division shall ensure that printed copies of the comprehensive plan are available to citizens who do not have online access. The plan shall include the following components:

1. A statement of philosophy for the gifted education program [ and the local operational definition of giftedness for the school division ];
2. A statement of the school division's gifted education program goals and objectives for identification, delivery of services, curriculum and instruction, professional development, [ equitable representation of students, ] and parent and community involvement;
3. Procedures for the early and ongoing screening, referral, identification and placement of gifted students, beginning with kindergarten through twelfth grade in at least a general intellectual aptitude or

a specific academic aptitude program; and, if provided in the school division, procedures for the screening, referral, identification, and placement of gifted students in visual or performing arts or career and technical aptitude programs;

4. A procedure for written notification of parents or legal guardians when additional testing or additional information is required during the identification process and for obtaining permission of parents or legal guardians prior to placement of a gifted student in the appropriate service options;

5. A policy for written notification to parents or legal guardians of identification and placement decisions, including initial changes in placement or exit from the program. Such notice shall include an opportunity for parents or guardians to meet and discuss their concerns with an appropriate administrator and to file an appeal;

6. Assurances that student records are maintained in compliance with applicable state and federal privacy laws and regulations;

7. Assurances that (i) the selected and administered testing and assessment materials have been evaluated by the developers for cultural, racial, and linguistic biases; (ii) identification procedures are constructed so that those procedures may identify high potential or aptitude in any student whose accurate identification may be affected by economic disadvantages, by limited English proficiency, or by disability; (iii) standardized tests and other measures have been validated for the purpose of identifying gifted students; and (iv) instruments are administered and interpreted by trained personnel in conformity with the developer's instructions;

8. Assurances that accommodations or modifications determined by the school division's special education Individual Education Plan (IEP) team, as required for the student to receive a free appropriate public education, shall be incorporated into the student's gifted education services;

9. Assurances that a written copy of the school division's approved local plan for the education of the gifted is available to parents or legal guardians of each referred student, and to others upon request;

10. Evidence that gifted education service options from kindergarten through twelfth grade are offered continuously and sequentially, with instructional time during the school day and week to (i) work with their age-level peers, (ii) work with their intellectual and academic peers, (iii) work independently; and (iv) foster intellectual and academic growth of gifted students. Parents and legal guardians shall receive assessment of each gifted student's academic growth;

11. A description of the school division's program of differentiated curriculum and instruction demonstrating accelerated and advanced content;

12. Policies and procedures that allow access to programs of study and advanced courses at a pace and sequence commensurate with their learning needs;

13. Evidence that school divisions provide professional development based on the [ teacher ] competencies [ specified outlined ] in 8VAC20-542-310 [ ~~, Gifted education (add-on endorsement), for instructional personnel who deliver services within the gifted education program~~ related to gifted education ]; and

14. Procedures for the annual review of the effectiveness of the school division's gifted education program, including [ the review of screening, referral, identification, and program procedures toward the achievement of equitable representation of students, the ] review of student outcomes and the academic growth of gifted students. Such review shall be based on multiple criteria and shall include multiple sources of information.

B. Each school division shall establish a local advisory committee composed of parents, school personnel, and other community members who are appointed by the school board. This committee shall reflect the ethnic and geographical composition of the school division. This committee shall have two responsibilities: (i) to review annually the local plan for the education of gifted students, including revisions, and (ii) to determine the extent to which the plan for the previous year was implemented. The findings of the annual program effectiveness and the recommendations of the advisory committee shall be submitted annually in writing to the division superintendent and the school board.

C. Each school division shall submit an annual report to the Department of Education in a format prescribed by the department.

Statutory Authority

§22.1-16 of the Code of Virginia.

Historical Notes

Derived from VR270-01-0002 §2.4, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995.

8VAC20-40-70

8VAC20-40-70. Funding.

Funds designated by the Virginia General Assembly for the education of gifted students shall be used by school divisions in accordance with the provisions of the Appropriation Act.

Statutory Authority

§§22.1-16 and 22.1-253.13:1 of the Code of Virginia.

Historical Notes

Derived from VR270-01-0002 §2.5, eff. June 25, 1986; amended, Virginia Register Volume 11, Issue 9, eff. February 22, 1995.



**VIRGINIA DEPARTMENT OF EDUCATION**

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**Representation of Racial and Ethnic Students, and  
English Language Learners in Gifted Education in  
Virginia**

MAY 10, 2010

VIRGINIA DEPARTMENT OF EDUCATION

## Executive Summary

Over the past several decades, researchers and advocates have called attention to the overrepresentation of Black, Hispanic, and Native American Indian students in special education and their underrepresentation in gifted education (National Research Council 2002; Borland 2004; Ford 1998; Ford and Harris 1999; Reschly 1988). In 2009, the Virginia Department of Education (VDOE) initiated a study to analyze disproportionately low representation of minority students in gifted education in Virginia. To support the quality and objectivity of study, VDOE requested technical assistance from the Regional Education Laboratory (REL) Appalachia.<sup>1</sup> The study was focused on understanding the representation of racial/ethnic students identified as gifted and the representation of students who are English language learners (i.e., identified as limited English proficient, [LEP]). The analyses were designed to meet three objectives:

1. To identify a measure of group proportionality for the gifted education programs of Virginia school divisions.
2. To describe the distribution of subgroup identification rates across divisions in Virginia using that measure.
3. To explore potential correlations between the distribution of the representation measure and other variables that describe school divisions, and the economic and demographic characteristics of their local communities.

The study addressed these questions using aggregate data from VDOE's statewide longitudinal data system that included the number of students enrolled and number of students identified as gifted by subgroup for each school division in the 2008-2009 school year. The quantitative analyses focused on describing the relative proportion of students identified as gifted in different racial and ethnic groups or are LEP, compared to the proportion of such students in the entire student population in each school division. Exploratory analyses were also conducted to assess the associations between gifted identification and community factors including demographic and socioeconomic factors that are available from the U.S. Census data. The analyses identify school divisions with relatively high and low levels of group representation identified as gifted and associated external factors. The results do not explain the source of disproportionality, evaluate identification practices, or address participation rates in gifted programs.

Following the quantitative analyses, the report briefly summarizes the literature on best practices for identifying gifted students and the alignment of best practices with Virginia's regulations for the education of gifted students.

The findings of the quantitative analyses showed that:

- There was much variation across school divisions in the overall percent of students identified as gifted.

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<sup>1</sup> Researchers from the REL Appalachia worked closely with VDOE to prepare the technical components of this report. Significant proportions of the technical data and associated text in this report are reprinted with permission from the technical assistance memorandum prepared by the REL as part of its work. We thank the REL Appalachia for the technical assistance provided in support of this report under a contract with the U.S. Department of Education's Institute of Education Sciences (IES), Contract ED-06-CO-0021. The content of this report does not necessarily reflect the views or policies of the REL Appalachia, IES, or the U.S. Department of Education, nor does the mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

- Black and Hispanic students were less than proportionally represented among students identified as gifted in every division where data were analyzed.
- White and Asian students were generally more than proportionally represented among students identified as gifted.
- Students identified as LEP were less than proportionally identified to a greater extent than Black or Hispanic students.

The summary of best practices identified the following categories of best practices for identifying students eligible for gifted education:

- Clearly defining giftedness.
- Using data to monitor referral, identification, and retention.
- Creating comprehensive processes for student referral or nomination.
- Using multiple assessments to identify giftedness.
- Providing teacher training programs and professional development opportunities that include ways to identify giftedness in students who are culturally and linguistically diverse.

The regulations approved by the Virginia Board of Education in March 2009 (that are not yet in effect) address many of these best practices. However, there remains room for improvement in the regulations in support of increased representation of underserved groups in gifted education. As well, there are ways that VDOE can support school divisions' work to reduce disparities between student representation in gifted education and school population. The following recommendations, if implemented, can support the Commonwealth's work to achieve equitable representation of students in gifted education.

### **Recommendations for further revisions to the Regulations Governing Educational Services for Gifted Students (8VAC20-40-10)**

- The regulations should require school divisions to include in their local plan a clear operational definition of giftedness that is applicable to the local program for gifted education.
- The regulations should require that the goals and objectives of the local plan support the achievement of equitable representation of students in gifted education. The regulations should further require that the goals and objectives take into consideration the results of the evaluation of effectiveness as they relate to the equitable representation of students in gifted education.
- The regulations should require that the findings of the school division's annual evaluation of program effectiveness, prepared by the local advisory board, include indicators of the division's progress towards achieving equitable representation of students served in gifted education programs.
- The regulations adopted in March 2009 should be further revised to require that school divisions provide evidence of professional development for all instructional personnel based in the competencies specified in 8VAC20-542-310, which include gifted behaviors in special populations (i.e., those who are culturally diverse, economically disadvantaged, or physically disabled). This change would extend the requirement from *instructional personnel who deliver services within the gifted education*

*program* to all instructional personnel who may be responsible for identification, referral, and delivery of instructional services of gifted students.

### **Recommendations for additional Technical Assistance from VDOE**

Through technical assistance, VDOE should facilitate the following activities as school divisions strive to achieve equitable representation of students in gifted education:

- Provide information for local advisory committees and school boards that highlights their roles in the development, effectiveness review, and approval of local plans for gifted education, to include information on their role in achieving equitable representation.
- Revise the *Reference Guide for the Development and Evaluation of Local Plans for the Education of the Gifted* to reflect changes in the regulations, including changes that were developed to support the achievement of equitable representation of students in gifted education.
- Provide school divisions with increased access to data related to gifted students and guidance to support school divisions' work to analyze data and determine the extent to which gifted education programs are achieving equitable representation.
- Revise the *Virginia Plan for the Gifted* to support the public's understanding of Virginia's regulations for the education of gifted students.
- As part of VDOE's technical review of local plans developed under the final revised regulations, provide feedback on the quality of local methods of identification and referral as they relate to achieving equitable representation of students served in gifted education.
- Post on its Web site, division-level disaggregated data related to the participation of students in Virginia's gifted education programs.

