Appendix E

External Report

(E1) Gifted Delivery Models in Other School Districts (Hanover Report)   Pages 1 – 76

BEST PRACTICES IN GIFTED PROGRAMMING

Prepared for Arlington Public Schools

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In the following report, Hanover Research evaluates effective practices and programming options for gifted students. This review includes considerations for program delivery models and curriculum/instructional structures, as well as identification measures and teacher training. This report also profiles several school districts that operate high-quality gifted education programs, with information derived from interviews with local gifted education and curriculum administrators.

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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

Like many other specialized student subgroups, gifted and high-ability students require dedicated programming in order to be most successful in school. However, often, these students are relegated to normal academic programs – for example, more than 70 percent of teachers note that "their brightest students [are] not challenged or given a chance to 'thrive' in their classrooms."[1] According to education experts, these data stem from the "mistaken belief that high-ability youngsters will do fine, even if the education system makes no special provision for them."[2] Gifted education programs should be accessible, and information about identification processes and delivery models easily obtainable, in order for some of the stigma surrounding gifted education (sometimes flaunted as "elitism") to disappear and for these high-ability students to receive the specialized educational services that will allow them to reach their full potential.[3]

To this end, this report explores gifted education programming by examining both research and empirical evidence from scholarly literature, as well as the policies and practices implemented at peer and aspirant school districts. By assessing these practices and evaluating gifted education programs more broadly, Hanover Research (Hanover) aims to provide Arlington Public Schools (APS) with a comprehensive assessment of gifted and talented instruction. This report is presented in two sections:

- **Section I: Strategies for Providing High-Quality Gifted Programming** examines gifted education programming and identifies best practices in implementing and maintaining programs for high-ability students. These considerations include student identification, program delivery format and curriculum model, and teacher training.

- **Section II: Exemplar Gifted Education Programs** provides in-depth profiles of gifted education programs at other school districts. These profiles include district-specific practices regarding program objectives, delivery models, student placement, and teacher/staff characteristics and training.

For this report, Hanover conducted several in-depth interviews to more holistically understand implementation considerations for gifted programs. This primary outreach provides additional, anecdotal expertise on the topic from administrators with practical knowledge of gifted instruction. Hanover conducted interviews with the following administrators:

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[1] "Why Are Gifted Programs Needed?" National Association for Gifted Children. https://www.nagc.org/resources-publications/gifted-education-practices/why-are-gifted-programs-needed

[2] Finn Jr., C.E. "Gifted Students Have 'Special Needs,' Too." *The Atlantic*, December 2012. http://www.theatlantic.com/national/archive/2012/12/gifted-students-have-special-needs-too/266544/

[3] Ibid.

- Dr. Dina Brulles, Director of Gifted Education for Paradise Valley Unified School District, Arizona, and Professor of Education at Arizona State University;

- Sue Feigal-Hitch, District Coordinator of Gifted Services for Eden Prairie Schools, Minnesota;

- Dr. Carol Horn, K-12 Program Coordinator for Fairfax County Public Schools, Virginia;

- Dr. Lauri Kirsch, K-12 Gifted Program Supervisor for Hillsborough County Public Schools, Florida;

- Bonnie O'Regan, Advanced Learning Program Facilitator for Greenwich Public Schools, Connecticut; and

- Robin Schumaker, K-12 Coordinator of Gifted Programs for Virginia Beach City Public Schools, Virginia.

KEY FINDINGS

- **Definitions of giftedness should include students who have previously demonstrated above-average performance, as well as those who show the potential for high achievement.** This ensures that giftedness is not applied uniformly across disciplines; that is, students should be able to participate in gifted programming across the curriculum or in specific academic areas. In Virginia, the VDOE puts forth that giftedness is based on either demonstrated ability or potential for success, and can be defined across general intellectual aptitude, specific academic aptitude, or career/technical and visual/performing arts aptitude.

- **Gifted education programs are often defined across two programming considerations: (1) how interventions will be delivered; and (2) how the curriculum and instruction will be structured.** For gifted students, meaningful learning gains typically involves complex and advanced content delivered at an appropriate pace, requiring that schools equally consider service delivery and programmatic instruction. Across the majority of gifted education programs, students are either divided into homogeneous (e.g., separate classes) or heterogeneous (e.g., in-class clustering) classrooms, and are instructed via either accelerated or compacted/ differentiated curricula. District resources and student needs generally drive this decision.

- **Several administrators indicated that they are moving away from labeling students as "gifted" or "not gifted," instead placing students along a spectrum of advanced offerings.** This provides school districts with more flexibility in gifted programming to be able to differentiate multiple levels of giftedness and develop programs accordingly. For example, Fairfax County Public Schools maintains four levels of advanced academic education for students at varying levels, ranging from whole-class critical thinking strategies for young children to differentiated instruction and part- and full-time pull-out classrooms and schools. Similarly, Greenwich Public Schools offers enrichment and replacement programs in specific content areas to accommodate all types of gifted learners.

- **Regardless of service delivery, it is important that gifted students receive some form of grouped instruction where they can interact and learn alongside peers of similar ability.** This can manifest in mainstream classrooms through regular teacher-structured group work (e.g., ability clustering) or in separate classes composed of only high-ability students (e.g., Advanced Placement courses). Although there are merits to both models, homogeneous grouping is becoming more and more prevalent, and data suggest that students in these programs (e.g., separate classes or pull-out) demonstrate higher achievement scores than their similarly high-ability peers in heterogeneous classrooms.

- **Instruction for gifted students is particularly effective when it combines elements of both acceleration and enrichment.** Acceleration—whether content-based or grade-based—has been shown to be definitively advantageous for high-ability students over the long term, and recent data confirm that it is not detrimental to students' socio-emotional development or well-being. Compacting typically requires that teachers receive dedicated professional development in leading differentiated lessons.

- **The National Association for Gifted Children recommends that programming guidelines for gifted education emphasize student outcomes rather than set practices.** This helps schools to account for the diversity among gifted student populations, as well as identify students who demonstrate giftedness in only one or two areas. The organization proposes that effective standards address six key domains: learning and development; assessment; curriculum planning and instruction; learning environments; programming; and professional development.

- **Identification of gifted education should consider student data over time and include both quantitative and qualitative measures of performance.** A multi-phased and systematic identification process—which typically includes student nomination, screening, and placement—allows schools to align programs specifically with student domains of interest or aptitude. It can also help to facilitate inclusion of traditionally underserved student populations in gifted education. These varied measures can include assessments and tests, student records, expert observations, and/or self-, teacher, or parent nominations.

- **Several administrators noted the success of the Young Scholars model for identifying high-ability students from underrepresented groups.** The model was initially developed by Fairfax County Public Schools to provide students from at-risk backgrounds with the opportunities to develop and demonstrate giftedness. According to the program's founder, Dr. Carol Horn, "if we did [not] start working with them early, they may not have the skills or the self-efficacy to be successful in an advanced course." The program has been adopted by other exemplar districts such as Greenwich Public Schools and Hillsborough County Public Schools.

- **Substantive and ongoing professional development for teachers with gifted students is an integral aspect of gifted education programs.** Indeed, several administrators indicated a department-wide prioritization of training for gifted education teachers. For example, Virginia Beach City Public Schools recently implemented Collaborative Learning Culture Groups for teachers in gifted education across the district to regularly meet and collaboratively address key questions, develop teaching strategies, and facilitate horizontal and vertical alignment. Effective training should take multiple forms, including district-sponsored workshops, professional conferences, and presentations by external consultants.

SECTION I: STRATEGIES FOR PROVIDING HIGH-QUALITY GIFTED PROGRAMMING

In this section, Hanover explores various strategies for maintaining effective programs for gifted students from Kindergarten to Grade 12. It provides an evaluation of various gifted program models and addresses key considerations in gifted education programming such as student identification and teacher training.

CURRENT STATE OF GIFTED PROGRAMMING

There is no single, universally-accepted definition of giftedness as it relates to students in elementary and secondary schools. Some states define "gifted and talented students" based on a peer-group comparison of skills, while others identify students who often need additional stimulation beyond what is provided in mainstream classrooms.[4] However, the National Association for Gifted Children (NAGC) offers the most widely-accepted view of giftedness, and in 2010, the organization released a new, 21st-century position on these students:

> **Gifted individuals are those who demonstrate outstanding levels of aptitude** (defined as an exceptional ability to reason and learn) **or competence** (documented performance or achievement in top 10 percent or rarer) **in one or more domains.** Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports).[5]

Although the NAGC definition provides the most far-reaching manner of classification, federal and state agencies regularly adopt their own views of giftedness. The Virginia Department of Education (VDOE), for example, maintains a relatively comprehensive definition of gifted student programming.[6] VDOE reserves the "gifted student" classification for those students 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."[7] Moreover, gifted students in Virginia are generally defined across four specific areas of

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[4] "Definitions of Giftedness." National Association for Gifted Children. http://www.nagc.org/resources-publications/resources/definitions-giftedness?id=574

[5] "Redefining Giftedness for a New Century: Shifting the Paradigm." National Association for Gifted Children, March 2010. p.1. Emphasis added. http://www.nagc.org/sites/default/files/Position%20Statement/Redefining%20Giftedness%20for%20a%20New%20Century.pdf

[6] "State Definitions of Giftedness." National Association for Gifted Children, January 2016. http://www.nagc.org/sites/default/files/Gifted-by-State/State%20definitions%20%281-13-16%29.pdf

[7] "Understanding the Virginia Regulations Governing Educational Services for Gifted Children." Virginia Department of Education, November 2012. p.4. http://www.doe.virginia.gov/instruction/gifted_ed/ed_services_plans/understanding_the_regs.pdf

giftedness (Figure 1.1). Importantly, these extend beyond the traditional domains of academic giftedness and address the needs of talented students in other areas such as career/technical aptitude and artistic ability, in accordance with several other nearby states' definitions (e.g., Delaware, Maryland, South Carolina).[8]

Figure 1.1: Defined Areas of Giftedness in Virginia

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 disicplines beyond their age-level peers.

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 across a broad range of intellectual disciplines beyond their age-level peers in selected academic areas. Specific academic areas include English, history/ social science, mathematics, or science.

Career and Technical Aptitude

- Such students demonstrate or have the potential to demonstrate superior reasoning; persistent technical 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 in career and technical fields.

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.

Source: Virginia Department of Education[9]

Notably, these definitions clarify that gifted programs should be open to students with both demonstrated competence and *the potential* for high levels of competence. This expands the opportunity for identification to students who may be underperforming for their ability level; further, it provides that giftedness does not need to be even across all domains. Some gifted learners may only qualify for services in specific subject areas, for example.[10]

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[8] "State Definitions of Giftedness," Op. cit.
[9] Adapted from: "Understanding the Virginia Regulations Governing Educational Services for Gifted Children," Op. cit., p.4.
[10] "Definitions of Giftedness," Op. cit.

GIFTED STUDENT POPULATION

In the United States, data report that 6.4 percent of public school students, or roughly 3.2 million children, are enrolled in gifted and talented programs. This has remained relatively consistent since 2004, at which point 6.7 percent of students enrolled in such programs.[11] In looking at state populations, however, there is considerable variability in the population of gifted and talented students (Figure 1.2).

For example, Maryland has the highest percentage of students classified as "gifted" (15.8 percent), while states such as Kansas, Massachusetts, Michigan, and New York all report that less than 2.0 percent of their student populations participate in these programs. **According to the data, Virginia has one of the highest proportions of gifted students (11.8 percent) in the country.** This represents more than 150,000 students across the state.[12]

Figure 1.2: Percentage of Public School Students Enrolled in Gifted and Talented Programs, 2011-2012

STATE	%	STATE	%	STATE	%
Alabama	8.4%	Kentucky	12.7%	North Dakota	3.3%
Alaska	4.7%	Louisiana	3.0%	Ohio	3.7%
Arizona	5.8%	Maine	4.6%	Oklahoma	13.9%
Arkansas	9.8%	Maryland	15.8%	Oregon	6.8%
California	8.2%	Massachusetts	0.7%	Pennsylvania	3.8%
Colorado	6.5%	Michigan	1.9%	Rhode Island	0.5%
Connecticut	2.3%	Minnesota	8.0%	South Carolina	12.0%
Delaware	2.0%	Mississippi	6.7%	South Dakota	2.0%
District of Columbia	0.1%	Missouri	4.0%	Tennessee	2.5%
Florida	5.4%	Montana	4.2%	Texas	7.7%
Georgia	10.4%	Nebraska	11.8%	Utah	3.9%
Hawaii	1.4%	Nevada	2.0%	Vermont	0.3%
Idaho	3.0%	New Hampshire	1.4%	Virginia	11.8%
Illinois	3.5%	New Jersey	6.5%	Washington	3.5%
Indiana	12.6%	New Mexico	4.6%	West Virginia	1.9%
Iowa	9.3%	New York	1.5%	Wisconsin	6.0%
Kansas	2.9%	North Carolina	10.6%	Wyoming	3.3%

Source: National Center for Education Statistics[13]

GIFTED PROGRAMMING STANDARDS

Although each state's education department is predominately responsible for establishing and maintaining policies regarding gifted students and programming, NAGC provides some

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[11] "Snyder, T.D., C. de Brey, and S.A. Dillow. "Digest of Education Statistics 2015: 51st Edition." National Center for Education Statistics, December 2016. p.165. https://nces.ed.gov/pubs2016/2016014.pdf

[12] Ibid.