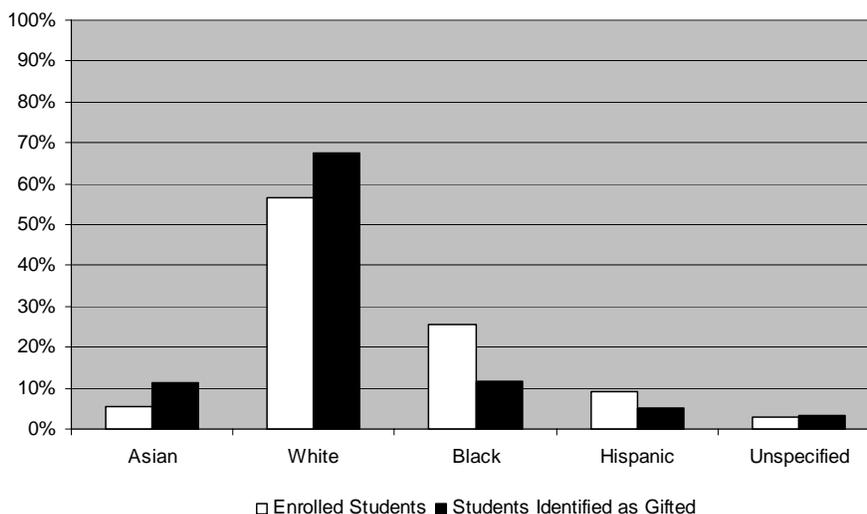
The remainder of this report describes the results in more detail and reviews the literature on best practices in identifying gifted students as they relate to Virginia's regulations for gifted education.

## Introduction

In the 2008-2009 school year, 15 percent of all students enrolled in K–12 public schools in Virginia were identified as gifted.<sup>2</sup> In order to examine differences in gifted identification across racial/ethnic subgroups, the proportion of students from each subgroup in overall enrollments was compared to the proportion of students from each subgroup identified as gifted. In the 2008-2009 school year, 6 percent of all students enrolled were Asian, 57 percent were White, 26 percent were Black, and 9 percent were Hispanic; whereas, 11 percent of students identified as gifted were Asian, 68 percent were White, 12 percent were Black, and 5 percent were Hispanic (see figure 1).

The differences in the makeup of students enrolled in public schools compared to the percent identified as gifted indicates that White and Asian students are more than proportionally represented and Black and Hispanic students are less than proportionally represented.

Figure 1. Racial/ethnic composition of students enrolled and students identified as gifted in Virginia public schools in 2008-2009



The aggregate numbers shown in figure 1 can mask substantial variation across divisions. The *Virginia Regulations Governing Educational Services for Gifted Children* (8VAC20-40) allow divisions flexibility in identifying students as gifted.<sup>3</sup> Divisions across Virginia vary in size, demographic composition, as well as wealth. These differences can lead to important variation in identification rates across divisions. On average, the percent of students identified as gifted in a division was 10, but divisions ranged from 1 to 39 percent in identification rates. Divisions classified as cities or suburbs tended to identify greater percentages of students as gifted compared with divisions classified as rural or towns. Additionally, there was a positive association between the percent of

<sup>2</sup> Students are identified as gifted based on data VDOE collected in the Student Record Collection in the 2008-2009 year. The gifted flag is “a code that identifies the area of giftedness for a student placed in a gifted program or that the student was referred to and found eligible for the gifted program.”

<sup>3</sup> The revised regulations are scheduled to go into effect in the latter half of 2010. Under the revised regulations, divisions will have flexibility in identification, but must establish uniform procedures for screening, referring, identifying, and serving students in grades kindergarten through twelfth grade who are gifted in general intellectual or specific academic aptitude.

adults with a college education or more in a division and the percent of students identified as gifted. As a result of these differences, one might expect a wide range on the proportional identification as gifted across divisions.

### Data

The analyses were conducted on data that were aggregated to the school division level on the number of students enrolled in K–12 public schools in Virginia by race/ethnicity; the number of economically disadvantaged students; the number of LEP students; and the number of students identified as gifted by race/ethnicity, economically disadvantaged status, and LEP status.

Division-level data were combined with U.S. Census data on regional, demographic, and economic variables characterizing the corresponding cities or counties. These variables included:

- Type of region (city, suburb, town, rural)
- Percent of adults with a college education or higher
- Percent of population who are elderly
- Percent of population who are children
- Percent of adults who are employed
- Median family income
- Poverty rate.

### Measuring Proportionality

#### Representation Index (RI)

Previous studies have measured the degree of disproportionality in specialized educational programs by calculating a *representation index*<sup>4</sup> (sometimes referred to as a *disparity index*; see, for example, Darity, Castellino, Tyson, et al. 2001, or Kitano and DiJoisa 2002). For a given group and a given education program, the representation index is defined as:

$$RI = \frac{\text{Percentage of students in the program who are members of the given group}}{\text{Group's percentage of total student population}}$$

For a given educational unit, the RI is the ratio of the likelihood that a group member chosen at random is a participant in the specialized program, to the likelihood that a student chosen at random is a member of that group. This calculation produces an index that is between zero and infinity, where a score of 1.00 indicates equal proportionality. Any score above 1 indicates that the group's proportional representation in the program is greater than its proportional representation in overall student enrollment. An RI less than 1 indicates that the group's proportional representation in the program is lower than its proportional representation in total enrollment.

As an example, suppose a school division has 1,000 students, of whom 100 are Black. Suppose further that the division's gifted program has 100 students, 4 of whom are Black. In this example 10 percent of the student body is Black, but Black students make up only 4 percent of the population

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<sup>4</sup> Another measure used by scholars studying disproportionality in special education is the "Risk Ratio." The Risk Ratio is the ratio of the percent of subgroup members identified as gifted (or special needs in the literature) to the percent of non subgroup members identified as gifted. While the Representation Index and the Risk Ratio are slightly different calculations, they lead to substantively similar results.

identified as gifted. The RI for Blacks identified as gifted would be  $RI = (4/100) \div (100/1000) = 0.40$ . This would mean in the example division Black students are 60 percent less likely to be identified as gifted than expected based on their representation in the student body.

As a second example, imagine that same division has 50 Asian students, 10 of whom are identified as gifted. In this case, 5 percent of the student body is Asian, but Asian students make up 10 percent of the population identified as gifted. Based on the RI formula, the RI for Asian students in this school division is 2. An RI of 2 means that in the example division Asian students are 2 times more likely to be identified as gifted than expected based on their representation in the student body.

#### Normalized Representation Index (NRI)

Interpreting scores from the RI may not be intuitively obvious because its scale is bounded by 0 on one side (less than proportional) but unbounded above 1 (more than proportional). For values below 1, the reciprocal must be used if making comparisons to values above 1. For example, 2.0 and -0.5 represent the same degree of difference from proportionality<sup>5</sup>. To make interpretation more intuitively evident, this study used a normalized index so that disproportionality was symmetric above or below the line that represents equivalent proportionality in students identified as gifted compared to student enrollment.

The calculation for the normalized index calculated uses the following formula. Let  $\sigma_{RI}$  refer to the standard deviation of some distribution of RIs. Then the *normalized representation index* (NRI) is defined as:

$$NRI = \frac{RI - 1.00}{\sigma_{RI}}$$

The NRI is the number of standard deviations that a group lies away from equal proportionality (corresponding to an RI of 1.00) within that unit's program<sup>6</sup>. Calculating the NRI generates an index for which 0.00 represents equivalent proportionality between the number of students identified as gifted relative to the total population of students enrolled. A positive NRI (larger than 0) indicates that a group has proportionally more students identified as gifted than the group's proportion of total enrollment; negative NRI (less than 0) indicates that the group has proportionally fewer students identified as gifted than the group's total enrollment. One must use caution when comparing NRIs across subgroups because the standard deviations differ for each subgroup<sup>7</sup>.

To continue the previous example, suppose that across school divisions in the state, the standard deviation of RIs for Blacks is 0.20. Thus the NRI for Blacks in the division described above would be  $(0.40 - 1.00) \div 0.20 = -3.00$ . This means that the proportional identification of Blacks as gifted in this example division is three standard deviations below proportionality for Black students.

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<sup>5</sup> .5 = 1/2 and the reciprocal of 1/2 is 2.

<sup>6</sup> Division-level results from the RI and NRI are provided in appendix D. Because the NRI uses a linear transformation, the results are perfectly correlated. Because they are different calculations, the NRI and RI should not be directly compared.

<sup>7</sup> The standard deviation of the RI was .53 for Asians, .50 for Whites, .19 for Blacks, .19 for Hispanics, and .13 for LEP students.

Continuing with the second example, suppose the standard deviation of RIs for Asians is .5. The NRI would be  $(2.0 - 1.0) \div 0.50 = 2$ , or two standard deviations above proportional identification for Asian students.

In this analysis, NRIs that are greater than zero indicate that the group has a larger percent of students identified as gifted compared to their representation in the divisions' overall student population. NRIs that are below zero indicate that a smaller percent of students are identified as gifted relative to their representation in the divisions' student population; and NRIs of zero indicate that the percent of students identified as gifted is proportional to their representation in the student population. Interpreting the NRI requires relative comparisons, NRIs farther away from zero indicate greater disproportionality than those that are closer to zero. The literature on the subject proffers no threshold that defines high representation indices.

#### Sample Restrictions

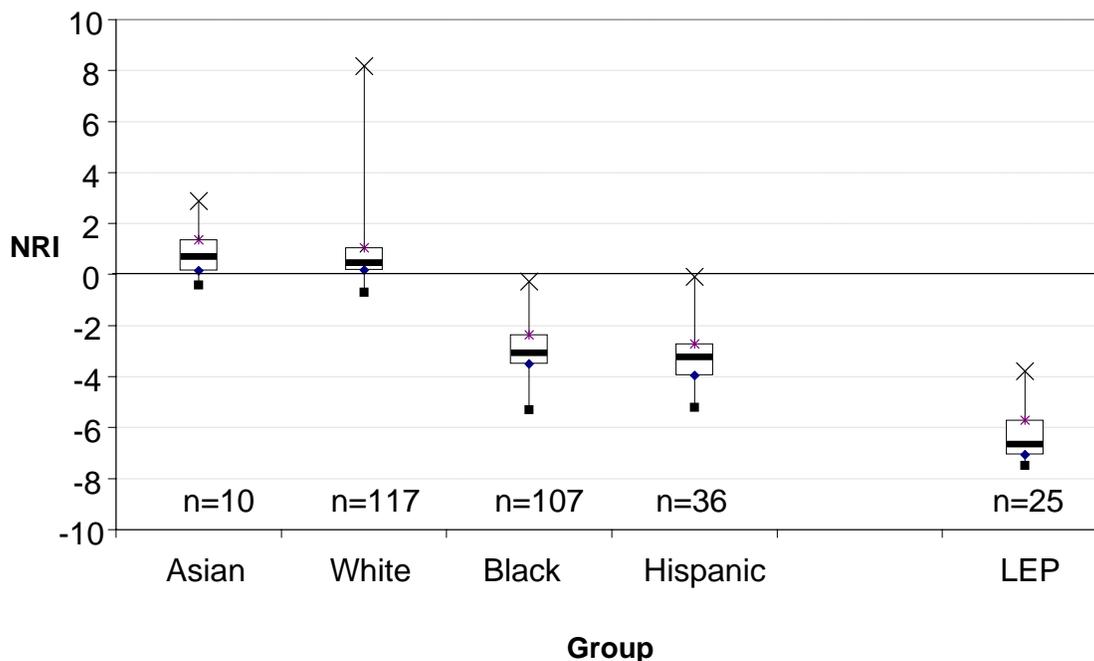
NRIs were calculated at the school division level to obtain a measure of the degree of student groups' disproportionate identification as gifted. The NRI application has limitations when a group's enrollment is relatively small or relatively large. When a group's representation in the division enrollments is small, large swings in NRI can result from relatively small adjustments to that group's participation in gifted programs. Conversely, when a group's proportion of enrolled students approaches 100 percent, that group's proportional representation as identified as gifted must trend toward equal proportionality. Given these limitations, when a group's representation in overall enrollment approaches 0 or 100 percent, the information provided by an NRI about a group's representation in gifted programs can be misleading. To avoid any inappropriate application of the calculation, each subgroup analysis was limited to school divisions in which the group's total enrollment was between 5 percent and 95 percent of the student population.

## **Results**

#### Describing NRI Distributions across Virginia School Divisions

The box-and-whisker plots in figure 2 summarize the distribution of NRIs across Virginia school divisions. In each plot, the lines making up the bottom and top of each box represent the level of the 25th and 75th percentiles of the corresponding NRI distribution, respectively. As a result, half the NRIs for each group lie within their respective boxes. The level of the thick black line inside the box represents the median of each distribution. The other half of the observed NRIs for each group lie outside the box, between the lines extending from the box top and bottom. These "whiskers" display the extremes of the NRI distribution. They end at the maximum and minimum NRIs for each group. The "n's" represent the number of divisions for which an NRI was calculated in accordance with sample restrictions. The line drawn across the graph at zero represents equal representation in the group compared to total enrollment. Observations above the line indicate more than proportional representation; those below the line indicate less than proportional representation.

Figure 2. Variation in gifted identification by racial/ethnic and LEP groups



*Note:* Racial/ethnic groups are mutually exclusive and presented separately from the LEP group, which includes students of all races/ethnicities.

The plots show that Asian and White students are typically more than proportionally represented among students identified as gifted in Virginia. In both cases, more than half of NRIs by division (represented by the top and bottom of the boxes) lie above the “equal proportionality” line at 0.00. The distributions are quite similar for both groups — the majority of Asian and White NRIs lie between 0 and 2 standard deviations away from equal proportionality. The median for Asians (0.70) is similar to that for Whites (0.47), as are the 25th and 75th percentile levels (between 0.16 and 1.37 for Asians, and between 0.17 and 1.06 for Whites) that form the tops and bottoms of the boxes. (See tables in Appendix for values of descriptive statistics.)

Black and Hispanic students, on the other hand, are less than proportionally represented in every division included in the calculation. In both cases the entire distribution lies below the 0.00 “equal proportionality” line. For these groups, the majority of observed NRIs by division lie between 2 and 4 standard deviations below 0. Therefore, Black and Hispanic students have greater disproportionality relative to Asian and White students. The plots also suggest, however, that some outlier school divisions have small degrees of disproportionality among Black and Hispanic students identified as gifted (as represented in the whiskers of the plots that approach the 0 line). In general, the distributions for Black and Hispanic students are similar. The median NRI is -3.07 for Blacks and -3.24 for Hispanics. The 25th and 75th percentiles (-3.50 and -2.37 for Blacks, -3.95 and -2.72 for Hispanics) are also relatively close to each other.

NRIs were also calculated for LEP students. The box plot indicates that LEP students are less than proportionally represented in Virginia gifted programs to a larger degree than Black and Hispanic students. Most observations of LEP NRIs lie between 6 and 8 standard deviations below the 0.00 “equal proportionality” line.

*Relationship between the NRI and Division Level Demographic Variables*

A variety of factors outside the schools may be associated with the probability of students being identified as gifted. To explore some of these associations, exploratory analyses were conducted to determine the associations between the NRI and the following factors: the racial composition of school divisions; the type of locality (city, suburb, town, rural); and other demographic and economic characteristics of these communities. This analysis revealed few significant associations. Key findings from these analyses are included in the summary below. Details of these analyses are presented in Appendices B and C.

**Summary***Racial Composition of School Divisions*

- Asian and White students were typically more than proportionally represented among students identified as gifted in Virginia.
- Black and Hispanic students were less than proportionally represented among students identified as gifted in every division for which NRIs were calculated. In a few school divisions, representation of Black and Hispanic students identified as gifted approaches proportional representation relative to the population as a whole.
- The degree to which Black and Hispanic students were less proportionally identified in divisions was generally greater than the degree to which Asians and Whites were more than proportionally identified as gifted in divisions.
- LEP students were less than proportionally represented among students identified as gifted in all divisions for which NRIs were calculated.
- School divisions that serve high proportions of Black students enrolled have more (but not equally) proportional representation of Black students among those identified as gifted. They also have more disproportional identification of White students as gifted. As well, the degree of less than proportional representation for Hispanic students identified as gifted is higher in these divisions.

*Other Demographic and Economic Characteristics of Communities*

- Some evidence indicated that Black student disproportionality was less in school divisions serving mid-sized cities compared to those serving smaller cities, towns, or rural areas.
- White students more than proportional representation among students identified as gifted tended to be greater in localities where higher percentages of adults have a college education.
- White students more than proportional representation among students identified as gifted tended to be lower in wealthier counties with higher median family incomes.

**Limitations**

With technical assistance from the REL Appalachia, VDOE applied quantitative methods to better understand minority and LEP student representation in gifted education. The analyses were based on data available to VDOE, and designed to describe the degree to which students identified as gifted in Virginia's public school divisions are representative of the school division population as a whole in terms of race/ethnicity, and LEP status. When interpreting and drawing conclusions from the results, the following limitations should be considered:

- The analyses do not address programmatic features of gifted education programs offered in Virginia’s school divisions.
- In Virginia, each division constructs its own operational definition of giftedness from a more broad definition provided in the regulations.<sup>8</sup> Because divisions use different operational definitions to identify students as gifted, comparisons across divisions may be misleading.
- Because data were aggregated to the division level and not by grade, the absolute value of the NRI may be overestimated for some divisions. This is because the numerator of the index includes gifted-identified students in grades 3–12 (for most divisions<sup>9</sup>), but the denominator includes enrolled students in all grades, K–12.<sup>10</sup>
- The data were aggregated to the division level and not by school level (elementary, middle, high). However, criteria for inclusion in the group of students identified as gifted changes across levels. This study did not address whether the results presented may vary by elementary, middle, and high school.
- The NRI is normalized using the standard deviation of the RI for each subgroup. The variance in RIs differs across subgroups and is affected by the number of students in the subgroup. NRIs cannot be compared across subgroups because of the different standard deviations.
- These analyses cannot answer why disproportionality exists or whether divisions should or should not do anything to address disproportionality.
- There is no existing guidance on what constitutes large or small differences from proportional representation, which is represented by an NRI of zero.
- Indices were not calculated and therefore are not presented where the enrollment of a racial or ethnic group was less than five percent or more than 95 percent of the population.

### **Best Practices in Identifying Gifted Students**

Plausible explanations for the disproportionately low representation of Black, Hispanic, and LEP students among all students identified as gifted range from social risk factors to structural inequities in American education, to cultural differences, to selective referral practices and biased tests (Borland, 2004; Frasier, Garcia, & Passow, 1995). Although it is difficult to determine when representation is “fair,” policymakers at the state and division level can help administrators and teachers adopt practices that address racial and ethnic disproportionality.

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<sup>8</sup>The proposed revised Virginia Regulations scheduled to go into effect in the latter half of 2010 define gifted students as “...those students in public elementary, middle, and secondary schools beginning with kindergarten through graduation who demonstrate high levels of accomplishment or who show the potential for higher levels of accomplishment when compared to others of the same age, experience, or environment. Their aptitudes and potential for accomplishment are so outstanding that they require special programs to meet their educational needs.” This broad definition applies to all school divisions within Virginia, but the operationalization of giftedness may differ across divisions.

<sup>9</sup>Gifted identification measures in many divisions do not begin until 2<sup>nd</sup> grade; however, under the regulations scheduled to go into effect in 2010, divisions are to provide gifted service options for grades K-12.

<sup>10</sup>To estimate the extent of this bias, the proportional representation of each racial/ethnic group in grades K–2 was compared to the proportional representation of each racial/ethnic group in grades 3–12. Nine divisions appear to have a growing young Black population and six divisions a growing young Hispanic population. Data used for these estimates are available at:

[http://www.doe.virginia.gov/statistics\\_reports/enrollment/fall\\_membership/2008\\_2009/school\\_summaries\\_ethnicity.xls](http://www.doe.virginia.gov/statistics_reports/enrollment/fall_membership/2008_2009/school_summaries_ethnicity.xls).