[13] Adapted from: Ibid.

comprehensive standards that can help direct local efforts. These are in accordance with its mission, which is "to empower supporters to implement effective practices for all gifted and talented children in homes, schools, and communities." [14] Towards this goal, NAGC developed a set of programming standards for gifted education programming for students in Pre-K through Grade 12, which are based on input from industry experts and professionals from across the country and are endorsed by the Association for the Gifted and the Council for Exceptional Children. [15] **The standards focus on developing programming guidelines that emphasize student outcomes rather than set practices.** Further, NAGC recognizes that gifted students are dynamic and diverse, so these standards seek to value "gifts and talents" over "stable traits" in a varied student population.[16]

For example, Dr. Lauri Kirsch—the K-12 Gifted Program Supervisor at Hillsborough County Public Schools—explained that although Florida's state-level policies establish the broad parameters of the gifted education offerings at the district level, there is built-in leeway for school systems to personalize gifted learning to meet the needs of their unique student bodies. According to Dr. Kirsch, "the state's eligibility criteria […] tells us who can be classified as gifted, then each gifted student has an educational plan which addresses their learning goals […] Within that state gifted plan, then districts develop their own district plan that really looks at the options for serving their students."[17]

NAGC similarly sets forth six gifted programming standards as a foundation for educating gifted and talented learners at all stages of development. Each standard includes a set of relevant student outcomes and evidence-based practices for educators as they plan and implement gifted education programming.[18] The organization's standards are summarized below, in Figure 1.3.

Figure 1.3: NAGC Pre-K to Grade 12 Gifted Programming Standards

STANDARD	DESCRIPTION
Learning and Development	Educators, recognizing the learning and developmental differences of students with gifts and talents, promote ongoing self-understanding, awareness of their needs, and cognitive and affective growth of these students in school, home, and community settings to ensure specific student outcomes.

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[14] "NAGC Strategic Framework." National Association for Gifted Children, September 2016. p.6.
http://www.nagc.org/sites/default/files/Governance/StrategicFramework-2016.pdf

[15] "National Standards in Gifted and Talented Education." National Association for Gifted Children.
https://www.nagc.org/resources-publications/resources/national-standards-gifted-and-talented-education

[16] "NAGC Pre-K-Grade 12 Gifted Programming Standards: A Blueprint for Quality Gifted Education Programs."
National Association for Gifted Children, November 2010. p.4.
http://www.nagc.org/sites/default/files/standards/K-12%20standards%20booklet.pdf

[17] Kirsch, Lauri. K-12 Gifted Program Supervisor, Hillsborough County Public Schools. Telephone interview, February 9, 2017.

[18] "Pre-K to Grade 12 Gifted Programming Standards." National Association for Gifted Children.
https://www.nagc.org/resources-publications/resources/national-standards-gifted-and-talented-education/pre-k-grade-12

STANDARD	DESCRIPTION
Assessment	Assessments provide information about identification, learning progress and outcomes, and evaluation of programming for students with gifts and talents in all domains.
Curriculum Planning and Instruction	Educators apply the theory and research-based models of curriculum and instruction related to students with gifts and talents and respond to their needs by planning, selecting, adapting, and creating culturally relevant curriculum and by using a repertoire of evidence-based instructional strategies to ensure specific student outcomes.
Learning Environments	Learning environments foster personal and social responsibility, multicultural competence, and interpersonal and technical communication skills for leadership in the 21st century to ensure specific student outcomes.
Programming	Educators are aware of empirical evidence regarding (a) the cognitive, creative, and affective development of learners with gifts and talents, and (b) programming that meets their concomitant needs. Educators use this expertise systematically and collaboratively to develop, implement, and effectively manage comprehensive services for students with a variety of gifts and talents to ensure specific student outcomes.
Professional Development	All educators (administrators, teachers, counselors, and other instructional support staff) build their knowledge and skills using NAGC-CEC Teacher Standards for Gifted and Talented Education and the National Staff Development Standards. They formally assess professional development needs related to the standards, develop and monitor plans, systematically engage in training to meet the identified needs, and demonstrate mastery of standard. They access resources to provide for release time, funding for continuing education, and substitute support. These practices are judged through the assessment of relevant student outcomes.

Source: National Association for Gifted Children[19]

PROGRAM GOALS

In addition to the programming standards, **experts highlight the importance of having clear and shared program goals.** This shared vision between district stakeholders allows school systems to offer a comprehensive program that addresses student learning needs. Dr. Kirsch underscored the importance of this collective understanding in Hillsborough County Public Schools, for instance, stating that "any district [that] is really looking to make their program better: include the stakeholders in conversations because if you do [not] have those people at the schools onboard, from administrators to teachers to parents, if you do [not] have all of those stakeholder groups at the district onboard… You know everybody really has to have that common vision."[20]

IDENTIFYING GIFTED STUDENTS

Most schools have dedicated structures in place to identify students who are struggling or who may require additional academic or behavioral supports. However, it is less common to

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[19] Adapted from: "NAGC Pre-K-Grade 12 Gifted Programming Standards: A Blueprint for Quality Gifted Education Programs," Op. cit., pp.8–13.
[20] Kirsch, Op. cit.

devote the same level of attentiveness to students who display above-average abilities. Indeed, results from a national teacher survey reveal that only 7 percent of public school teachers believe that advanced students get the most overall attention at their schools, compared to 63 percent who report a prioritization of struggling students (Figure 1.4). Further, 81 percent of teachers estimate that struggling students are likely to receive one-on-one attention compared to only 5 percent of advanced students.[21] These perceptions can have important consequences for these students, as often, **"teachers' assumptions about gifted students are more important than a particular structure for teaching them."**[22]

Thus, it is important for schools to develop dedicated resources to identify gifted students and provide equal levels of oversight for their specific educational needs as their less-gifted peers. NACG claims that the "process of identifying students for gifted and talented programs must be based on defensible measurement practices, including the process of selecting psychometrically sound assessments aligned with a program's goals and objectives."[23] Traditionally, these assessments are the primary method used to identify gifted and talented students, which can be leveraged for a variety of purposes including "identifying students for gifted programs; providing ongoing feedback to guide the instructional process; and determining to what extent students have obtained intended goals."[24]

Figure 1.4: Attention and Resources Given to Students, by Student Ability Level
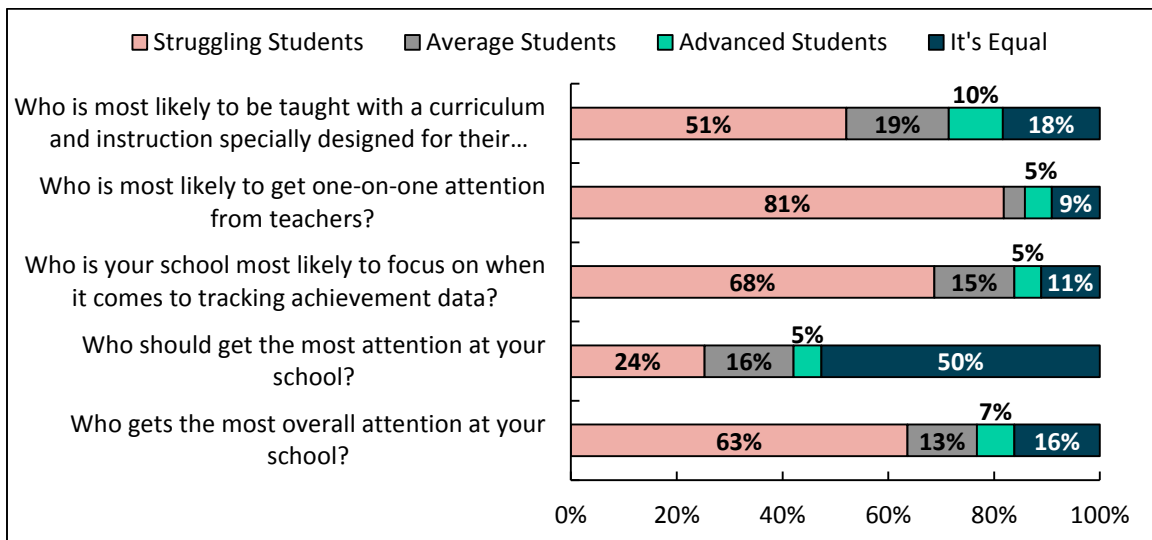
Source: Thomas B. Fordham Institute[25]

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[21] Farkas, S. and A. Duffett. "Part 2: Results from a National Teacher Survey." Thomas B. Fordham Institute. p.53. http://www.nagc.org/sites/default/files/key%20reports/High_Achieving_Students_in_the_Era_of_NCLB_Fordham.pdf

[22] Colucci, A. "Gifted Ed. Students Are More Than Just Really Smart Kids." *Education Week*, November 2015. http://www.edweek.org/tm/articles/2015/11/24/understanding-gifted-students.html

[23] "Position Statement: The Role of Assessments in the Identification of Gifted Students." National Association for Gifted Children. p.1. http://www.nagc.org/sites/default/files/Position%20Statement/Assessment%20Position%20Statement.pdf

[24] Ibid.

[25] Adapted from: Farkas and Duffett, Op. cit., p.53.

IDENTIFICATION PROCESS

When developing identification processes for gifted students, it is important that school districts adopt policies that consider the unique abilities of each student. That is, "while some commonalities exist across giftedness, one size does not fit all."[26] Indeed, Dr. Kirsch stated that **the identification process is both ongoing and flexible** at Hillsborough County Public Schools, saying that "identification is ongoing and so [teachers] have to be very flexible because the minute the student is found eligible as gifted, that student needs an education plan and needs services to begin."[27] Similarly, Ms. Sue Feigal-Hitch, the District Coordinator of Gifted Services at Eden Prairie Schools, explained that "we do need to have flexibility moving students, that capacity moving students to programming. Changing programming if that is not a fit for a student for any reason. Always looking for other students, again, that do [not] fir the typical profile for gifted and talented learners."[28]

NAGC recommends that schools take into account various issues that can differentiate one potentially gifted student from his or her peers, and clearly define the role that assessments play in the larger framework of gifted and talented education. These key considerations include:

- **Giftedness is dynamic, not static.** Identification needs to occur over time, with multiple opportunities to exhibit gifts. One test at a specific point in time should not dictate whether someone is identified as gifted.

- Giftedness is represented through all racial, ethnic, income levels, and exceptionality groups. **Underrepresentation is widely spread** among African-American, Hispanic-American, and Native American students.

- Giftedness may be exhibited within a specific interest category – and even a specific interest within that category. Professionals must seek ways to gather examples **across various domains and contexts.**

- **Early identification** in schools improves the likelihood that gifts will be developed into talents.[29]

As such, a **multi-phased and systematic identification process gives all students the chance to be included in gifted evaluations and ensures that the results capture a longitudinal view of student ability.** Experts typically describe the process across three phases, "with decisions made at each phase to determine if the students will progress to the next."[30] These phases address multiple points along the identification process, from nomination to

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[26] "Identification." National Association for Gifted Children. https://www.nagc.org/resources-publications/gifted-education-practices/identification

[27] Kirsch, Op. cit.

[28] Feigal-Hitch, Sue. District Coordinator of Gifted Services, Eden Prairie Schools. Telephone interview, February 13, 2017.

[29] Bullet points taken almost verbatim from: "Identification," National Association for Gifted Children, Op. cit.

[30] Johnsen, S.K. "Best Practices for Identifying Gifted Students." *Principal*, May 2009. p.13. https://www.naesp.org/resources/2/Principal/2009/M-J_p08.pdf

screening/ identification, and finally selection and placement in advanced programs (Figure 1.5). The nomination phase allows educators to consider all students, and should include input from students themselves, teachers, and parents. During the screening phase, schools should administer individual or small-group assessments that identify specific areas of giftedness (e.g., math, reading, etc.). Finally, during the placement phase, school officials should look at all student data holistically and identify students' strengths and weaknesses before deciding on ultimate selection.[31]

Figure 1.5: Key Assessments and Considerations of the Identification Phases

Nomination	Screening or Identification	Selection or Placement
• Teacher and parent checklists • Portfolio products and performances • Peer and self-nominations • Student background information • Teacher observations • Group intelligence and achievement tests	• Individually administered tests • Professional observations • Portfolio products and performances • Auditions • Interview	• Assessments are equally weighted • Best performance is used as an indicator of potential • Quantitative scores are comparable • Errors in assessments are considered • Performance over time is described

Source: National Association of Elementary School Principals[32]

NAGC believes that adherence to this three-stage identification model allows schools to find students who need services beyond the mainstream program. However, this relies on the use of multiple methods of assessment to ensure that identified students actually require additional services, and that their gifted programs align with their domains of interest. As evidenced above, this includes both quantitative and qualitative measures of student ability. Objective measures alone may be overly prohibitive, especially considering the full range of gifted attributes that students can demonstrate (e.g., technical aptitude, visual arts, etc.), while subjective measures could be more difficult to track over time. Thus, the combination of various identification instruments—such as assessments, student records, and expert observations—should be used to validate results and eliminate bias (Figure 1.6).[33]

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[31] Ibid.
[32] Adapted from: Ibid., pp.13–14.
[33] "Identification," National Center for Gifted Children, Op. cit.

Figure 1.6: Sample Gifted Student Identification Instruments

INSTRUMENT	DESCRIPTION
OBJECTIVE MEASURES	
Tests and Assessments	Individual intelligence and achievement tests are often used to assess giftedness. However, relying on IQ or performance results alone may overlook certain gifted populations. ▪ **Achievement Tests:** Achievement tests determine what the students already have learned and if they are more advanced than their grade level peers. They may be academic specific (i.e. Math or Language Arts) or standardized tests (such as SATs, ITBS, SRA, and MATs). These assessments should not have a ceiling so students are able to show all of what they know. ▪ **Ability Tests:** Intelligence quotient (IQ) or cognitive abilities test scores are also used to identify gifted and talented students. While these tests provide information for the intellectual domain, these tests are not as helpful in identifying someone with creative, leadership, or other abilities.
Student Cumulative Records	Grades, state and standardized tests are sometimes used as data points during the gifted identification process.
SUBJECTIVE MEASURES	
Nominations (Self, Peer, Teacher, Administrator, and/or Parent)	Nominations help cast a wide net for identifying as many students as possible who might qualify for gifted services. Often, gifted characteristic checklists, inventory, and nomination forms are completed by students, parents, teachers, and administrators to provide an informal perspective.
Teacher Observations and Ratings	Teachers may make observations and use rating scales or checklists for students who exhibit a certain trait or characteristic during instruction. Sample rating scales include Scales for Rating Behavioral Characteristics of Superior Students, Purdue Academic Rating Scales (PARS), Whitmore or Rimm Underachievement Scales, and Cultural Characteristics Scales.
Portfolios and Performances	Portfolios or work that is collected over time should include student reflections of their products and/or performances. Portfolios may be developed for both academic (language arts, math) and creative (speech, arts, music) pursuits.
Student Educational Profiles	While many forms may be used to identify gifted children, an academic or artistic case study approach can offer a more comprehensive process. Case studies may include data, observations, and growth demonstrated in various settings.