Many organizations and researchers have outlined “best practices” for the referral, identification, and retention of culturally and linguistically diverse students in gifted programs (National Research Council 2002; National Association for Gifted Children n.d.a, n.d.b; Council for Exceptional Children n.d.), but evaluative information on the impacts of these practices is sparse. Best practices fall into five categories:

1. Clearly defining giftedness.
2. Using data to monitor referral, identification, and retention.
3. Creating comprehensive processes for student referral or nomination.
4. Using multiple assessments to identify giftedness.
5. Shifting teacher training programs and professional development toward a multicultural paradigm.

The following section of the report provides a review of select literature in relation to the *Virginia Regulations Governing Educational Services for Gifted Children* (8VAC20-40) associated with each of these practices. Unless otherwise stated, all references to Virginia’s regulations refer to those that are expected to go into effect in the latter half of 2010.

#### Clearly defining giftedness

There are numerous definitions and types of giftedness that can be applied in public schools (e.g., general intellectual aptitude, specific intellectual aptitude, talent in visual and performing arts or technical and practical arts). *The Virginia Regulations Governing Educational Services for Gifted Children* define gifted students as those “...whose abilities and potential for accomplishment are so outstanding that they require special educational programs to meet their educational needs...,” allowing flexibility in the local definition. This flexibility, however, also requires that each school division establish a clear operational definition of gifted students, choose identification methods that align with the definition, and offer appropriate supports (Arancibia, Lissa, & Narea, 2008).

The *Virginia Regulations Governing Educational Services for Gifted Children* (8 VAC 20-40-60 A) allow each school division to set its own uniform procedures for screening and identifying gifted students in a comprehensive plan for the education of gifted students that is submitted to the Virginia Department of Education for technical review. If a school division includes specific academic aptitudes as part of its program, the division is required to include procedures to identify students in those areas (such as English, history and social science, mathematics, and science).

In addition, each division in Virginia is required to submit to VDOE a Local Plan for the Education of the Gifted that indicates the areas of giftedness to be served. The Regulations and these sections of the Local Plans are aligned with the guidelines put forth by the National Association for Gifted Children (n.d.a., n.d.b.) and the Council for Exceptional Children (n.d.).

Because of the flexibility afforded Virginia divisions in identification of gifted students, one might expect to see wide variation in the percent of students identified as gifted by division. Regardless, a clear operational definition must be established to ensure alignment between the identification methods, students identified, and services offered.

#### Using data to monitor referral, identification, and retention

To understand where issues related to disproportional representation of student subgroups in gifted

education programs, it is necessary for schools and divisions to collect and analyze data on referral and identification patterns. For example, data collection and analysis can answer the following questions: Are students from different backgrounds referred at similar rates? Does the mode of referral vary by subgroup (e.g., are Black and Hispanic students less likely to be referred by teachers)? After screening, are the rates of identification similar to rates of referral? Are the teachers who make referrals trained in gifted education? Once identified, are retention rates similar across racial/ethnic groups? The answers to these questions can be used to evaluate local gifted programs. For example, if a racial disparity is apparent in the rate of identification but not in the rate of referral, this might prompt closer examination of assessment instruments used for both referral and identification. Likewise, monitoring data on students in gifted programs may highlight issues related to different retention rates across subgroups (Ford, Grantham, & Whiting 2008; Ford 1998).

The *Code of Virginia 22.1-18.1* requires school divisions to report the demographic composition of students referred for gifted services and the demographic composition of those students receiving gifted education services. At the state level, the only data collected are a gifted referral flag<sup>11</sup> and a gifted code<sup>12</sup> in the Student Record Collection (Virginia Department of Education, 2009). Each division maintains its own data and transmits these two fields for each student to the state. The source of referral is not maintained in the state's data system but may be available for analysis at the division level.

Analysis of these data at the local level can reveal if differences in demographic composition exist at each step from referral to identification, but cannot explain the underlying causes of the measured differences. Data that contain more information about students and are more disaggregated can better answer questions about variation in gifted referral and identification. Donovan & Cross (National Research Council 2002) recommend capturing information on student socioeconomic status, generations of immigrants, family structure, and geographic region. By collecting and disaggregating data, divisions can better understand and track the demographic composition of students identified as gifted. If disparities exist, detailed information may provide an explanation and insight for any policy recommendations.

#### *Creating comprehensive processes for student referral or nomination*

Student nomination for gifted services can be automatic (i.e., the result of test scores), or result from parent, teacher, peer, or self-referral. Because nominations can come from a variety of sources, information on the characteristics of gifted students should be disseminated to parents, teachers, counselors, and administrators.

McBee (2006) found that automatic referrals were the most accurate form of referral followed by teacher referral. Across all forms of referral, White and Asian students were more likely to be nominated than Black and Hispanic students. By providing teachers with professional development on recognizing attitudes, behavior, and demeanor of gifted students, teachers can better identify and nominate students (Richert, 1997). Parents also can benefit by understanding the attitudes, behavior, and demeanor of gifted students and the programs and services offered in their school divisions (see also Ford, Grantham, and Whiting 2008 for a review of literature on teacher referral and training to identify culturally and linguistically diverse students as gifted).

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<sup>11</sup> A flag that identifies any student who was referred for possible identification as gifted between July 1 and June 30.

<sup>12</sup> A code that identifies the area of giftedness for a student placed in or referred to a gifted program and found eligible for the gifted program

The Virginia Regulations<sup>13</sup> (8 VAC 20-40-20 and 8 VAC 20-40-40) permit referrals from school personnel, parents, or legal guardians, other persons of related expertise, peer referral, and self-referral of those students believed to be gifted. The Local Plans must describe if and how students are screened; how direct referrals are solicited; who can refer; how appropriate forms are obtained; to whom those forms are returned; timeline for their acceptance; and how information about the referral process is made available to parents of students K–12 and others. Screening and identification can be flexible at the division level, but the plans are reviewed by the state. Additionally, in its annual reports, each school division must note whether referrals were made from all segments of the school community.

By creating a comprehensive process for student referral that includes dissemination of information on characteristics of gifted children to parents, teachers, and school administrators, a wider net may be cast that ensures students who would benefit most from receiving gifted services are nominated for the programs.

*Using multiple assessments to identify giftedness*

Assessments used to identify or place students in gifted programs should be valid, reliable, relevant to program emphasis, and administered and scored by trained evaluators (Lohman 2006a; VanTassel-Baska 2002; Ford, Harris, Tyson, and Trotman 2002; National Association for Gifted Children n.d.a., n.d.b.). Inclusion or exclusion from gifted services should not depend on any one single assessment. Most authorities agree that multiple sources of information, including nonverbal assessments, should be used for identification, but do not agree on the particular assessments to be used. Regardless, the tests should align with the services offered through the gifted program.

Use of nonverbal assessments such as Naglieri Non-Verbal Abilities Test (NNAT) or Raven's Matrix Analogies has been shown to increase the identification of racial and ethnic minorities (Ford, Harris, Tyson, and Trotman 2002), but nonverbal assessments are less reliable than other tests and nonverbal skills correlate less strongly with achievement (Lohman 2006b). Lohman (2006a, 2006b) and Lohman and Renzulli (2007) provide examples of effectively combining ability tests (including nonverbal ability), achievement tests, and teacher ratings of students (such as the Scale for Rating the Behavioral Characteristics of Superior Students) into a two-by-two table to identify gifted students.

Other forms of assessment include rating student portfolios and evaluating student performance. For example, the Performance Tasks assessment in Project STAR identified more low socioeconomic and minority students than traditional measures of Cognitive Ability (CogAT) and achievement. Results focused on later achievement were mixed in follow-up studies. In the Year 1 follow-up, students identified through Performance Tasks performed less well on a statewide achievement test in South Carolina than traditionally identified students, but in the Year 2 follow-up, students identified as gifted through Performance Tasks performed better than the traditionally identified students (VanTassel-Baska and Feng 2004).

The proposed revised Virginia Regulations (8 VAC 20-40-40) reflect current research and require that each division must identify at least three<sup>14</sup> criteria for identification of gifted students in its Local Plan and include names, dates, and versions of tests where appropriate. The categories for identification include:

<sup>13</sup> Both the 1995 version and the proposed revised Regulations.

<sup>14</sup> The Virginia Regulations in effect at the time of this writing require four criteria for identification.

- Assessment of appropriate student products, performance, and/or portfolio;
- Record of observation of in-classroom behavior;
- Appropriate rating scales, checklists, and/or questionnaires;
- Individual interview;
- Individual or group aptitude tests;
- Individual or group achievement tests;
- Records of previous accomplishments (such as awards, honors, grades, etc.); and
- Additional valid and reliable measures or procedures.

If the divisions maintain information on identification criteria, in-depth analysis can be conducted on the relationship between demographic characteristics, the source of referral, mode of identification, and later outcomes. Multiple criteria for identification provide divisions with flexibility and also allow comprehensive evaluation of students so that students who would most benefit from gifted programs are identified.

*Shifting teacher training programs and professional development toward a multicultural paradigm*

Cutting across issues relating to referrals and assessments is the shift toward a multicultural paradigm in teacher training programs and professional development (Ford, Grantham, & Whiting 2008; Ford, Harris, Tyson, and Trotman 2002). By understanding the background and culture of racial/ethnic and language minority students, Ford and her colleagues argue that teachers are better able to support all students and recognize the gifts and talents across a range of behaviors and settings. Although the impact of multicultural education has not been systematically evaluated, multicultural education in teacher training programs is encouraged to ensure teachers understand and provide for the needs of all students. Furthermore, general education teachers should be trained in meeting the needs of all students while providing a rigorous and challenging curriculum (Coleman & Harrison 1997). Complementing multicultural education is differentiated instruction. Through differentiation, teachers work to maximize the improvement in achievement of all students.

In Virginia, the proposed revised Regulations (8 VAC 20-40-60) scheduled to go into effect in the latter part of 2010 stipulate that each division "...provide professional development based on the competencies specified in 8VAC20-542-310 . . . ." This change increases the training required of all teachers of gifted students.

### **Summary and Recommendations**

The findings of the quantitative analyses showed that children across Virginia are not proportionally represented in gifted education programs relative to their representation in school division populations. Specifically, the analysis showed that:

- There was much variation across school divisions in the overall percent of students identified as gifted.
- Black and Hispanic students were less than proportionally represented among students identified as gifted in every division where data were analyzed.
- White and Asian students were generally more than proportionally represented among students identified as gifted.

- Students identified as LEP were less than proportionally identified to a greater extent than Black or Hispanic students.

The summary of best practices identified the following categories of best practices for identifying students eligible for gifted education:

- Clearly defining giftedness.
- Using data to monitor referral, identification, and retention.
- Creating comprehensive processes for student referral or nomination.
- Using multiple assessments to identify giftedness.
- Providing teacher training programs and professional development opportunities that include ways to identify giftedness in students who are culturally and linguistically diverse.

The regulations adopted by the Board of Education in March 2009 address many of these best practices. However, there remains room for improvement in the regulations in support of increased representation of underserved groups in gifted education. As well, there are ways that VDOE can support school divisions' work to reduce disparities between student representation in gifted education and school population. The following recommendations, if implemented, can support the Commonwealth's work to achieve equitable representation of students in gifted education.

#### **Recommendations for further revisions to the Regulations Governing Educational Services for Gifted Students (8VAC20-40-10)**

- The regulations should require school divisions to include in their local plan a clear operational definition of giftedness that is applicable to the local program for gifted education.
- The regulations should require that the goals and objectives of the local plan support the achievement of equitable representation of students in gifted education. The regulations should further require that the goals and objectives take into consideration the results of the evaluation of effectiveness as they relate to the equitable representation of students in gifted education.
- The regulations should require that the findings of the school division's annual evaluation of program effectiveness, prepared by the local advisory board, include indicators of the division's progress towards achieving equitable representation of students served in gifted education programs.
- The regulations adopted in March 2009 should be further revised to require that school divisions provide evidence of professional development for all instructional personnel based in the competencies specified in 8VAC20-542-310, which include gifted behaviors in special populations (i.e., those who are culturally diverse, economically disadvantaged, or physically disabled). This change would extend the requirement from *instructional personnel who deliver services within the gifted education program* to all instructional personnel who may be responsible for identification, referral, and delivery of instructional services of gifted students.

#### **Recommendations for additional Technical Assistance from VDOE**

Through technical assistance, VDOE should facilitate the following activities as school divisions strive to achieve equitable representation of students in gifted education:

- Provide information for local advisory committees and school boards that highlights their roles in the development, effectiveness review, and approval of local plans for gifted education, to include information on their role in achieving equitable representation.
- Revise the *Reference Guide for the Development and Evaluation of Local Plans for the Education of the Gifted* to reflect changes in the regulations, including changes that were developed to support the achievement of equitable representation of students in gifted education.
- Provide school divisions with increased access to data related to gifted students and guidance to support school divisions' work to analyze data and determine the extent to which gifted education programs are achieving equitable representation.
- Revise the *Virginia Plan for the Gifted* to support the public's understanding of Virginia's regulations for the education of gifted students.
- As part of VDOE's technical review of local plans developed under the final revised regulations, provide feedback on the quality of local methods of identification and referral as they relate to achieving equitable representation of students served in gifted education.
- Post on its Web site, division-level disaggregated data related to the participation of students in Virginia's gifted education programs.

### Appendix A: Descriptive Statistics

Division-level descriptive statistics for all students enrolled in Virginia schools during the 2008-2009 school year are presented in Table A1. The mean is the average percent of students of each racial/ethnic and language subgroup across all divisions. The numbers for the mean percent of students of each racial/ethnic subgroup do not sum to 100 percent because there are also categories for “unspecified race”, Native American Indian, and Hawaiian.

Table A1. Percent of enrolled students in the state and across all divisions by race/ethnicity, LEP status, and gifted status.

	Statewide	Division level, n=132			
		Mean	Standard Deviation	Minimum	Maximum
Asian	5.6	1.8	2.6	0	18.5
White	56.6	66.2	24.1	2.1	99.8
Black	25.7	25.3	22.6	0	94.4
Hispanic	9.0	5.2	7.4	0	42.0
LEP	8.1	4.1	7.3	0	42.7
Gifted	15.23	9.9	5.3	1.2	38.9
<b>Of students identified as gifted,</b>					
Asian, identified as gifted	11.5	2.9	3.5	0.0	22.4
White, identified as gifted	67.7	80.7	17.2	8.5	100
Black, identified as gifted	11.8	12.9	15.6	0	88.4
Hispanic, identified as gifted	5.3	2.2	2.3	0	14.4
LEP, identified as gifted	3.4	0.7	1.3	0	7.7

As described in the main text, the sample was restricted to divisions where the percent of enrolled students of each subgroup was between 5 and 95 percent. The descriptive statistics for the restricted sample are presented in Table A2. For example, for the Asian subgroup the statistics presented are for the percent of Asian students among all students enrolled in the 10 divisions included in the sample.

Table A2. Characteristics of enrolled students in divisions included in restricted sample.\*

	N divisions	Mean	Standard Deviation	Minimum	Maximum
Asian	10	9.3%	4.2%	5.6%	18.5%
White	117	63.0%	22.2%	7.8%	94.8%
Black	107	30.7%	21.7%	5.0%	94.4%
Hispanic	36	13.4%	10.3%	5.4%	42.0%
LEP	25	15.3%	11.1%	5.0%	42.7%
Asian, identified as gifted	10	12.4%	4.6%	7.5%	22.4%
White, identified as gifted	117	79.2%	15.9%	17.8%	100%
Black, identified as gifted	107	15.7%	16.1%	0%	88.4%
Hispanic, identified as gifted	36	4.5%	3.0%	0%	14.4%
LEP, identified as gifted	25	2.3%	2.28%	0%	7.7%

\*Note: Sample restricted to divisions where subpopulation is between 5% and 95% of all enrolled students.

Because other scholars use the Representation Index to describe disproportionality, calculations of the RI are presented in Table A3. After calculating the RI, it was transformed into the NRI displayed in Table A4. The transformation does not change the ordering of divisions, it merely rescales the Index to be relative to equal proportionality and have a standard deviation of 1.

Table A3. Representation Index (RI) for divisions in the restricted sample.

	<b>Number of divisions</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>25th Percentile</b>	<b>Median</b>	<b>75th Percentile</b>	<b>Maximum</b>
Asian RI	10	1.45	.53	.78	1.09	1.37	1.72	2.52
White RI	117	1.39	.50	.64	1.09	1.24	1.54	5.12
Black RI	107	.45	.19	0	.34	.42	.55	.95
Hispanic RI	36	.39	.19	0	.24	.38	.48	.98
LEP RI	25	.15	.13	0	.06	.11	.24	.50

Table A4. Normalized Representation Index (NRI) for divisions in the restricted sample

	<b>Number of divisions</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Values Used in Boxplots, figure 2</b>			
					<b>25th Percentile</b>	<b>Median</b>	<b>75th Percentile</b>	<b>Maximum</b>
Asian NRI	10	.86	1	-.42	.16	.70	1.37	2.89
White NRI	117	.77	1	-.71	.17	.47	1.06	8.17
Black NRI	107	-2.93	1	-5.30	-3.50	-3.07	-2.37	-.27
Hispanic NRI	36	-3.16	1	-5.21	-3.95	-3.24	-2.72	-.08
LEP NRI	25	-6.34	1	-7.49	-7.06	-6.65	-5.70	-3.78

## Appendix B: Association between the NRI and Division Demographic Variables

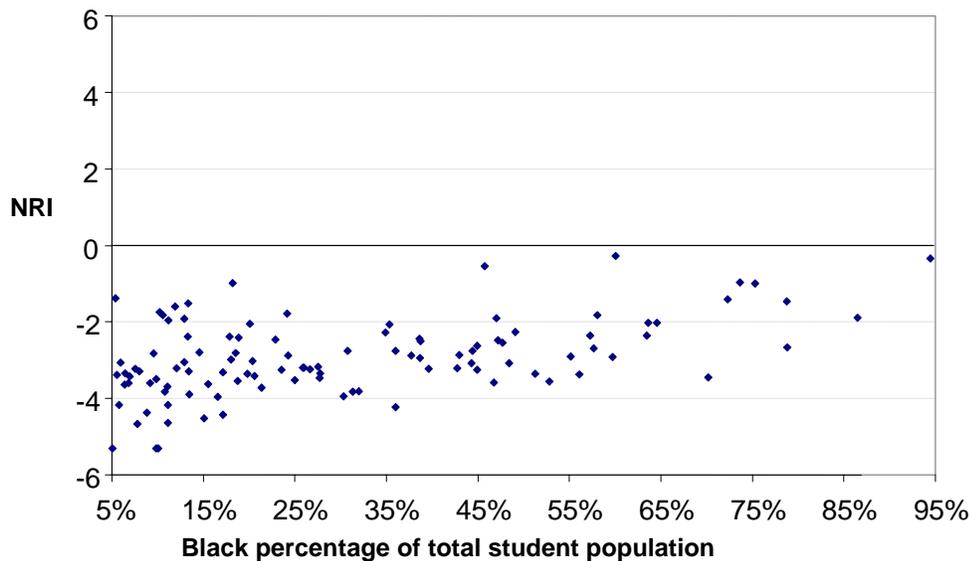
A variety of factors outside the schools may be associated with the probability of students being identified as gifted. An analysis was conducted to explore associations between the NRI and the racial composition of school divisions, the type of locality (city, suburb, town, rural), and other demographic and economic characteristics of these communities.

### Racial Composition of School Divisions

To explore the associations between the NRI and the racial makeup of school divisions, scatterplots were generated that display, by division, a group's NRI plotted against that group's proportional representation of division enrollment.