Source: National Center for Gifted Children[34]

Thus, "while some of the data in a body of evidence will be used to meet the criteria for gifted identification, other data or information may be used to build a learner profile for the

[34] Adapted from: [1] "Identification," National Center for Gifted Children, Op. cit.
[2] "Tests & Assessments." National Center for Gifted Children. https://www.nagc.org/resources-publications/gifted-education-practices/identification/tests-assessments

purpose of developing appropriate programming options."[35] In this way, the use of multiple identification methods is vitally important to ensure that gifted students' progress and needs are tracked. The student profiles formed through the collection of these varied data become important longitudinally, as often, students who were not identified as "gifted" in the early grades can develop accelerated needs in middle or high school. Indeed, the middle school years are the "prime time when gifted students may begin to underachieve […] middle schools should emphasize that being studious is positive, and help counteract the prevalent culture of anti-intellectualism."[36]

ELEMENTS OF AN EFFECTIVE IDENTIFICATION STRATEGY

Reflecting the need for multiple types of assessment data, NAGC recommends that schools consider a wide range of stakeholder input. While some of this will naturally stem from the qualitative identification methods, district leaders should ensure a dedicated collaboration between various advocates for gifted children so that "**the application of defensible measurement practices results in the equitable and consistent use of assessments for the purposes of gifted program identification."**[37] NAGC further identifies five "non-negotiable" practices for using tests as identification tools:

> ➤ The choice of assessment tools must match the definition of giftedness that has been determined by the state, district, or school. Any assessments used in the identification process also should be **aligned with the gifted program's goals and objectives** and desired outcomes for students.
>
> ➤ Identification of gifted and talented students should **not be based on a single assessment.** However, when multiple assessments are used, it is important that the assessments provide different types of information as well as measure the construct, i.e. mathematical reasoning ability, differently.
>
> ➤ The assessment conditions should **mimic as closely as possible a natural setting** in which the student can fully demonstrate his or her knowledge, skills, and abilities. The greater the unfamiliarity of the assessment setting, the greater the potential for undue negative influences on a student's performance.
>
> ➤ School system personnel have the responsibility to be well-informed consumers regarding the **technical documentation** of each assessment used for identification.
>
> ➤ School system personnel have the responsibility to ensure that persons who administer and score assessments used for identification are **appropriately trained** and that the placement decisions are **driven by defensible data** and not based on personal relationships, political associations, or parental pressure.[38]

Experts also stress that identification practices should recognize the potential for exceptional performance in addition to existing high levels of ability. This coincides with

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[35] "Gifted Identification." Colorado Department of Education, January 2016. p.6.
https://www.cde.state.co.us/gt/giftedidentification
[36] "Educational Opportunities for Gifted Middle School Students." Virginia Department of Education, 2015. p.5.
http://www.doe.virginia.gov/instruction/gifted_ed/opportunities_for_gifted_middle_school_students.pdf
[37] "Position Statement: The Role of Assessments in the Identification of Gifted Students," Op. cit. Emphasis added.
[38] Bullet points adapted from: Ibid., pp.2–3.

Virginia's definition of "giftedness" that highlights both demonstrated ability and possible future success. This is because a variety of internal and external factors can inhibit some students from expressing their true abilities. Therefore, the identification process should include assessments that look for discrepancies in measured ability and existing performance to help identify potentially gifted students.[39]

After gifted students have been identified, there are two key considerations that districts must address in programming: (1) how interventions for gifted students will be delivered; and (2) how the curriculum and instruction will be structured (Figure 1.7). This is because, overall, gifted students' learning gains "result from complex, advanced, and meaningful content provided by a knowledgeable teacher through high-quality curriculum and instruction at an appropriate pace with scaffolding and feedback [and] content should respect student differences and provide both structure and choice." [40] Schools are encouraged to select an appropriate combination of delivery and curriculum that meets their needs and resources.

Figure 1.7: Intervention Considerations for Gifted Education Programming

INTERVENTION CONSIDERATION	DEFINITION	VARIABLES
Service Delivery	The grouping arrangement under which curriculum and instruction are delivered.	▪ Context ▪ Accessibility and transportation ▪ Access to specialized teachers ▪ Administrative leadership ▪ Professional development ▪ Dosage (duration, intensity, and grade level) ▪ Accountability ▪ Preferred modes of instruction and products for subpopulations of underserved populations
Curriculum and Instruction	Any steps taken by a school district to provide curriculum and instruction modified to address the pace and depth of learning commensurate with the learning differences of identified gifted students through a specific delivery model over a set period of time.	▪ Subject content focused curriculum and instruction ▪ Culturally responsible curriculum for underserved populations ▪ Special content addressing social and emotional issues ▪ Accountability

Source: National Center for Research on Gifted Education[41]

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[39] Ibid., p.2.

[40] Del Siegle, E. et al. "Barriers to Underserved Students' Participation in Gifted Programs and Possible Solutions." *Journal for the Education of the Gifted*, 39:2, June 2016. p.120. http://journals.sagepub.com/doi/pdf/10.1177/0162353216640930

[41] Adapted from: Ibid., p.117.

Below, Hanover discusses the two central intervention considerations for gifted education programming in more detail.

GIFTED PROGRAM SERVICE DELIVERY

The specific model selected for a gifted education program is largely dependent on a number of localized contextual factors, including district size, the number of students involved in the program, and the availability of funding.[42] While full-time gifted education models—such as those offered in magnet schools—have been found to be effective, part-time gifted education models are often thought to be most appropriate for public secondary schools and in districts that do not want to devote resources to standalone gifted academies (Figure 1.8). These types of part-time programs, such as "honors" classes, allow gifted students to receive dedicated resources and instruction while enrolling in mainstream classes and schools.[43]

Figure 1.8: Prevalence of Program Delivery Model by School Level

PROGRAM	SCHOOL LEVEL		
	Elementary School	Middle School	High School
Pull-Out/Resource Rooms	48%	32%	17%
In-Class Clustering	36%	37%	30%
Homogenous/Ability Grouping	7%	20%	28%
Summer or Weekend Programs	6%	5%	6%

Source: Center for Gifted Education[44]

In general, the main debate in gifted education programming is whether high-ability students should be placed in separate learning spaces with only other gifted students (homogeneous grouping), or whether these students should participate in mainstream classrooms alongside peers of all ability groups (heterogeneous grouping).

As shown in Figure 1.8, above, in-class clustering is the most common delivery model at the middle and high school level, which suggests that heterogeneous grouping is more prevalent. However, pull-out/resource rooms and ability grouping strategies both represent ways to isolate gifted students in separate settings, and taken together, actually become more commonly implemented. Therefore, "the two most common ways to address the extremes of student ability, preparedness, and motivation are to either separate students into more homogeneous groups or provide differentiated instruction to different student

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[42] [1] VanTassel-Baska, J. and S. Reis. "Program Delivery Models for the Gifted." Center for Gifted Education, August 2006. p.1.
http://www.skitsap.wednet.edu/cms/lib/WA01000495/Centricity/Domain/49/Highly%20Capable%20Appendix%20A.pdf
[2] "Position Statement: Grouping." National Association for Gifted Children. p.3.
https://www.nagc.org/sites/default/files/Position%20Statement/Grouping%20Position%20Statement.pdf
[43] VanTassel-Baska and Reis, Op. cit., p.1.
[44] Adapted from: Ibid.

populations within the same classroom. *There are rational arguments for and against ability-based class assignment or sectioning.*"[45]

Regardless of the classroom composition, though, the research seems to support the notion that gifted students generally perform better through some form of grouped instruction.[46] This can manifest through in-class clustering, where teachers designate certain tasks for high-ability students, or through separate homogeneous learning spaces (e.g., pull-out room, self-contained gifted classroom) that separate gifted students for part of the day.[47] As summarized by the National Education Policy Institute,

> *[…] with students grouped by ability or achievement, the teacher is able to focus more instruction at the level of all the students in the group*; thus time is not wasted as bright students wait for elementary explanations to be given to their slower classmates, and slow students are not troubled with instruction that is over their heads. Bright students are thought to need a faster pace and enriched material; low-ability students are thought to require remediation, repetition, and more reviews.[48]

Indeed, according to researchers at NAGC, grouping is among the most effective strategies for meeting the needs of gifted and talented students. This programming option provides these students "access to appropriate levels of challenge and complexity" by lumping them with peers who can handle similar workloads.[49] Overall, the purposes of grouping include:

- Easing the delivery of appropriate differentiated curriculum to learners with similar educational needs;

- Facilitating the use of appropriately differentiated instructional strategies to learners with similar educational needs;

- Addressing the differential affective needs of these children in the most conducive manner; and

- Allowing for learners of similar abilities or performance levels to learn from each other.[50]

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[45] Powell, M. "Engaging Gifted Students in a Heterogeneous Classroom: Challenging Students with Varying Skill, Motivation, and Preparation in Mixed-Ability Settings." Center for Faculty Excellence, United States Military Academy, 2016. p.1. Emphasis added. http://www.usma.edu/cfe/Literature/Powell_16.pdf

[46] [1] Tomlinson, C.A. "What It Means to Teach Gifted Learners Well." National Association for Gifted Children. https://www.nagc.org/resources-publications/gifted-education-practices/what-it-means-teach-gifted-learners-well

[2] Glass, G.V. "Grouping Students for Instruction." National Education Policy Center. p.2. http://nepc.colorado.edu/files/Chapter05-Glass-Final.pdf

[47] "Position Statement: Grouping," Op. cit., pp.1–2.

[48] Glass, Op. cit., pp.2–3. Emphasis added.

[49] "Grouping." National Association for Gifted Children. https://www.nagc.org/resources-publications/gifted-education-practices/grouping

[50] Bullet points taken almost verbatim from: "Position Statement: Grouping," Op. cit., p.1.

In short, "instruction for gifted learners is inappropriate when it asks them to do thing they already know how to do, and then to wait for others to learn how [or] when they spend substantial time in the role of tutor or 'junior teacher'."[51] Overall, gifted education experts believe that the data generally support that "different types of classroom placement, designed to meet different student needs, may be identified with similarly positive student outcomes."[52] **As such, many district develop gifted education delivery models that are able to conform to the specific needs of diverse students.** For example, Dr. Kirsch noted that in Hillsborough County Public Schools, the guidelines for gifted education "really take a look at how a student would be gifted—whether it is in the ELA area, in math, in science, or a little bit more broadly, and then it may be in social studies—then what we do is we provide those services, typically on a part-time basis to address growth in that area."[53] Dr. Kirsch further explained that:

> **We use a variety of settings to provide services.** Some schools have a resource room and the students are pulled into the resource room for one period, multiple periods, portions of periods, on a daily basis. Sometimes it's multiple times per week, but again to be, it would depend upon the needs of that student for those advanced learning opportunities. In some places, they'll use more of an in class model.[54]

In this way, there are various grouping methods in place to ensure that students from a wide range of giftedness classifications can receive tailored instruction. Given the support for various gifted education program models, though, it will be important to consider district context and resources when making final programming decisions. Below, Hanover reviews the data supporting each type of grouping for gifted learners, considering which models may be most effective in various settings.

HOMOGENEOUS GROUPING

Despite the assurances from education practitioners that both forms of grouping are beneficial for gifted students, **empirical evidence highlights homogeneous grouping models as impactful for gifted student learning.** Information on these delivery formats is also generally more widely available and recent (Figure 1.9). According to NAGC, there are several grouping practices that conform to this model:

- **Pull-Out/Send-Out/Withdrawal/Resource Room Enrichment Group:** Gifted children are removed from their regular classrooms for a specified period of time each week to work on differentiated activities, such as critical thinking, creative problem solving, or extensions of the general curriculum for more complexity and depth.

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[51] Tomlinson, Op. cit.

[52] Shields, C.M. "A Comparison Study of Student Attitudes and Perceptions in Homogeneous and Heterogeneous Classrooms." *Roeper Review*, 24:3, Spring 2002. p.119. Accessed via ProQuest.

[53] Kirsch, Op. cit.

[54] Ibid.

- **Self-Contained Gifted Classroom:** Full-time homogeneous classrooms, usually one homogeneous classroom distinct from several general classrooms at each grade level in the school in which all curriculum areas are appropriately challenging and complex.

- **Full-Time Gifted Program:** A program of services offered to a group of gifted children of the same or multiple grade levels, usually housed in a single school, in which all curriculum areas are appropriately challenging and complex.[55]

Of these models, the most commonly addressed in the empirical research base is self-contained or separate classrooms within mainstream campuses. This model in particular is seemingly replacing the heterogeneous framework for gifted education in many schools;[56] in the past, "believing that gifted students are academic role models, some principals [made] an effort to place them in every class. In reality, gifted students may not be effective in helping their classmates learn because they make intuitive leaps in their thinking when more linear thinking might be more helpful to most students."[57] These types of learning environments, then, allow gifted students to receive dedicated instruction that matches their needs without the pressures of serving as classroom leaders for their lower-ability peers.