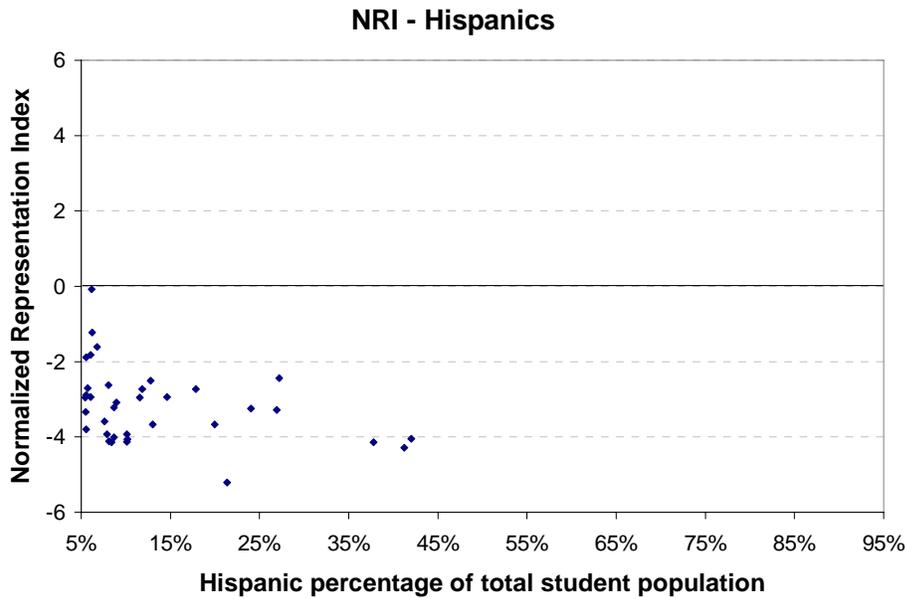
As Figure B1 shows, the NRIs for Black students tend to increase as the proportional representation of the group in the total population increases. This indicates that as the proportion of Blacks increases in the division population, the group's proportion of students identified as gifted also increases. The regression analysis (see Table C2 in the appendix) confirms this result. The regression with Black NRI as the dependent variable shows a significant negative correlation between the White and Hispanic shares of a division's student population and the NRI measure for Blacks. This result indicates that as the White population decreases, the proportional representation of Blacks in gifted programs increases.

Figure B1. Black percentage of division population and NRI



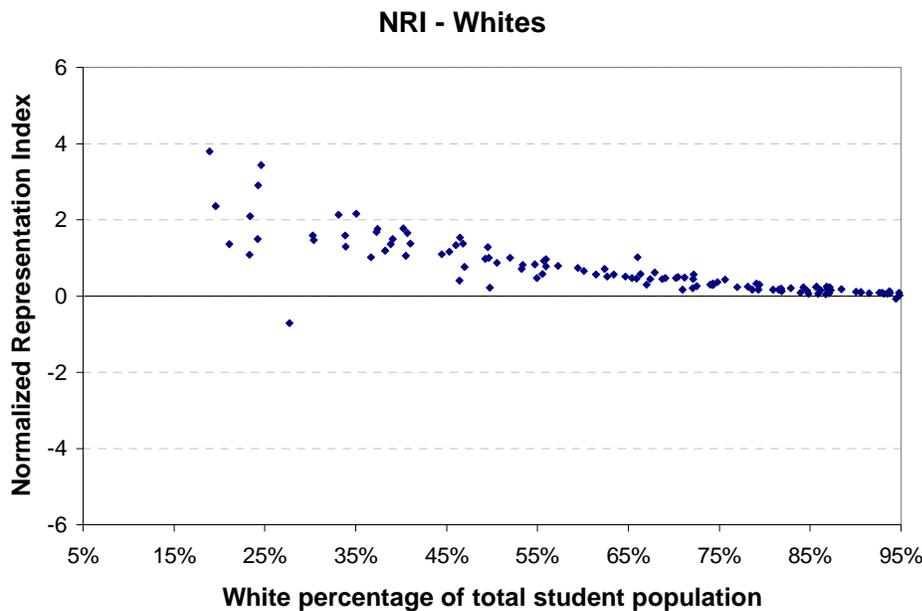
For Hispanic students, the graphical analysis in Figure B2 suggests no strong relationship between the proportional representation of other racial/ethnic groups in school divisions' student populations and the degree of disproportionality of Hispanic students.

Figure B2. Hispanic percentage of division population and NRI



For Whites, the NRI increases when the White share of the overall student population decreases. This association is apparent even when Whites constitute a relatively small proportion of student enrollment. All the divisions with an NRI between 2 and 4 for White student overrepresentation also have a White share of the total student population that is below about 35 percent. Again, regression analysis (Table C1) confirms the graphical result. The NRI measure for White students is positively correlated with the proportion of Black and Hispanic students enrolled: as the proportion of Black and Hispanic students increases, the degree of White overrepresentation increases.

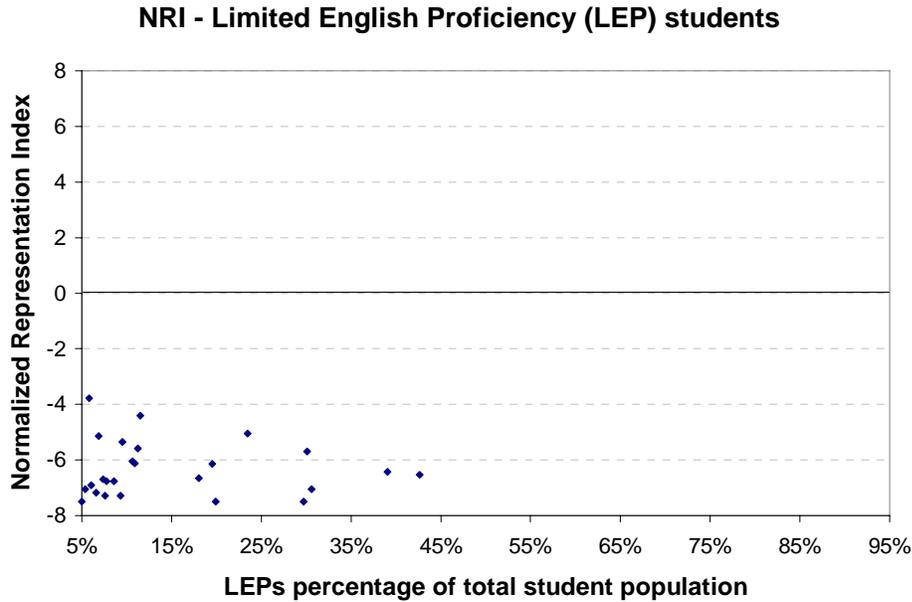
Figure B3. White percentage of division population and NRI



Limited English Proficiency Students

Figure B4 shows the association between the NRI measure for LEP students and the percent of LEP students in each school division. There is not a strong association between the percent of LEP students in a division and the NRI for LEP students.

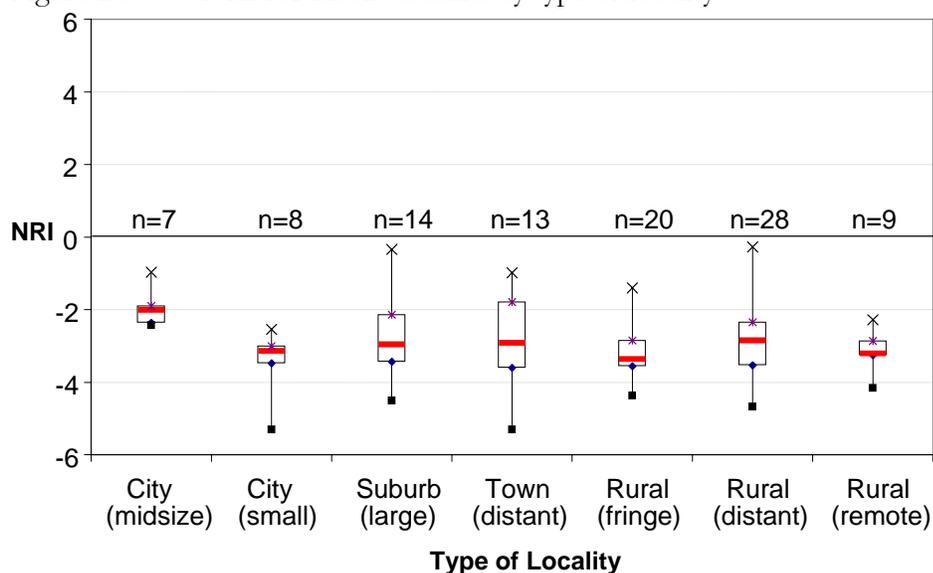
Figure B4. LEP percentage of division population and NRI



Disproportionality by Type of Locality

For Black students (the only minority group for which there were sufficient observations to perform the box plot analysis by locality), the distribution of NRIs is fairly similar across locality types — except in mid-sized cities, where the distribution is shifted upward and the median NRI is higher (see Figure B5). In the regression analysis (discussed next), however, the type of locality is not highly, significantly correlated with the NRI once additional local demographic and economic factors are controlled for.

Figure B5. NRI for Black students by type of locality



Locality types were based on the Common Core of Data's new urban-centric locality codes (from [http://nces.ed.gov/ccd/rural\\_locales.asp](http://nces.ed.gov/ccd/rural_locales.asp)):

- **Large City:** Territory inside an urbanized area and inside a principal city with population of 250,000 or more.
- **Midsize City:** Territory inside an urbanized area and inside a principal city with population less than 250,000 and greater than or equal to 100,000.
- **Small City:** Territory inside an urbanized area and inside a principal city with population less than 100,000.
- **Large Suburb:** Territory outside a principal city and inside an urbanized area with population of 250,000 or more.
- **Midsize Suburb:** Territory outside a principal city and inside an urbanized area with population less than 250,000 and greater than or equal to 100,000.
- **Small Suburb:** Territory outside a principal city and inside an urbanized area with population less than 100,000.
- **Fringe Town:** Territory inside an urban cluster that is less than or equal to 10 miles from an urbanized area.
- **Distant Town:** Territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area.
- **Remote Town:** Territory inside an urban cluster that is more than 35 miles from an urbanized area.
- **Fringe Rural:** Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster.
- **Distant Rural:** Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster.
- **Remote Rural:** Census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster.

*Local Community Demographic and Economic Variables*

Regression analyses were used to explore the potential associations between other demographic and economic variables and gifted disproportionality, while controlling for variables that the scatterplot and box plot analyses showed to be important, such as the racial composition of division student populations.

No statistically significant associations were found between the variables used and the NRI for Blacks.

Two statistically significant results were found for White students (Table C1). The level of White student overrepresentation in gifted programs was positively correlated with the number of adults with a college degree in a given locality. The second result was a negative correlation between the per-capita income of a county and the NRI measure for White students. In other words, wealthier counties tend to have lower levels of White overrepresentation among students identified as gifted.