Figure 1.9: Empirical Evidence of the Effects of Homogeneous Grouping for Gifted Students

AUTHOR(S)	YEAR	SAMPLE	GROUPING POLICIES	OUTCOMES
Vogl and Preckel[58]	2014	■ 198 secondary school students across four successive cohorts ■ Students in gifted classes were younger than their peers in regular classes due to acceleration policies	■ Full-time ability grouping of gifted students, in addition to regular classes ■ Gifted students identified through application process, psychologist-administered IQ test, and teacher observations ■ Curriculum for gifted students was presented at a faster pace and in more depth	■ Students in gifted classes did not report declines in school interest or student-teacher relations, as opposed to their peers in regular classes ■ The social self-concept of acceptance of students in gifted classes increased significantly during the first month of school ■ Researchers propose that contact with intellectually comparable peers has a beneficial effect on the socioaffective development of gifted children

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[55] Bullet points adapted from: "Position Statement: Grouping," Op. cit., pp.1–2.

[56] Glass, Op. cit., p.5.

[57] Brulles, D. and S. Winebrenner. "Clustered for Success." *For Each to Excel*, 69:5, February 2012. p.1. http://cambridgeadvanced.org/wp-content/pdfs/Feb-2012-EL-article-on-Cluster-Grouping.pdf

[58] Vogl, K. and F. Preckel. "Full-Time Ability Grouping of Gifted Students: Impacts on Social Self-Concept and School-Related Attitudes." *Gifted Child Quarterly*, 58:1, 2014. https://www.researchgate.net/profile/Franzis_Preckel/publication/259243370_Full-Time_Ability_Grouping_of_Gifted_Students_Impacts_on_Social_Self-Concept_and_School-Related_Attitudes/links/0c960534e396cc79de000000.pdf

Author(s)	Year	Sample	Grouping Policies	Outcomes
Preckel, Gotz, and Frenzel[59]	2010	■ 186 Grade 9 students ■ Students attended same Grade 8 classroom placement, then were differentiated for Grade 9	■ Schools offered special homogeneous classes for gifted students starting in Grade 9 ("gifted track") ■ Students in the gifted track were grouped in special classrooms full time ■ Gifted students identified through parent nominations, IQ tests, grades, and teacher evaluations	■ Students selected for the gifted track experienced an initial boost in academic self-concept ■ There were no group differences in the overall frequency of boredom; however, gifted students cited different reasons for feeling bored ■ Gifted students reported boredom due to being under-challenged more frequently, which decreased overtime in ability-grouped classes
Delcourt, Cornell, and Goldberg[60]	2007	■ Elementary school students from 14 different districts across 10 states ■ Racially diverse student group (all classes had at least 10% non-white students)	■ Two-year study that tracked placement of high-ability learners in different classes at Grade 3 (when programming typically begins) ■ Study compared students enrolled in gifted programs: special school; separate class; pull-out; and within-class ■ Student in separate classes received instruction in homogeneous groups for all content-area courses; those in pull-out programs attended a resource room for two hours each week	■ Researchers conclude that there is clear evidence that programs for gifted students are effective ■ Students in homogeneous groups (pull-out, separate class, and special school program) showed higher achievement than gifted students who were not in a gifted program ■ These students also typically outperformed their peers in within-class programs ■ However, students in heterogeneously grouped classes had higher perceptions of their own abilities ■ There were no differences across groups on measures of intrinsic/ extrinsic motivation

Homogeneous groupings of gifted students maximize the amount of time that these children spend with intellectual and same-age peers, while typically providing time for interaction with mainstream peers as well. With these programs, students are typically grouped for core content area classes, and then participate in joint classes such as music or art with students from across ability groups.[61] Some researchers also note that, in comparison to within-class models, **homogeneous grouping frameworks ensure that**

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[59] Preckel, F., T. Gotz, and A. Frenzel. "Ability Grouping of Gifted Students: Effects on Academic Self-Concept and Boredom." *British Journal of Educational Psychology*, 80, September 2010. Accessed via EBSCOHost.

[60] Delcourt, M.A.B., D.G. Cornell, and M.D. Goldberg. "Cognitive and Affective Learning Outcomes of Gifted Elementary School Students." *Gifted Child Quarterly*, 51:4, Fall 2007. http://portal.ou.nl/documents/4291774/4368273/SE+Delcourt,%20M.+A.+B.,%20Cornell,%20D.+G.,%20%26%20Goldberg,%20M.+D.+(2007).pdf

[61] Ibid., p.361.

programming remains aligned with the needs of gifted students. In other words, in heterogeneous settings, "curricular and instructional provisions for the gifted must be carefully maintained lest they disintegrate into a no-program format."[62]
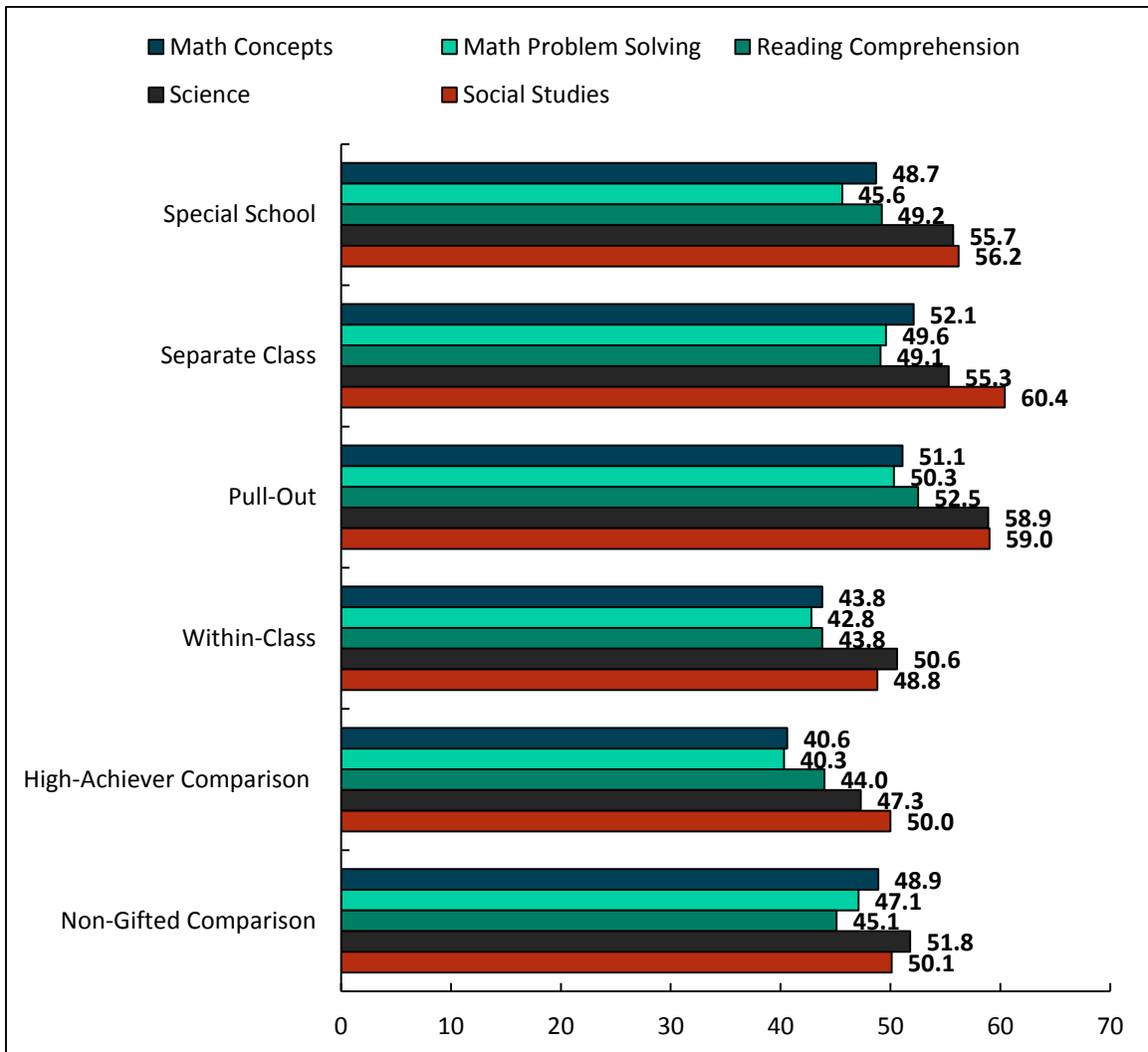
As shown in Figure 1.10, below, achievement scores in homogeneous group settings are higher compared to within-class or no-program models for gifted education. This includes special school, separate class, and pull-out models, suggesting that homogeneous learning spaces help high-ability students perform at higher levels. Moreover, data suggest that these environments have social and emotional benefits for gifted students as well. According to researchers, "an intellectually challenging environment and being with equally able peers seem to be decisive factors for fostering social acceptance and a positive class atmosphere."[63] Importantly, most of these benefits are observed in both part-time (i.e., pull-out, separate class) and full-time (i.e., special school) programs. As concluded by education practitioners, **"at least temporary ability grouping seems to be a necessary albeit not always sufficient way to promote a positive socioaffective development of gifted students."**[64]

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[62] Ibid., p.377.
[63] Vogl and Preckel, Op. cit., p.63.
[64] Ibid. Emphasis added.

Figure 1.10: Gifted Students' Achievement Scores by Program Type

Legend: ■ Math Concepts ■ Math Problem Solving ■ Reading Comprehension ■ Science ■ Social Studies

Special School
- 48.7
- 45.6
- 49.2
- 55.7
- 56.2

Separate Class
- 52.1
- 49.6
- 49.1
- 55.3
- 60.4

Pull-Out
- 51.1
- 50.3
- 52.5
- 58.9
- 59.0

Within-Class
- 43.8
- 42.8
- 43.8
- 50.6
- 48.8

High-Achiever Comparison
- 40.6
- 40.3
- 44.0
- 47.3
- 50.0

Non-Gifted Comparison
- 48.9
- 47.1
- 45.1
- 51.8
- 50.1

Source: Delcourt, Cornell, and Goldberg; "Cognitive and Affective Learning Outcomes of Gifted Elementary School Students"[65]

HETEROGENEOUS GROUPING

NAGC also identifies heterogeneous classrooms as viable delivery models for gifted students, provided that in-class grouping is offered. These types of classrooms allow the advanced curricular and instructional needs of gifted students to be met without removing them from mainstream classroom settings. The grouping practices associated with heterogeneous models include:

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[65] Adapted from: Delcourt, Cornell, and Goldberg, Op. cit., p.372.

- **Cluster Grouping:**[66] The top five to eight gifted students at a grade level are placed in a mixed-ability classroom as a small group and are provided proportionate differentiated curriculum and instruction by a teacher with gifted training (e.g., eight children in a class of 24 would receive one-third of the teacher's time).

- **Like-Ability Cooperative Groups:** When a teacher decides to use cooperative learning groups in a mixed-ability classroom, the highest ability three or four students are grouped together for a differentiated cooperative task or learning experience and given differentiated expectations.[67]

The literature regarding the effectiveness of heterogeneous grouping models is less decisive than it is for homogeneous settings (Figure 1.11). Importantly, many of the major studies that examine in-class clustering are somewhat dated, which highlights recent paradigmatic shifts away from this model.[68]

Figure 1.11: Empirical Evidence of the Effects of Heterogeneous Grouping for Gifted Students

AUTHOR(S)	YEAR	SAMPLE	GROUPING POLICIES	OUTCOMES
Matthews, Ritchotte, and McBee[69]	2013	▪ 360 K-6 students in dual-language charter school ▪ About one-third of the students in Grades 3-6 are academically gifted	▪ Heterogeneous grouping was the standard policy, where gifted students were spread evenly throughout all classes ▪ The school attempted a class-wide cluster model for one year before reverting back to the original policy ▪ Students identified as gifted if they score within the 97th percentile on a cognitive test, and classified as gifted in reading, math, or both	▪ No differences in reading achievement were found between the two models of gifted education ▪ However, findings suggest that total school cluster (i.e., homogeneous) grouping may be more beneficial in math ▪ This grouping yielded statistically significant increases in the rate of skill acquisition for gifted students in the years following cluster grouping

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[66] Note that the term "cluster grouping" is used in the literature as a nomenclature for both within-class and across-class groupings, so it is important to contextualize the model as either "school-wide cluster grouping" or "in-class cluster grouping."

[67] Bullet points adapted from: "Position Statement: Grouping," Op. cit., pp.1–2.

[68] See, for example: Stepanek, J. "The Inclusive Classroom: Meeting the Needs of Gifted Students: Differentiating Mathematics and Science Instruction." Northwest Regional Educational Laboratory, December 1999. http://educationnorthwest.org/sites/default/files/12.99.pdf

[69] Matthews, M.S., J.A. Ritchotte, and M.T. McBee. "Effects of Schoolwide Cluster Grouping and Within-Class Ability Grouping on Elementary School Students' Academic Achievement Growth." *High Ability Students*, 24:2, 2013. Accessed via EBSCOHost.

Author(s)	Year	Sample	Grouping Policies	Outcomes
Brulles, Saunders, and Cohn[70]	2010	▪ 772 gifted students in math classes across one district in Arizona ▪ 83 percent of students qualify for free- or reduced-price lunch	▪ District implemented an in-class gifted-cluster grouping model, which avoided placing students of two different extremes in the same class ▪ Gifted students identified through percentile ranking (95th or higher) on cognitive ability test ▪ Gifted clusters made up of between five and nine gifted students ▪ Gifted teachers modified curriculum and pacing to allow gifted students to move beyond grade level	▪ Student learning was found to be at higher levels when gifted students received services in gifted cluster classes ▪ Note that all gifted teachers received dedicated training in gifted education ▪ Researchers posit that the combination of both *ability grouping* and *curriculum alteration* is important for high-ability students

For heterogeneous classrooms to be effective, teachers must be specially trained to differentiate instruction based on student needs. There is often more flexibility in the instructional methods used in these classrooms, as educators must address a broad spectrum of learning requirements. Indeed, in these models, gifted instruction can be conveyed in a number of ways such as "cluster grouping, independent study, as well as creative and affective enrichment activities."[71] Given the level of oversight that teachers in cluster-grouped classrooms must have over different student groups, adequate training is essential in this framework. As concluded by education practitioners, "there may be educational advantages of cluster grouping gifted students when provided curriculum and instruction at levels commensurate with their ability *by teachers who have knowledge concerning the application of differentiated learning strategies.*"[72]

CURRICULUM AND INSTRUCTION

A joint statement from NAGC and the National Middle School Association (NMSA) firmly advocates for the **development of high-quality curriculum and instruction to meet the needs of gifted learners in secondary school.** Noting the differences in the "cognitive skills, interests, modes of learning, and motivations" between high-ability adolescents and their peers, the statement identifies critical elements for the identification, assessment, and support of gifted secondary-school learners.[73] Experts in gifted education highlight the

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[70] Brulles, D., R. Saunders, and S.J. Cohn. "Improving Performance for Gifted Students in a Cluster Grouping Model." *Journal for the Education of the Gifted*, 34:2, 2010. http://files.eric.ed.gov/fulltext/EJ910197.pdf
[71] Delcourt, Cornell, and Goldberg, Op. cit., p.367.
[72] Brulles, Saunders, and Cohn, Op. cit., p.344. Emphasis added.
[73] "Meeting the Needs of High Ability and High Potential Learners in the Middle Grades." National Association for Gifted Children and National Middle School Association. p.2.

formation of clear and consistent curricular and instructional goals as central to the broader program, and encourage districts to develop goals for high-ability students that reflect their needs:

> *Program goals may be established by linking them with well-known systems and models in gifted education, or adopting or adapting them to local identified needs* […] *they may focus on: advanced content, methodologies, and products; productive, complex, abstract, or higher level thinking skills; dynamics of group process; or the application of knowledge and skills to interest-based problems to be resolved.*[74]

Generally there are two commonly implemented curricular models and educational techniques employed in gifted programs: (1) acceleration, which relies on accelerating gifted students to higher content levels; and (2) curriculum compacting, which relies more pointedly on instructional differentiation and enrichment. In fact, roughly 60 percent of gifted programs at the elementary school level cite differentiation, enrichment, and/or acceleration as the primary foci of their gifted programs' learning opportunities.[75] Each curriculum/instructional method can be combined with a specific program delivery model (e.g., pull-out, clustering) to best meet the needs of a district's students and available resources.

ACCELERATION

One of the most common types of programming for gifted students is acceleration. According to NAGC, acceleration can include any number of more specific programs that allow students to "move through traditional curriculum at rates faster than typical."[76] Traditional forms of academic acceleration include grade-skipping, dual-credit courses (e.g., Advanced Placement, or AP, and International Baccalaureate, or IB), and subject-based acceleration (e.g., when a student in Grade 5 takes a middle school math course). It can even include early entrance into Kindergarten or college.[77] **Broadly, though, acceleration policies are classified as either grade-based acceleration or content-based acceleration** (Figure 1.12).

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https://www.nagc.org/sites/default/files/Position%20Statement/NAGC-NMSA%20Joint%20Position%20Statement.pdf
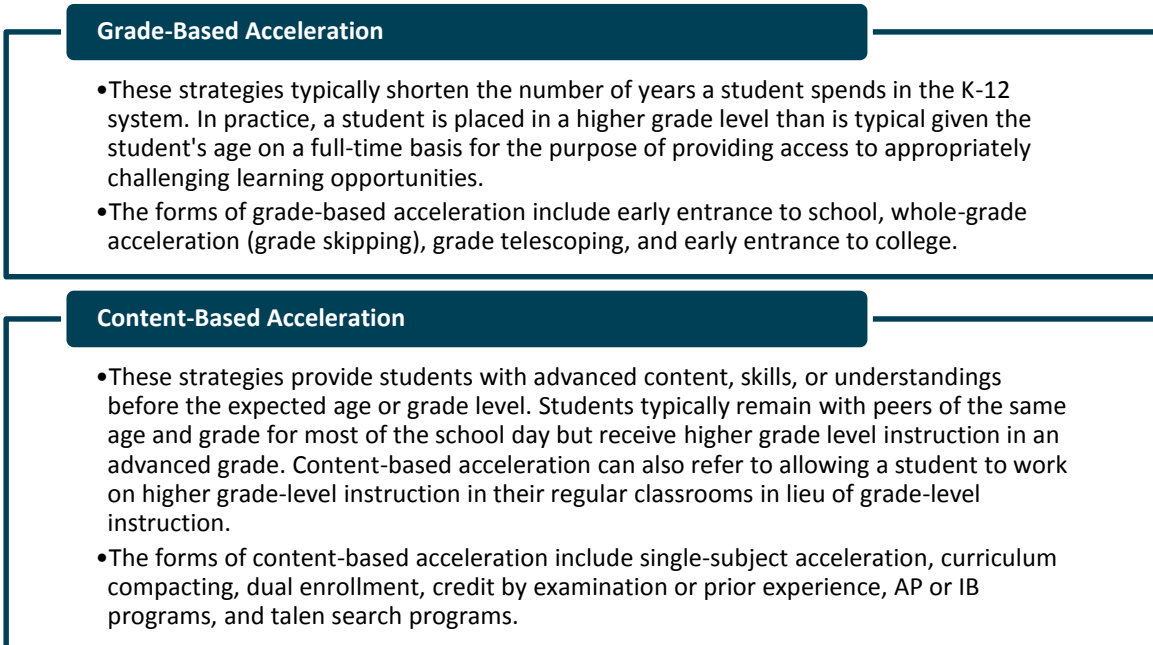
[74] Del Siegle et al., Op. Cit., p.119. Emphasis added.

[75] Ibid.

[76] "Acceleration." National Association for Gifted Children. https://www.nagc.org/resources-publications/gifted-education-practices/acceleration

[77] Ibid.

Figure 1.12: Main Frameworks for Acceleration Options for Gifted Students

Grade-Based Acceleration

- These strategies typically shorten the number of years a student spends in the K-12 system. In practice, a student is placed in a higher grade level than is typical given the student's age on a full-time basis for the purpose of providing access to appropriately challenging learning opportunities.
- The forms of grade-based acceleration include early entrance to school, whole-grade acceleration (grade skipping), grade telescoping, and early entrance to college.

Content-Based Acceleration

- These strategies provide students with advanced content, skills, or understandings before the expected age or grade level. Students typically remain with peers of the same age and grade for most of the school day but receive higher grade level instruction in an advanced grade. Content-based acceleration can also refer to allowing a student to work on higher grade-level instruction in their regular classrooms in lieu of grade-level instruction.
- The forms of content-based acceleration include single-subject acceleration, curriculum compacting, dual enrollment, credit by examination or prior experience, AP or IB programs, and talen search programs.

Source: Institute for Research and Policy on Acceleration and National Center for Gifted Children[78]

The Institute for Research and Policy on Acceleration (IRPA) and NAGC report that "as an educational intervention, acceleration is decidedly effective for high-ability students [and] there is no evidence that acceleration has a negative effect on a student's social-emotional development."[79] Gifted students who participate in accelerated programs often outperform their grade-level peers over the long-term, typically displaying higher achievement through high school and college (Figure 1.13).

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[78] Adapted from: "Guidelines for Developing an Academic Acceleration Policy." National Association for Gifted Children, Institute for Research and Policy on Acceleration, and Council of State Directors of Programs for the Gifted, November 2009. p.2–3.
http://www.nagc.org/sites/default/files/Advocacy/Acceleration%20Policy%20Guidelines.pdf
[79] Ibid., p.4.

Figure 1.13: Empirical Evidence of the Effects of Acceleration on Gifted Students

AUTHOR(S)	YEAR	SAMPLE	ACCELERATION POLICIES	OUTCOMES
McClarty[80]	2015	▪ Nationally representative sample of students from Grade 8 to high school graduation	▪ Researchers examined students who skipped a grade (or relatedly, entered Kindergarten early) ▪ Gifted students matched with non-accelerated peers	▪ Accelerated students consistently and significantly outperformed their non-accelerated peers in both high school and college ▪ Students who skipped a grade *and* participated in a gifted academic program (e.g., AP, high-ability instructional groups) demonstrated particularly high achievement
Park, Lubinski, and Benbow[81]	2013	▪ Nationally representative sample of mathematically precocious students ▪ Identified students were in top 1%	▪ Students identified through top scores on math subtest of SAT at age 13 ▪ Students then participated in a grade-based acceleration program	▪ Students who skipped a grade were more likely to pursue advanced degrees in STEM fields and earned their degrees earlier ▪ By age 50, these accelerated students had accrued more academic citations than their non-accelerated peers ▪ Researchers conclude that grade skipping may enhance STEM accomplishments among mathematically talented students
Kuo and Lohman[82]	2011	▪ 236 Grade 12 students	▪ All participants skipped a grade between K-7 ▪ Students divided by the timing of their acceleration: K; Grade 1-2; 3- 5; or 6-7	▪ Female, white, and high socio-economic status students were more likely to skip an early grade ▪ Accelerated students who skipped Kindergarten were more likely to excel in reading and math by Grade 12 than their peers who skipped later in elementary or middle school
Lee, Olszewski-Kubilius, and Peternel[83]	2010	▪ 30 students in Grades 4 through 9 who participated in Project EXCITE for academically talented minority students ▪ Large number of students of diverse ethnicity	▪ EXCITE provided supports to enable students to enter high school accelerated one year in math and prepared for honors science courses ▪ Students selected through nominations and performance on achievement tests.	▪ Minority students' attitudes toward taking accelerated math courses was positive and they were more confident and enthusiastic than non-accelerated peers in the same classes ▪ No negative peer pressure resulting from academic acceleration was found

[80] McClarty, K.L. "Life in the Fast Lane: Effects of Early Grade Acceleration on High School and College Outcomes." *Gifted Child Quarterly*, 59:1, 2015. http://journals.sagepub.com/doi/pdf/10.1177/0016986214559595

[81] Park, G., D. Lubinski, and C.P. Benbow. "When Less is More: Effects of Grade Skipping on Adult STEM Productivity Among Mathematically Precocious Adolescents." *Journal of Educational Psychology*, 105:1, 2013. https://my.vanderbilt.edu/smpy/files/2013/02/Park-Lubinski-Benbow-20131.pdf

[82] Kuo, Y. and D.F. Lohman. "The Timing of Grade Skipping." *Journal for the Education of the Gifted*, 34:5, September 2011. Accessed via EBSCOHost.

[83] Lee, S., P. Olszewski-Kubilius, and G. Peternel. "The Efficacy of Academic Acceleration for Gifted Minority Students." *Gifted Child Quarterly*, 54:3, Summer 2010. Accessed via ProQuest.

Most literature that addresses acceleration pertains to grade acceleration, in which gifted students skip a grade. Researchers find that students who display high levels of academic preparedness and aptitude are more likely to also participate in other forms of acceleration such as honors classes. Indeed, "students who skip ahead may also be more likely to take advantage of additional challenging educational opportunities […] when compared with similar eighth-grade peers who did not skips, accelerated students were more likely to be enrolled in advanced, enriched, or accelerated eighth-grade courses."[84] This highlights the potential cumulative advantages of allowing precocious students to participate in accelerated academic programs.

However, grade-based acceleration is often a large transition requiring both academic ability and emotional readiness, given that gifted students will be peers with older students. Accordingly, the choice to accelerate a student may involve complex decision-making processes. The Johns Hopkins School of Education recommends that schools considering acceleration consider the following guidelines to help ensure appropriate grade-skipping:

- The student should have a measured IQ of 130 or higher;

- No matter how far advanced the student may be, he or she should skip only one grade at a time; further acceleration can be considered the following year;

- The student should be evaluated for any skill gaps that may occur as a result of missing coursework, and assisted to make up the material;

- The student's new teacher should be supportive of the move;

- The student's parents should be supportive, and prepared to provide assistance with the adjustment;

- Grade skipping decisions should be made on a case-by-case basis, and should consider all aspects of the student's development; and

- Acceleration should be done on a trial basis, so that the student may move back to the lower grade without feeling like a failure.[85]

On the other hand, **subject-based acceleration requires a relatively smaller transition than grade-based acceleration, typically only requiring high academic ability in a particular content area.**[86] This form of acceleration is supported by the preponderance of teachers; for example, 85 percent of gifted and talented teachers advocate its use, or any other form of "moving students faster when they have proven their capacity to learn at a quicker pace."[87] IRPA and NAGC assert that, regardless of the specific acceleration method adopted by

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[84] McClarty, Op. cit., p.9.
[85] Bullet points taken verbatim from: Forschmiedt, J. "The Acceleration Question: Should Gifted Children Skip Grades?" Johns Hopkins School of Education.
http://education.jhu.edu/PD/newhorizons/Exceptional%20Learners/Gifted%20Learners/Articles%20-%20Gifted%20Learners/acceleration_question.htm
[86] "Question & Answer." Acceleration Institute. http://accelerationinstitute.org/Resources/QA/
[87] Farkas and Duffett, Op. cit., p.68.

districts, schools should develop written acceleration policies that clearly outline how and when students can be advanced (Figure 1.14).