For Hispanic students, the results showed a negative correlation between the proportion of adults in the labor force in a county and the Hispanic NRI measures. As employment rates in a locality rise, the degree of Hispanic student underrepresentation in students identified as gifted rises.

## Appendix C: Regression Analysis

Regression analysis provides a useful complement to the graphical analysis discussed above. Regression analysis allows consideration of multiple potential correlations simultaneously. It provides a method for considering relationships between two variables while holding constant additional variables of interest. In each of the regressions reported below, the dependent variable is the NRI for the group listed, while the explanatory variables are those listed under the “variables” heading.

The data sources and variables used in the regressions are listed below:

### Virginia Department of Education-Division Level

#### *Racial Makeup of Student Population*

- Percent White (K-12 enrollments)
- Percent Black (K-12 enrollments)
- Percent Asian (K-12 enrollments)
- Percent Hispanic (K-12 enrollments)

#### *Other Characteristics of Student Population*

- Percent students with disabilities (K-12 enrollments)
- Percent disadvantaged (K-12 enrollments)
- Percent LEP (K-12 enrollments)

### Common Core of Data-Division Level

#### *Type of Location*

- Dummy variables for the urban-centric locale codes
- Large city
- Mid-size city
- Small city
- Large suburb
- Mid-size suburb
- Small suburb
- Fringe town
- Remote town
- Distant town
- Fringe rural
- Remote rural
- Distant rural

#### *Community Demographics (from Census 2000)*

- Adults with a college degree or above
- Seniors in population
- Children in population

*Community Economic Conditions* (from Census 2000)

- Adult labor force participation rate
- Median family income (in thousands)
- Poverty rate

**Interpreting Regressions**

**Coefficients.** Coefficients provide information about the nature of the linear association between the dependent variable and an explanatory variable. If the coefficient associated with the explanatory variable is positive, the dependent variable tends to increase as the explanatory variable increases. If the coefficient is negative, the dependent variable tends to fall as the explanatory variable increases. The size of the coefficient describes the size of the effect of the explanatory variable on the dependent variable.

**Standard Errors.** The column marked “SE” provides the standard error of the coefficient, a measure of variance or dispersion. The smaller the SE, the more precisely the variable is measured.

**P-value:** The p-value describes the probability that the observed value of the coefficient would occur if there was no impact of the variables in the population and is used to determine whether there is a statistical effect of the variable. Typically, coefficients are considered statistically significant when they have p-values of less than .05 (5 percent). Sometimes a less stringent significance level of .10 (10 percent) is used.

Note that the coefficients, standard errors, and p-values are all interrelated. Larger coefficients (effect sizes) and smaller standard errors (precision of estimates) will generate higher T-statistics and lower P-values, meaning that there is a greater chance of rejecting the hypothesis that the coefficient is zero, and less likely to make a false positive error.

**R<sup>2</sup>:** The R<sup>2</sup> (“r-squared”) measures the percentage of the variability in the dependent variable that is statistically accounted for by the explanatory variables. It is a measure of the “fit” of the regression.

*Regression Results*

Table C1. Regression of White Students' NRIs

Variable	Coefficient*	Standard Error	p-value
<b>Racial makeup of student body</b> (% of total division enrollments)			
Black	<b>3.13</b>	(0.46)	0.000
Hispanic	<b>6.86</b>	(2.57)	0.049
Asian	-4.76	(4.54)	0.297
<b>Other student characteristics</b> (% of total division enrollments)			
Student with disability	<b>6.96</b>	(2.49)	0.006
Economically disadvantaged	<b>-2.42</b>	(0.77)	0.002
Limited English proficiency	1.95	(4.44)	0.662
White x LEP interaction term	-8.00	(6.05)	0.189
<b>Locality type</b>			
Mid-sized city	0.38	(0.35)	0.287
Small city	0.11	(0.32)	0.718
Large suburb	0.13	(0.32)	0.686
Distant town	0.09	(0.29)	0.742
Fringe rural	0.23	(0.27)	0.407
Distant rural	-0.01	(0.26)	0.981
Remote rural	-0.07	(0.31)	0.828
<b>Community demographics</b> (% of population)			
Adults with college degree	5.22	(1.63)	0.002
Seniors	2.36	(2.31)	0.309
Children	4.39	(3.39)	0.199
<b>Community economic conditions</b>			
Adult labor force participation rate	-0.55	(1.40)	0.691
Median family income (\$K)	<b>-0.04</b>	(0.02)	0.024
Poverty rate	4.24	(2.26)	0.064
Constant	-0.75	(1.41)	0.593
N	117		
R-squared	0.722		
F(20,96)	12.48		
Prob>F	0.000		

\* Coefficients in bold are statistically significant,  $p < 0.05$ .

Table C2. Regression of Black Students' NRIs

Variable	Coefficient*	Standard Error	p-value
<b>Racial makeup of student body</b> (% of total division enrollments)			
White	<b>-2.68</b>	(0.66)	0.000
Hispanic	-7.58	(5.36)	0.160
Asian	-0.12	(6.81)	0.986
<b>Other student characteristics</b> (% of total division enrollments)			
Student with disability	1.39	(3.67)	0.706
Economically disadvantaged	0.25	(1.16)	0.828
Limited English proficiency	4.89	(5.70)	0.393
<b>Locality type</b>			
Mid-sized city	0.28	(0.53)	0.591
Small city	-0.29	(0.47)	0.531
Large suburb	0.09	(0.47)	0.851
Distant town	0.62	(0.43)	0.152
Fringe rural	0.18	(0.41)	0.664
Distant rural	0.37	(0.39)	0.345
Remote rural	0.31	(0.48)	0.525
<b>Community demographics</b> (% of population)			
Adults with college degree	-1.87	(2.45)	0.448
Seniors	-5.79	(3.41)	0.093
Children	-1.63	(5.15)	0.752
<b>Community economic conditions</b>			
Adult labor force participation rate	0.18	(2.13)	0.932
Median family income (\$K)	0.02	(0.03)	0.348
Poverty rate	0.37	(3.34)	0.913
Constant	-1.49	(2.26)	0.513
N	107		
R-squared	0.394		
F(20,96)	2.97		
Prob>F	0.000		

\* Coefficients in bold are statistically significant,  $p < 0.05$ .

Table C3. Regression of Hispanic Students' NRIs

Variable	Coefficient*	Standard Error	p-value
<b>Other student characteristics</b> (% of total division enrollments)			
Limited English proficiency	<b>4.59</b>	(1.54)	0.006
<b>Locality type</b>			
Mid-sized city	<b>1.54</b>	(0.51)	0.006
Fringe rural	-0.55	(0.39)	0.173
Distant rural	<b>-1.23</b>	(0.56)	0.036
<b>Community demographics</b> (% of population)			
Adults with college degree	-1.23	(1.42)	0.394
Seniors	0.13	(4.20)	0.975
<b>Community economic conditions</b>			
Adult labor force participation rate	<b>-11.50</b>	(3.11)	0.001
Poverty rate	-10.20	(5.16)	0.060
Constant	8.18	(2.90)	0.009
N	36		
R-squared	0.559		
F(20,96)	4.26		
Prob>F	0.002		

\*\* Coefficients in bold are statistically significant,  $p < 0.05$ .

#### Notes on the NRI Regressions

In each regression, the group's own share of the school division's population was omitted from the list of explanatory variables. This was because the dependent variable (NRI) is partially constructed from the group's own share, and the two values will necessarily be correlated with each other. For the Hispanic group NRI regression, there were only 36 observations, which make it impossible to include the full list of variables used in the other groups' regressions.

### Appendix D: Measures of Representation

The following table shows three measures that determine students' proportional representation in gifted education in Virginia. Data are presented for student subgroups as currently defined for purposes of federal accountability. As described in the main text of this report, indices were calculated for subgroups in divisions in which the subgroup population comprised five to 95 percent of the total student population. Blank cells indicate that the group representation comprised less than five or greater than 95 percent of the population.

Table D1. Measures of representation of students identified as gifted by school division.

School Division Name	Representation Index					Normalized Representation Index					Risk Ratio				
	Student Subgroup					Student Subgroup					Student Subgroup				
	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP
Accomack County		1.58	0.53	0.43	0.19		1.16	-2.51	-2.94	-6.04		3.06	0.41	0.40	0.18
Albemarle County		1.17	0.27	0.27	0.11		0.33	-3.89	-3.80	-6.70		2.25	0.24	0.26	0.10
Alleghany County		1.05	0.39				0.10	-3.22				2.08	0.37		
Amelia County		1.24	0.48				0.47	-2.76				2.24	0.39		
Amherst County		1.23	0.40				0.47	-3.20				2.60	0.33		
Appomattox County		1.31	0.26				0.62	-3.94				3.86	0.19		
Arlington County	1.05	1.39	0.64	0.53	0.24	0.10	0.77	-1.92	-2.44	-5.70	1.06	2.12	0.61	0.45	0.18
Augusta County		1.03					0.06					1.67			
Bath County															
Bedford County		1.08	0.18				0.17	-4.37				2.50	0.16		
Bland County															
Botetourt County		1.04					0.07					2.19			
Brunswick County		2.19	0.73				2.36	-1.46				3.08	0.36		
Buchanan County															
Buckingham County		1.47	0.40				0.93	-3.21				3.58	0.27		
Campbell County		1.12	0.44				0.24	-2.98				1.99	0.39		
Caroline County		1.42	0.46				0.83	-2.88				2.89	0.34		
Carroll County		1.04					0.08					4.47			
Charles City County		0.64	0.95				-0.71	-0.27				0.56	0.88		
Charlotte County		1.28	0.57				0.56	-2.28				2.33	0.46		
Chesterfield County		1.37	0.35	0.25			0.74	-3.47	-3.93			3.05	0.28	0.23	
Clarke County		1.08	0.31	0.43			0.16	-3.64	-2.96			2.12	0.30	0.42	
Craig County															