Figure 1.14: Recommended Elements of an Academic Acceleration Policy

POLICY	CONDITIONS FOR SUCCESSFUL IMPLEMENTATION
Policy is characterized by accessibility, equity, and openness.	■ Access to referral for consideration of acceleration is open to all students. ■ All student populations are served. ■ Student evaluation is fair, objective, and systematic. ■ Parents or guardians are allowed open communication about the policy and procedures. ■ The community has ready access to the policy document and procedure guidelines; community access includes making the policy available in the language(s) served by the school.
Policy provides guidelines for the implementation of acceleration.	■ The categories, forms, and types (where appropriate) of acceleration are specified. ■ Acceleration decisions should be made by child study teams, not individuals. ■ The child study team creates a "Written Acceleration Plan." ■ The policy specifics that the acceleration process includes a monitored transition period within which decisions can be reversed.
Policy provides guidelines on administrative matters to ensure fair and systematic use of accelerative opportunities and recognition for participation in these.	■ Short-term needs are addressed (e.g., specifying which grade level state achievement test the student should take). ■ Long-term needs are addressed (e.g., indicating accelerated coursework on a student's transcript). ■ The process of awarding credits to students is specified.
Policy provides guidelines for preventing non-academic barriers to the use of acceleration as an educational intervention.	■ Extracurricular opportunities, especially interscholastic sports opportunities, should not be withheld or denied to students who are accelerated. ■ Use of acceleration should not negatively affect school funding.
Policy includes features that prevent unintended consequences.	■ An appeals process should be specified for decisions made at any step during the process. ■ The acceleration policy should be regularly evaluated on its effectiveness.

Source: Institute for Research and Policy on Acceleration and National Center for Gifted Children[88]

Overall, the existing literature generally points to the use of acceleration over enrichment to advance gifted students' learning. Experts in gifted education suggest that "the strongest body of research evidence supports the use of advanced curricula in core areas of learning at an accelerated rate of high-ability learners. This conclusion has not changed much in the

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[88] Adapted from: "Guidelines for Developing an Academic Acceleration Policy," Op. cit., pp.5–7.

past 20 years."[89] As concluded in a review of gifted education curriculum models, the implication for best practices would be "to group gifted students instructionally by subject area for advanced curriculum work that would be flexibly organized and implemented based on students' documented level of learning within the subject area."[90] Thus, experts propose that schools accelerate students in high-ability content areas at minimum, and provide options for grade-based acceleration for highly gifted individuals. In Virginia, the VDOE stipulates that accelerated learning is based on "appropriately differentiated curriculum and instruction" that is modified to accommodate the aptitudes of students in their areas of strength.[91] This provides gifted students with the opportunity for:

- Advanced content and pacing of instruction;

- Original research or production;

- Problem finding and solving;

- Higher-level thinking that leaders to the generation of products; and

- A focus on themes, issues, and ideas within and across areas of study.[92]

CURRICULUM COMPACTING/ENRICHMENT

Curriculum compacting is a method of in-class differentiation for gifted students, such that they **can remain in mainstream classes with grade-level peers while maintaining a more rigorous workload to match their skills.** This programming option allows "teachers to make adjustments to curriculum for students who have already mastered the material to be learned, replacing content students know with new content, enrichment activities, or other activities."[93] It can also be used in homogeneous classrooms where gifted students will continue to naturally display varying levels of readiness. This replacement is enriching and "allows students to progress through the content at a pace comparable to their ability levels and provides opportunities to pursue topics of interest."[94]

Experts indicates that this form of differentiation can ensure that schools are meeting critical learning and accountability standards while meeting the needs of all students; as such:

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[89] VanTassel-Baska, J. and E.F. Brown. "Toward Best Practice: An Analysis of the Efficacy of Curriculum Models in Gifted Education." *The Gifted Child Quarterly*, 51:4, Fall 2007. p.351. https://www.researchgate.net/profile/Joyce_Vantassel-Baska/publication/249827407_Toward_Best_PracticeAn_Analysis_of_the_Efficacy_of_Curriculum_Models_in_Gifted_Education/links/55db89a908ae9d6594936432/Toward-Best-PracticeAn-Analysis-of-the-Efficacy-of-Curriculum-Models-in-Gifted-Education.pdf

[90] Ibid.

[91] "Gifted Education: Frequently Asked Questions." Virginia Department of Education. http://www.doe.virginia.gov/instruction/gifted_ed/faq.shtml

[92] Bullet points taken verbatim from: Ibid.

[93] "Curriculum Compacting." National Association for Gifted Children. https://www.nagc.org/resources-publications/gifted-education-practices/curriculum-compacting

[94] Stamps, L.S. "The Effectiveness of Curriculum Compacting in First Grade Classrooms." *Roeper Review*, 27:1, Fall 2004. p.31. http://gifted.uconn.edu/wp-content/uploads/sites/961/2015/09/lsstamps.pdf

> *When teachers differentiate the instruction, they provide multiple ways for all learners to succeed academically **without lowering the standards or benchmarks that must be addressed** as stipulated by the particular school district or state board of education. All students engage in moderately challenging curriculum modified to account for learning differences among the students in the classroom."*[95]

In general, data suggest that curriculum compacting and enrichment activities are beneficial for gifted students, provided that teachers are trained in this form of differentiation (Figure 1.15). Among the major research-based studies cited below, a main consideration is that educators receive dedicated professional development or training in devising compacted curricula for gifted students. Because this is often outside the scope of traditional educator training, teachers in these classrooms are generally "provided strategies for managing different grouping arrangement within and between classrooms and supplementary materials that could be used in an interest of learning center."[96]

Figure 1.15: Empirical Evidence of the Effects of Curriculum Compacting on Gifted Students

AUTHOR(S)	YEAR	SAMPLE	ENRICHMENT POLICIES	OUTCOMES
Kim[97]	2016	▪ 26 empirical studies conducted between 1985 and 2014	▪ Researchers conducted a meta-analysis of studies that examined the effects of enrichment programs ▪ They defined enrichment as "adjusting the content with depth and expanding learning experiences within the topic rather than focusing on mastering content in faster mode"	▪ Enrichment programs have a positive impact on gifted students' academic achievement ▪ These programs also positively impact socioemotional development ▪ Largest effect size was observed for summer residential programs
Pierce et al.[98]	2011	▪ Grade 3 classrooms from across 52 schools in a large, urban district ▪ Study examines data from two years of the six-year study	▪ Students identified as gifted participated in gifted clusters of three to 10 peers within their mixed-ability classes ▪ Teachers used tiered lessons in math to align lessons with gifted students' needs, and received dedicated training for differentiation	▪ Teachers in large urban districts can promote academic gains over time provided the curriculum is designed to support learning at varied levels ▪ Curriculum materials, grouping practice, and level of teacher intentionality are all significant factors contributing to the success of enrichment programs

[95] Pierce, R.L. et al. "The Effects of Clustering and Curriculum on the Developments of Gifted Learners' Math Achievement." *Journal for the Education of the Gifted*, 34:4, 2011. p.591. Emphasis added. http://journals.sagepub.com/doi/pdf/10.1177/016235321103400403

[96] Tieso, C. "The Effects of Grouping Practices and Curricular Adjustments on Achievement." *Journal for the Education of the Gifted*, 29:1, 2005. p.70. http://files.eric.ed.gov/fulltext/EJ746279.pdf

[97] Kim, M. "A Meta-Analysis of the Effects of Enrichment Programs on Gifted Students." *Gifted Child Quarterly*, 60:2, 2016. http://journals.sagepub.com/doi/pdf/10.1177/0016986216630607

[98] Pierce et al., Op. cit.

AUTHOR(S)	YEAR	SAMPLE	ENRICHMENT POLICIES	OUTCOMES
Tieso[99]	2005	▪ 31 Grade 4 and 5 teachers and their students ▪ All teachers received professional development through the National Research Center on the Gifted and Talented	▪ Students in mixed-ability classes were divided into low, middle, and high ability subgroups to receive differentiated lessons ▪ High-ability students' lessons were augmented with higher level abstract questioning strategies and critical thinking skills	▪ Researchers concluded that adapting lessons to differentiate the curriculum, combined with flexible grouping, may have a significant positive impact on students' achievement in math ▪ Teachers must play a prominent role in curriculum development, but it is essential that they know students' ability levels prior to implementing it
Stamps[100]	2004	▪ 70 Grade 1 students ▪ All teachers received two-hour curriculum compacting training	▪ Reading and math readiness measures were used to determine classification as high-ability students ▪ Teachers instructed to compact the work for students who had already mastered skills and content	▪ Teachers who compacted the curriculum used more curriculum modifications and enrichment activities than control-group peers ▪ Students who received this differentiated instruction reported more positive attitudes toward school

Successful curriculum compacting requires that teachers know their students' ability level at the start of the year. This allows them to development dedicated enrichment activities for them ahead of time, thereby specializing content between student ability groups. To this end, most curriculum compacting models comprise three key steps:

▪ Pretesting students at the beginning of a unit;

▪ Eliminating content or skills students already know; and

▪ Replacing the skipped content with alternative topics or projects.[101]

After deciding which areas of the curriculum can be eliminated, teachers collaborate with their students to select appropriate replacement and enrichment activities. Activities can include alternative reading assignments, independent investigations, mini-courses in more advanced material, and even activities normally associated with acceleration, such as studying material in the next subject unit or grade level.[102] First-time compacting teachers indicate that compacting "makes learning fun" and "saved time," and that they plan to continue compacting during the next school year.[103]

Compacting can be a highly complex process, though. This is because educators often do not consider gifted students to require as much attention as their lower-achieving peers;

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[99] Tieso, Op. cit.
[100] Stamps, Op. cit.
[101] Bullet points adapted from: Stepanek, Op. cit., p.25.
[102] Stamps, Op. cit., p.33.
[103] Ibid., p.37.

yet, "the level, pacing, amount of work, and type of learning activities that benefit average learners are just as inappropriate for above-average learners as they are for students who are working below grade-level expectations."[104] In a guide for teachers working with gifted students, professional development specialists suggest steps for successful curriculum compacting regardless of model. Some of these steps include:

- **Lessen the amount of grade-level work** they must do because they can demonstrate mastery with less practice.

- **Increase the pace of a lesson** and allow them to spend considerable class time working on extensions or independent study.

- **Adjust the content** so it extends beyond the grade-level parameters, fuels students' passion for learning all they can about an interesting topic, and gives them opportunities for acceleration as part of their regular school experience.

- **Allow them to work with each other** on extension tasks and limit our expectations for them to assist other students who need help.

- **Change our style of interaction with them** from being a provider of information, or "sage on the stage," to being a leaning "guide on the side."

- **Welcome their parents as important partners** in their learning; after all, every adult's goal for his or her kids is the same – for kids to love school and love learning for the rest of their lives.[105]

In order to match the varying profiles of gifted learners, **the literature on gifted education typically recommends that programs offer both curricular acceleration and curricular compacting/enrichment.** The NAGC emphasizes the importance of providing gifted students with opportunities to increase both subject coverage and depth.[106] Enrichment and acceleration models are often complementary, with high-quality enrichment often resulting in the presentation of advanced and/or accelerated content.

TEACHER TRAINING

Teachers who lead classrooms with gifted students—either in whole-class, homogeneous settings or in-class clusters—should receive dedicated training in order to most effectively respond to these students' learning needs. Indeed, NAGC asserts that "teacher training is essential for all educators involved in the development and implementation of gifted programs and services."[107] Although only a few states require that teachers involved in

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[104] Winebrenner, S. *Teaching Gifted Kids in Today's Classroom: Strategies and Techniques Every Teacher Can Use*. Free Spirit Publishing, 2014. p.5. https://www.freespirit.com/files/original/Teaching-Gifted-Kids-Todays-Classroom-preview-1.pdf
[105] Bullet points taken verbatim from: Ibid.
[106] "Critical Content of Gifted Education for K-12 Schools." National Association for Gifted Children. p.1. http://www.ctgifted.org/website/cmsAdmin/uploads/Critical-Content-of-GT.pdf
[107] "Standard 6: Professional Development." National Association for Gifted Children. https://www.nagc.org/resources-publications/resources/national-standards-gifted-and-talented-education/pre-k-grade-12-6

gifted education programs receive this specialized training (in fact, only five do), **most experts agree that substantive professional development should be considered an integral part of all gifted education programs.**[108] This professional development provides advocates for gifted students, as teachers who receive dedicated training in gifted education are better able to understand the needs of these students. According to Dr. Kirsch, "if classroom teachers do [not] believe in gifted kids and their needs as being anything beyond what any other child needs, then you run into a barrier. We have found that by having dedicated gifted teachers in each of our schools, that person becomes the cheerleader."

However, most teachers report that specialized training for gifted education is not often incorporated into their professional development. In one national survey, data show that 18 percent of teachers' training did not focus at all on advanced student learning, while 46 percent reported "very little" focus on gifted education (Figure 1.16).[109] Similarly, NAGC found that 65 percent of teachers indicated that "teacher preparation programs did not equip them to teach academically advanced students" and 58 percent reported having "no professional development over the past five years that focused on teaching" these students.[110] This reveals that districts must develop and roll-out services to help teachers properly address gifted students, regardless of delivery method or curriculum model.

Figure 1.16: Level of Focus on Teaching Academically Advanced Students During Teacher Preparation
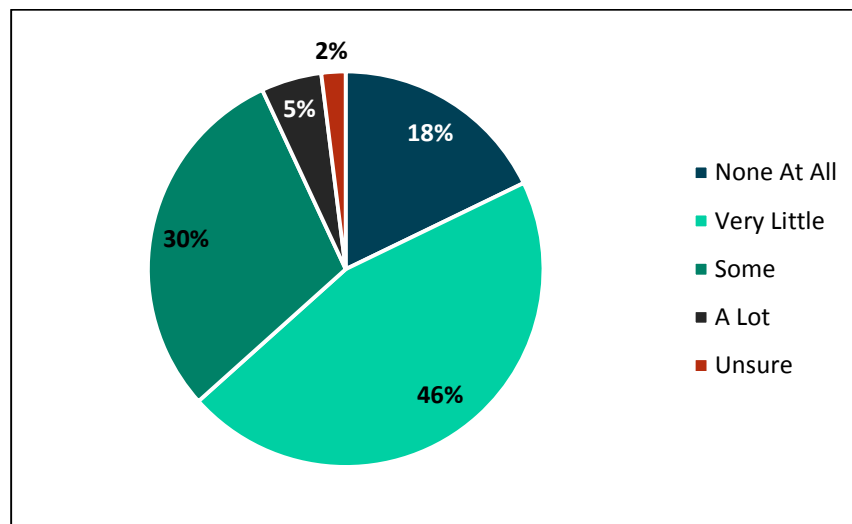
Source: Thomas B. Fordham Institute[111]

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[108] [1] "Classroom Instruction and Teacher Training for Gifted Students from Diverse Populations." National Center for Gifted Children. https://www.nagc.org/resources-publications/resources/timely-topics/ensuring-diverse-learner-participation-gifted-1
[2] Del Siegle, Op. cit., p.118.
[109] Farkas and Duffett, Op. cit., p.63.
[110] Johnsen, S.K. "National Challenges in Providing Services to Gifted Students." *Gifted Child Today*, 36:1, January 2013. Accessed via EBSCOHost.
[111] Adapted from: Farkas and Duffett, Op. cit., p.63.

Schools with successful gifted programs ensure that gifted teachers receive regular and dedicated professional development throughout the year. Standards for gifted educators in Florida, for example, are relatively strict and require that all gifted teachers receive gifted endorsement; according to Dr. Kirsch, that is the "equivalent of five, three-semester hour courses or we offer it through in-service through the district which would be 300 in-service hours of training in gifted education."[112]

The NAGC likewise views this specialized and ongoing professional development as a central component of gifted education teachers' responsibilities. These training opportunities should take diverse forms, "ranging from district-sponsored workshops and courses, university courses, professional conferences, independent studies, and presentations by external consultants and should be based on systematic needs assessments and professional reflection."[113] These opportunities also ensure that the gifted education services are supported by—and missions are aligned throughout—multiple district stakeholder groups, including: administrators, coordinators, curriculum specialists, general education, special education, and gifted education teachers.[114]

In association with the Council for Exceptional Children, NAGC developed seven teacher preparation standards that can help to guide districts in implementing professional development for new gifted education teachers. These standards highlight a range of topics, rom individual learning needs and positive learning environments to collaboration. Briefly, the seven standards are as follows:

- **Learner Development and Individual Learning Differences:** Understand the variations in learning and development in cognitive and affective areas between and among individuals with gifts and talents.

- **Learning Environments:** Create safe, inclusive, and culturally responsive learning spaces so that individuals with gifts and talents become effective learners and develop social and emotional well-being.

- **Curricular Content Knowledge:** Use knowledge of general and specialized curricula to advance learning for individuals with gifts and talents.

- **Assessment:** Use multiple methods of assessment and data sources in making educational decisions about identification and student learning.

- **Instructional Planning and Strategies:** Select, adapt, and use a repertoire of evidence-based instructional strategies to advance the learning of individuals with gifts and talents.

- **Professional Learning and Ethical Practice:** Use foundational knowledge of the field and professional ethical principles and programming standards to inform gifted education practice, to engage in lifelong learning, and to advance the profession.

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[112] Kirsch, Op. cit.
[113] "Standard 6: Professional Development," Op. cit.
[114] Ibid.

- ▪ **Collaboration:** Collaborate with families, other educators, related-service provides, individuals with gifts and talents, and personnel from community agencies in culturally responsive ways.[115]

Appendix A provides a more thorough description of these seven teacher preparation standards. The VDOE, specifically, requires that "school divisions provide professional development based on the teacher competencies […] related to gifted education. Each school division specifies the required annual training expected of personnel."[116]

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[115] Bullet points adapted from: "NAGC-CEC Teacher Preparation Standards in Gifted and Talented Education." National Center for Gifted Education and Council for Exceptional Children. http://www.nagc.org/sites/default/files/standards/NAGC-%20CEC%20CAEP%20standards%20%282013%20final%29.pdf

[116] "Gifted Education: Frequently Asked Questions," Op. cit.

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SECTION II: EXEMPLAR GIFTED EDUCATION PROGRAMS

In this section, Hanover examines several school districts' policies and practices regarding their gifted education programs. These in-depth profiles derive from interviews with the districts' gifted education specialists, and discuss topics including program objectives, delivery models, student placement policies, and teacher and staff characteristics.

VIRGINIA BEACH CITY PUBLIC SCHOOLS

Virginia Beach City Public Schools (VBCPS) is a large school district serving the area around Virginia Beach, Virginia that currently enrolls approximately 67,200 students in Kindergarten through Grade 12. The District operates 55 elementary schools, 15 middle schools, 12 high schools, and several additional specialty centers for specific student subgroups.[117] These include dedicated services for adult, alternative, career and technical, special, and gifted education. In fact, according to the most recent data, roughly 13.1 percent of the student population in VBCPS receives gifted education services (Figure 2.1).[118]

Figure 2.1: Percentage of Students Who Receive Gifted Education in VBCPS, 2011-2016
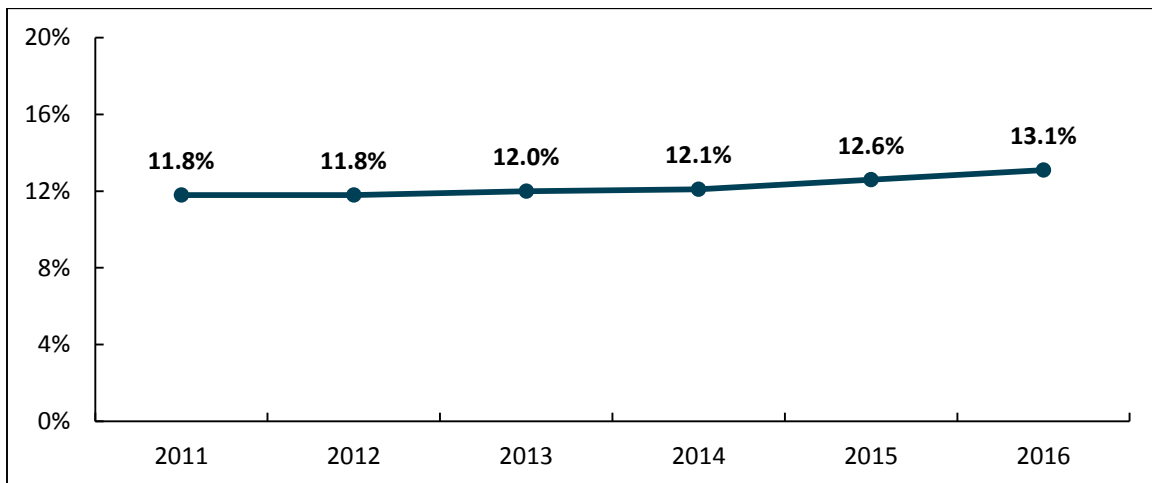
Source: Virginia Beach City Public Schools[119]

Note that unless otherwise specified, all information in this profile comes from a telephone interview conducted with Ms. Robin Schumaker, VBCPS K-12 Coordinator of Gifted Programs.[120]

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[117] "School/Center Directory." Virginia Beach City Public Schools.
   http://www.vbschools.com/schools/index.asp?sort2=(1)or(4)
[118] "Facts and Figures." Virginia Beach City Public Schools. http://www.vbschools.com/school_data/
[119] Adapted from: Ibid.
[120] Schumaker, Robin. K-12 Coordinator of Gifted Programs, Virginia Beach City Public Schools. Telephone interview, February 14, 2017.

GIFTED PROGRAM GOALS

In VBCPS, district-wide gifted programming is overseen by the Office of Gifted Programs, an office that works in the Department of Teaching and Learning. The Office of Gifted Programs, according to Ms. Schumaker, ensures that the "**goals for the gifted program are aligned with the vision and priorities of [the] Compass to 2020**, which is [the District's five-year] strategic plan." In this way, despite serving student populations with different learning needs, the Office of Gifted Programs ensures that students under its purview are progressing toward the same goals overall as their peers in other academic programs. Compass to 2020 outlines four primary goals:

- **High Academic Expectations:** All students will be challenged and supported to achieve a high standard of academic performance and growth; gaps between these expectations and the realities of student subgroups will be addressed. This includes a focus on literacy and numeracy, content-specific knowledge and skills, and globally-competitive skills.

- **Multiple Pathways:** All students will experience personalized learning opportunities to prepare them for postsecondary education, employment, or military service.

- **Social-Emotional Development:** All students will benefit from an educational experience that fosters their social and emotional development.

- **Culture of Growth and Excellence:** VBCPS will be defined by a culture of growth and excellence for students, staff, parents, and the community. This includes placing a premium on high-quality staff and purposefully partnering with parents and the community.[121]

Ms. Schumaker explained that many of the Office of Gifted Programs' strategic initiatives thus derive from the District's broader strategic plan. For example, there is currently an effort underway to develop new and innovative ways to "explore the social and emotional aspects of gifted kids, so that [the District] differentiate[s] curriculum and instruction appropriately."

However, the Office of Gifted Programs also develops its own, internal set of objectives and priorities—called the Local Plan for the Education of the Gifted—that apply specifically to the gifted programs in VCBPS. Ms. Schumaker stated that the gifted education priorities for the five-year period (2015-2020) are outlined in the local plan that includes "our work and all of our focus areas, [and] the goals, objectives, and activities to help us to realize those goals." Although these long-term strategic plans are mandated by the VDOE, each individual school board may develop, approve, and release its own comprehensive plan based on local contexts, vision, and student needs.[122]

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[121] Bullet points adapted from: "The Strategic Framework of Virginia Beach City Public Schools." Virginia Beach City Public Schools. pp.2–4. http://www.vbschools.com/compass/2020/ourstrategicframework.asp

[122] "Local Plan for the Education of the Gifted: 2015-2020." Virginia Beach City Public Schools, June 2015. p.2. http://www.vbschools.com/curriculum/gifted/content/pdfs/LocalPlanEducationGifted.pdf

The guiding principles behind VBCPS's gifted programs promote the empowerment of gifted students and the provision of specific resources and teachers that reflect the students' abilities (Figure 2.2). Moreover, Ms. Schumaker asserted that the Office of Gifted Programs continuously revises these principles to ensure sustained alignment with best practices as well as District goals: "the refinements come every time we have our new five-year plan [...] it is built on the foundations and a continuation of the previous plan [...] it is an evolution of outlining what the national standards are, taking a look at our division's strategic plan, looking at our current plan, and then, **really asking ourselves the question of where we want to be in the next five years**." In this way, VBCPS prioritizes the constant reevaluation of its gifted offerings to ensure high-quality programming.

Figure 2.2: Guiding Principles of Gifted Education in VBCPS

CATEGORY	DESCRIPTION
Mission	The mission of the Virginia Beach City Public Schools Gifted Programs is to challenge students with differentiated interdisciplinary opportunities, to provide a flexible, innovative curriculum which promotes self-efficacy, productivity, creativity, and leadership, and to develop individual talents, special abilities, and a commitment to excellence.
Philosophy	Gifted students need support, encouragement, and opportunities to interact with other gifted students who naturally challenge one another. They require opportunities to pursue their particular interests, to share the results of these pursuits with real audiences, and to have products of their learning critiqued.
Goals	■ To develop an understanding of the characteristics which distinguished gifted and talented students from the general school population. ■ To implement the Code of Virginia and the Board of Education Regulations Governing Education Services for Gifted Students, including but not limited to the use of multiple criteria to identify gifted students. ■ To provide continuous staff development for administrators, teachers, and resource personnel. ■ To provide educational programs which will enable each gifted and talented student to develop his or her abilities to their fullest potential. ■ To provide for continuous formative and summative evaluation of the program for the gifted and talented. ■ To improve awareness and understanding of the gifted and talented program among school personnel, parents, and other community members. ■ To develop a long-range, division-wide plan for the future of gifted and talented education. ■ To ensure that each school provides students identified as gifted with instructional programs taught by teachers with special training or experience in working with gifted students.

Source: Virginia Beach City Public Schools[123]

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[123] Adapted from: Ibid., pp.4–5.

PROGRAM MODEL(S)

Ms. Schumaker identified two distinct groups of gifted students that receive specialized instruction in VBCPS: **the intellectually gifted** (including general intellectual) **and those gifted in the arts for both dance and visual arts.** The Local Plan for the Education of the Gifted further explains that "these advanced learners require a differentiated curriculum that is engaging, complex, and differentiated in the depth, breadth, and pace of instruction through a broad range of opportunities that enrich and extend the program of studies in all subject areas."[124] Depending on a student's grade and gifted classification, he or she may choose from multiple program options.

Generally, there are three program models implemented for gifted students at VBCPS: **resource-cluster programs; pull-out programs for gifted dance and/or gifted visual arts; and a full-time gifted school.** The most prominent model, which serves that majority of gifted students in the District, is the resource-cluster model. Ms. Schumaker explained that the resource-cluster model in VBCPS was approved in March of 1998. The District previously implemented one-day pull-out programs for gifted students in addition to operating two full-time gifted magnet schools (one for elementary school students and one for middle school students). However, as described by Ms. Schumaker, "we realized over a period of time […] that certainly our gifted kids are gifted seven days a week, 24/7, and not just that one day a week where the gifted instruction would be taking place." Thus, the resource-cluster model emerged, and currently serves gifted students from Grades 2 through 12. For elementary school students, the program is described as follows:

> *The resource-cluster program is grounded in general education curriculum but is differentiated, modified and expanded to provide learning challenges.* Identified gifted students in grades two through five are placed in heterogeneous classrooms, in groups of six to eight, and are taught by a cluster teacher trained in gifted education at their neighborhood school. A resource teacher, endorsed in gifted education, assists the cluster teacher in delivering instruction. Students are required to demonstrate mastery of the state-mandated Standards of Learning and their instruction is differentiated to meet their intellectual needs.[125]

It is operated mostly the same at the middle and high school levels as well. Beginning in middle school, gifted students also have the option to take advanced classes in English, science, math, and foreign languages, which accelerates the content and provides greater depth and intensity. This sets up these students to take further advanced courses in high school.[126] Ms. Schumaker explained that "in the middle school, we have cluster teams that are both composed of advanced courses and then also, some of the core courses, because we know not all gifted kids may necessarily be taking all of the advanced classes." In high

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[124] Ibid., p.6.
[125] "Gifted Education at the Elementary School Level." Virginia Beach City Public Schools.
http://www.vbschools.com/curriculum/gifted/elemgift.asp
[126] "Gifted Education at the Middle School Level." Virginia Beach City Public Schools.
http://www.vbschools.com/curriculum/gifted/midgift.asp

school, the gifted resource-clusters focus on seminar-style and collaborative work.[127] However, "at Grades 11 and 12, it becomes a little more open-ended so to speak […] because we have to look to see where kids are falling out in groups in terms of the courses that they are taking."