School Division Name	Representation Index					Normalized Representation Index					Risk Ratio				
	Student Subgroup					Student Subgroup					Student Subgroup				
	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP
Culpeper County		1.26	0.33	0.48	0.31		0.51	-3.54	-2.73	-5.14		2.35	0.29	0.44	0.30
Cumberland County		1.49	0.39				0.97	-3.26				2.84	0.26		
Dickenson County															
Dinwiddie County		1.39	0.45				0.77	-2.94				2.76	0.33		
Essex County		1.83	0.36				1.65	-3.37				4.29	0.20		
Fairfax County	1.21	1.20	0.66	0.48	0.33	0.41	0.40	-1.82	-2.73	-5.04	1.28	1.46	0.63	0.43	0.27
Fauquier County		1.16	0.30	0.31			0.32	-3.69	-3.59			2.98	0.28	0.29	
Floyd County		1.03					0.07					2.00			
Fluvanna County		1.12	0.55				0.23	-2.39				1.85	0.50		
Franklin County		1.11	0.21				0.23	-4.18				2.90	0.19		
Frederick County		1.10	0.36	0.38			0.20	-3.38	-3.22			2.00	0.35	0.36	
Giles County															
Gloucester County		1.03	0.67				0.06	-1.74				1.24	0.65		
Goochland County		1.24	0.34				0.47	-3.52				2.83	0.28		
Grayson County		1.07					0.13								
Greene County		1.07	0.63				0.13	-1.96				1.52	0.60		
Greensville County		1.76	0.74				1.50	-1.40				2.32	0.44		
Halifax County		1.44	0.53				0.88	-2.47				2.63	0.38		
Hanover County		1.07	0.34				0.14	-3.49				1.77	0.32		
Henrico County	1.78	1.67	0.20		0.08	1.48	1.34	-4.23		-6.91	1.87	3.93	0.14		0.07
Henry County		1.29	0.46	0.21	0.04		0.58	-2.87	-4.11	-7.17		3.06	0.39	0.20	0.04
Highland County															
Isle of Wight County		1.36	0.28				0.71	-3.81				3.38	0.21		
King George County		1.23	0.39				0.45	-3.24				2.30	0.33		
King and Queen County		1.11	0.90				0.22	-0.54				1.25	0.83		
King William County		1.13	0.61				0.25	-2.05				1.71	0.56		
Lancaster County		1.69	0.37				1.37	-3.36				4.32	0.22		
Lee County															
Loudoun County	0.97	1.26	0.38	0.29	0.03	-0.05	0.51	-3.29	-3.67	-7.28	0.97	2.22	0.36	0.27	0.03
Louisa County		1.23	0.30				0.45	-3.72				2.95	0.25		
Lunenburg County		1.51	0.46				1.00	-2.87				3.32	0.33		

School Division Name	Representation Index					Normalized Representation Index					Risk Ratio				
	Student Subgroup					Student Subgroup					Student Subgroup				
	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP
Madison County		1.08	0.43				0.17	-3.04				1.73	0.39		
Mathews County		1.13	0.12				0.25	-4.64				4.67	0.11		
Mecklenburg County		1.65	0.32				1.29	-3.59				4.53	0.20		
Middlesex County		1.25	0.40				0.49	-3.20				3.21	0.33		
Montgomery County		1.03	0.42				0.07	-3.07				1.29	0.41		
Nelson County		1.22	0.17				0.43	-4.43				3.81	0.14		
New Kent County		1.08	0.47				0.17	-2.80				1.68	0.43		
Northampton County		1.89	0.42	0.52	0.41		1.76	-3.07	-2.51	-4.41		4.02	0.27	0.48	0.38
Northumberland County		1.49	0.39				0.96	-3.23				3.88	0.28		
Nottoway County		1.50	0.51				1.00	-2.62				2.99	0.36		
Orange County		1.15	0.54				0.29	-2.42				1.99	0.49		
Page County		1.01					0.03					1.33			
Patrick County		1.12	0.12				0.23	-4.67				5.14	0.11		
Pittsylvania County		1.25	0.39				0.49	-3.23				3.09	0.32		
Powhatan County		1.08	0.47				0.15	-2.82				2.24	0.44		
Prince Edward County		1.69	0.49				1.36	-2.69				2.99	0.29		
Prince George County		1.36	0.48	0.64			0.71	-2.76	-1.89			2.29	0.37	0.62	
Prince William County	1.53	1.54	0.54	0.38	0.18	1.01	1.06	-2.46	-3.25	-6.15	1.60	2.42	0.47	0.31	0.15
Pulaski County		1.06	0.35				0.11	-3.42				2.14	0.34		
Rappahannock County		1.05	0.21				0.10	-4.17				2.01	0.20		
Richmond County		1.33	0.28	0.98			0.66	-3.83	-0.08			2.66	0.21	0.98	
Roanoke County		1.03	0.37				0.07	-3.35				1.35	0.35		
Rockbridge County		1.05					0.09					2.59			
Rockingham County		1.09		0.20	0.03		0.17		-4.14	-7.29		3.35		0.19	0.03
Russell County															
Scott County															
Shenandoah County		1.12		0.22	0.06		0.24		-4.07	-7.05		3.89		0.20	0.06
Smyth County															
Southampton County		1.41	0.48				0.82	-2.75				2.68	0.34		
Spotsylvania County		1.23	0.37	0.50			0.46	-3.35	-2.62			2.24	0.32	0.48	
Stafford County		1.29	0.36	0.41			0.57	-3.41	-3.09			2.55	0.31	0.38	

School Division Name	Representation Index					Normalized Representation Index					Risk Ratio				
	Student Subgroup					Student Subgroup					Student Subgroup				
	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP
Surry County		1.65	0.62				1.29	-2.02				2.48	0.37		
Sussex County		1.69	0.81				1.36	-1.00				2.07	0.52		
Tazewell County															
Warren County		1.09	0.32				0.17	-3.59				2.57	0.31		
Washington County															
Westmoreland County		1.76	0.57	0.24	0.10		1.50	-2.27	-3.93	-6.77		3.41	0.41	0.23	0.09
Wise County															
Wythe County		1.04					0.09					2.36			
York County	1.96	1.09	0.32			1.84	0.17	-3.62			2.10	1.38	0.28		
Alexandria City	1.20	2.46	0.54	0.37	0.06	0.37	2.90	-2.44	-3.29	-7.06	1.21	4.63	0.42	0.30	0.04
Bristol City		1.12	0.00				0.25	-5.30				6.12	0.00		
Buena Vista City		1.04	0.00				0.07	-5.30				1.68	0.00		
Charlottesville City		1.70	0.42	0.36	0.25		1.38	-3.07	-3.34	-5.59		3.30	0.29	0.35	0.23
Colonial Heights City		1.19	0.15				0.37	-4.51				2.67	0.13		
Covington City		1.08	0.81				0.16	-0.98				1.56	0.78		
Danville City		2.73	0.35				3.43	-3.45				6.28	0.14		
Falls Church City	0.78	1.14	0.74	0.23	0.18	-0.42	0.28	-1.38	-4.01	-6.13	0.76	1.95	0.73	0.21	0.17
Fredericksburg City		1.60	0.64	0.43	0.29		1.19	-1.91	-2.95	-5.36		2.54	0.49	0.40	0.27
Galax City		1.52	0.00	0.00	0.00		1.02	-5.30	-5.21	-7.49			0.00	0.00	0.00
Hampton City		1.74	0.62				1.47	-2.02				2.57	0.37		
Harrisonburg City		1.78	0.39	0.20	0.13		1.54	-3.21	-4.14	-6.54		5.45	0.36	0.14	0.08
Hopewell City		1.85	0.45	0.76			1.69	-2.90	-1.22			3.74	0.27	0.75	
Lynchburg City		1.89	0.33				1.77	-3.56				4.76	0.19		
Martinsville City		2.08	0.45	0.44	0.50		2.13	-2.92	-2.94	-3.78		4.44	0.25	0.42	0.48
Newport News City		1.80	0.56	0.69			1.58	-2.35	-1.61			2.75	0.35	0.68	
Norfolk City		2.06	0.55				2.10	-2.36				3.04	0.31		
Norton City		1.03	0.70				0.05	-1.60				1.23	0.67		
Petersburg City			0.94					-0.34					0.45		
Portsmouth City		1.55	0.82				1.09	-0.97				1.86	0.54		
Radford City		1.04	0.38				0.09	-3.29				1.34	0.35		
Richmond City		5.12	0.64				8.17	-1.89				7.87	0.20		

	Representation Index					Normalized Representation Index					Risk Ratio				
	Student Subgroup					Student Subgroup					Student Subgroup				
School Division Name	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP	Asian	White	Black	Hispanic	LEP
Roanoke City		1.56	0.52	0.45	0.10		1.10	-2.54	-2.88	-6.77		2.81	0.36	0.43	0.09
Staunton City		1.11	0.66				0.21	-1.79				1.52	0.60		
Suffolk City		1.51	0.66				1.02	-1.82				2.16	0.45		
Virginia Beach City	1.52	1.29	0.40	0.65		1.00	0.58	-3.17	-1.82		1.57	2.04	0.33	0.64	
Waynesboro City		1.28	0.25	0.21	0.00		0.56	-3.96	-4.13	-7.49		4.87	0.22	0.19	0.00
Williamsburg-James City County		1.22	0.43	0.48			0.44	-3.03	-2.70			2.40	0.37	0.47	
Winchester City		1.40	0.47	0.30	0.11		0.79	-2.81	-3.66	-6.65		3.03	0.42	0.25	0.09
Franklin City		2.91	0.50				3.79	-2.67				5.27	0.17		
Chesapeake City		1.24	0.61				0.47	-2.06				1.75	0.50		
Lexington City		1.15	0.32				0.29	-3.60				2.68	0.30		
Salem City		1.10	0.28				0.20	-3.83				2.20	0.26		
Poquoson City		0.96					-0.07					0.60			
Manassas City		2.09	0.37	0.22	0.14		2.16	-3.32	-4.05	-6.43		5.10	0.33	0.14	0.09
Manassas Park City	2.52	1.80	0.55	0.18	0.00	2.89	1.59	-2.38	-4.28	-7.49	2.86	3.05	0.52	0.11	0.00
Colonial Beach		1.15	0.37				0.29	-3.34				1.64	0.30		
West Point		1.08	0.71				0.16	-1.51				1.57	0.68		

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