VBCPS also maintains one standalone school for "intellectually gifted students" to attend specialized classes full time. For students in Grades 2 through 8, Old Donation School offers full-time gifted schooling. At Old Donation School, the curriculum includes "all school district learning objectives, the Virginia Standards of Learning and expands and extends the curriculum specifically to meet the needs of the gifted learner. **The specialized curriculum is designed using methods and resources for developing the abilities of gifted learners**."[128] Once students begin the middle school component at Old Donation School, they must enroll in a foreign language and an extended-day exploratory program, and they may also sign up for specialized classes such as chorus, band, computers, and oral/written communication.

Finally, for gifted students in the arts, there are a number of pull-out programs in VBCPS (Figure 2.3). Elementary and middle school students who are gifted in dance or visual arts will attend pull-out programs (typically housed at Old Donation School) once a week as a supplement to instruction in mainstream Virginia Standards of Learning. By high school, students still enrolled in the gifted program can attend the Governor's School for the Arts, where according to Ms. Schumaker, "they go and take their core courses […] the essential ones, in their home schools and then they will go there. They board the buses around 12:30, go to Governor's School for the Arts, and then are bused back to […] their home schools."

Figure 2.3: Program Options for Gifted Students in the Arts

PROGRAM	MODEL	GRADES	DESCRIPTION
Gifted Dance Education Program	Pull-Out	Grades 3-8	The Gifted Dance Education Program is a pull-out model for identified students in Grades 3 through 8 and is housed at Old Donation School. Admission into the program is determined through an application process. Dance students are presented a comprehensive curriculum which emphasizes the areas of concepts and skill development, dance history and appreciation and creativity.
Gifted Visual Arts Program	Pull-Out	Grades 3-5	Identified Grade 3 through 5 students may participate in the Gifted Visual Arts Program housed at Old Donation School. Admission into this one day per week pull-out program is determined through an application and audition process. Instruction in the program challenges students gifted in the visual arts. The curriculum integrates art history, criticism, aesthetic perception, creativity, theory and skill development, as well as components from the core curriculum of knowledge.

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[127] "Gifted Education at the High School Level." Virginia Beach City Public Schools.
http://www.vbschools.com/curriculum/gifted/hsgift.asp
[128] "Gifted Education at the Middle School Level," Op. cit. Emphasis added.

PROGRAM	MODEL	GRADES	DESCRIPTION
Gifted Visual Arts Program	Full-Time	Grades 6-8	All Grade 6 through 8 students identified as gifted in visual arts and wish to participate in the Gifted Visual Arts Program attend Virginia Beach Middle School as a full-time student. In grades six through eight, the Gifted Visual Arts Program is embedded within the middle school daily schedule.
Governor's School for the Arts	Pull-Out	Grades 9-12	Students in Grades 9 through 12 are eligible to attend the Governor's School for the Arts in Norfolk, Virginia. Students must complete an application and audition for the intensive programs in dance, music, musical theatre, theatre and visual arts. Students take academic classes at their regular high schools in the morning and attend the Governor's School for the Arts for three hours every afternoon during the regular school year. For each year they attend, students may earn three credits.

Source: Virginia Beach City Public Schools[129]

STUDENT PLACEMENT

Generally, students are identified for placement into gifted programming in VBCPS through an application process. According to the District's website, "a teacher, parent/guardian, peer, student response team, student or any person who has knowledge of the student's abilities may initiate an application for gifted services by contacting the Gifted Resource Teacher at the child's neighborhood school."[130] **The full application process considers multiple criteria** to determine whether or not students demonstrate a need for gifted education programming. These include:

- Academic achievement;
- Achievement test scores;
- Teacher information;
- Parent checklist of behaviors;
- Ability test scores; and
- Audition or portfolio (visual and performing arts programs).[131]

In this way, the process involves consideration of both quantitative and qualitative measures of student performance. Ms. Schumaker explained that an Assessment Specialist goes to schools in the District to test students and gather quantitative data. She indicated that for general intellectual gifted programs, VBCPS uses the Cognitive Abilities Test (CogAT), which evaluates verbal, quantitative, and nonverbal abilities.[132] Further, the Assessment Specialist "gathers qualitative information from parents and classroom teachers via the online gifted application, [and] looks at grades. We look at, and in the information

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[129] Adapted from: [1] "Gifted Education at the Elementary School Level," Op. cit.
[2] "Gifted Education at the Middle School Level," Op. cit.
[3] "Gifted Education at the High School Level," Op. cit.
[130] "Gifted Education." Virginia Beach City Public Schools. http://www.vbschools.com/curriculum/gifted/
[131] Bullet points taken verbatim from: Ibid.
[132] "Cognitive Abilities Test." Seton Testing Services. http://www.setontesting.com/cogat/

that we gathered from both parents and teachers, there [is] a checklist in different categories, such as 'my child is an analytical thinker'." Figure 2.4 further shows the various identification measures that VBCPS uses to place students in gifted education programs. Ms. Schumaker clarified that **"we really look at it comprehensively, because what we know is that the testing data gives us some information, but it does [not] give us all of it.** For example, it does [not] tell us to what extent students are creative thinkers."

Figure 2.4: Elements of Student Placement in Gifted Programs at VBCPS

Intellectual Aptitude(s)	Visual Arts Aptitudes	Performing Arts (Dance) Aptitudes
•Student readiness for gifted educational services is determined by multiple and varied criteria: referral information; parent recommendation and teacher information forms which include characteristics of gifted students and anecdotal notes based on observations; evidence of superior academic performance based on a norm-referenced assessment of aptitude; report cards; and other achievement data.	•Student readiness for gifted visual arts education services are determined by referral information; parent and teacher recommendation forms; portfolio/performance evidence indicating abilities and potential requiring a specialized program.	•Student readiness for gifted visual arts education services are determined by referral information; parent recommendation form; audition/performance evidence indicating abilities and potential requiring a specialized program.

Source: Virginia Beach City Public Schools[133]

Finally, **all students in VBCPS are screened for gifted program placement in Grades 1 and 5.** Students in Grade 1 who score at the 90th percentile or higher on the screening instrument are recommended for additional assessment and reviewed by the Gifted Identification and Placement Committee (pending parental approval). Similarly, students who are not identified as gifted in Grade 5 and who score at the 90th percentile or higher on the screening instrument will be likewise recommended for further testing.[134]

TEACHERS AND STAFF

Ms. Schumaker noted that **each school has a full-time gifted resource teacher.** These staff are responsible for overseeing the resource-cluster education in each class, and in particular, the professional development initiatives for the Office of Gifted Programs. Indeed, the District appears to devote significant resources to providing ongoing professional development for gifted and cluster-group teachers – Ms. Schumaker specifically indicated that "we do pride ourselves, also, on the professional development aspect of what we do. Nothing we do is a drive-by. There [is] always a next level, and a next

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[133] Adapted from: "Local Plan for the Education of the Gifted," Op. cit., p.6.
[134] "Gifted Education at the Elementary School Level," Op. cit.

set of steps for us […] budgets have allowed us to, not only continue to develop expertise in our own community, but we [have] been able to draw from a number of experts in the field." The training opportunities for gifted teachers in VBCPS range from attending national conferences (e.g., SENG Conference, or Supporting the Emotional Needs of the Gifted) to hosting lectures by national leaders in gifted education and participating in staff development master classes lead by teachers in the District.

Ms. Schumaker identified a particularly notable practice employed by VBCPS with regard to professional development: **Collaborative Learning Culture Groups (CLC).** In these groups, gifted teachers and staff participate in "collaborative, interest-based action research/inquiry. Groups research contemporary topics as they relate to gifted students in their respective buildings. CLC groups create products to benefit the gifted community at large."[135] Originally, CLCs only encouraged horizontal alignment and teaching practices, but recently, Ms. Schumaker explained that the Office of Gifted Programs instituted vertical CLCs as well to ensure "good, solid transitions between levels." She summarized the process as follows:

> It [is] not all of their professional development, but **it is a more autonomous one**, that [is] a part of our program. So, [gifted teachers] would work on those projects and ultimately, conduct research; delve into books and other resources. We would connect them with experts, or others in the field of gifted education, if we had that kind of a contact. We sometimes had guidance personnel, meeting if the group happened to embark on a topic relating to social and emotional aspects, because that's an important partnership […]
>
> So, to give you an example […] **Each group will construct its own inquiry questions to our five-year plan.** As an example, one of our groups this year, talking about staff development and parental involvement, which is a key piece in our five-year plan.

Ms. Schumaker mentioned that the District is also trying to incorporate parents more fully in the process as well. Sometimes, for example, parents can help lead meetings by helping to establish goals, form the groups, work on discussion questions, or talk about how the strategic goals can be realized. In short, VBCPS's Office of Gifted Programs "wanted to move from the situation where the school or district is always the disseminators for the information and parents are the recipients, to really including them as collaborators and partners in advocacy and education."

To get a sense of the kinds of topics covered by the CLC groups, Ms. Schumaker provided some of the key questions for 2016-2017 that the vertical groups plan to address:

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[135] "Local Plan for the Education of the Gifted," Op. cit., p.120.

- How can Curriculum of Identify support personalized learning for gifted learners at different levels?

- How can we ensure equity in identification and access for all gifted and talented populations in Kindergarten through Grade 12?

- How can we empower our gifted learners to effectively and consistently challenge themselves through student-centered multiple pathways?

- How might we illuminate the continuity of gifted services to our shared community of stakeholders?

- How can building your own cultural knowledge affect your behaviors and interactions with gifted cluster teachers?

- How does Growth Mindset help to develop personal responsibility, decision making, and resilience in gifted learners?[136]

By incorporating more and varied stakeholders into the CLC groups, Ms. Schumaker posited that the capacity and skills throughout the Office of Gifted Programs at VBCPS have increased. Building administrators, staff in the Office, parents, and gifted teachers have now developed a system to support gifted education in the District. According to Ms. Schumaker, this has "allowed us to […] move forward in Gifted Ed, so that we [are] not just consumers of information, but we [are] producers of knowledge. That [is] how we like to think of ourselves, as active contributors to the field of gifted education."

FAIRFAX COUNTY PUBLIC SCHOOLS

Fairfax County Public Schools (FCPS), located in Northern Virginia, is a very large school district (the 10th largest in the country, in fact) that currently enrolls more than 186,000 students in Pre-Kindergarten through Grade 12. The District's student population is also highly diverse, with 28 percent qualifying for free- and reduced-price lunches, 17 percent needing English language services, and 13 percent receiving special education.[137] FCPS also offers a wide array of program options for gifted students—called "Advanced Academic Programs" within the District—across elementary, middle, and high school settings for gifted as well as Twice Exceptional Learners (2e). The District states that FCPS "offers a continuum of advanced academic services for students K-12 that builds upon students' individual strengths and skills and maximizes academic potential for all learners."[138]

Note that unless otherwise specified, all information in this profile comes from a telephone interview conducted with Dr. Carol Horn, the K-12 Program Coordinator at FCPS.[139]

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[136] Bullet points adapted from: "2016-2017 Questions for Vertical CLC Groups 1-6." Virginia Beach City Public Schools. Provided by Ms. Schumaker.

[137] "About FCPS." Fairfax County Public Schools. https://www.fcps.edu/about-fcps

[138] "Advanced Academic Programs." Fairfax County Public Schools. https://www.fcps.edu/academics/academic-overview/advanced-academic-programs

[139] Horn, Carol. K-12 Program Coordinator, Fairfax County Public Schools. Telephone interview, February 10, 2017.

GIFTED PROGRAM GOALS

The Advanced Academic Programs (AAP) at FCPS are organized and operated by the Department of Instructional Services. Dr. Horn explained that this is a relatively new designation, and previous to the early-2000s, the programs were overseen by the Office of Special Education. The relatively recent shift to AAP highlights the District's focus on gifted students as a distinguished group of learners who require dedicated and separate instruction. Dr. Horn noted that the goal of these advanced programs is "**to be sure that any child who has the potential to succeed at advanced levels has the opportunity […] We err on the side of inclusion.**" Indeed, FCPS maintains an inclusive spectrum of advanced programs for gifted learners with the aim of differentiating instruction as needed to meet the specific needs of the student. According to Dr. Horn,

> *If there [is] evidence that a child has the ability to work at an advanced level, they are given that opportunity* […] *That [is] our commitment. That [is] why I say re-label the service, not the child. We are not saying your child is gifted or not gifted. What we [are] saying is at this point in time, based on the evidence that we collect in school, this level of services is appropriate for your child at this point in time, knowing it can change.*

The District's website supports these claims, and specifically highlights the continuum of options that advanced students have within FCPS; namely, to "provide challenging learning experiences that are designed to meet the unique learning profile of a broad range of advanced learners […] In order to meet their needs and develop to their potential, these learners require a differentiated curriculum."[140]

PROGRAM MODEL(S)

FCPS relies on a differentiated level model to provide increasing levels of curricular and program advancement according to a student's evolving learning needs. Dr. Horn stated that "we have levels of service so that we can provide each student the appropriate level service based on assessment of that student at any point in time." Previously, FCPS implemented a pull-out model that relied on the strict, binary classification of "gifted" or "not gifted," and that "whether or not you were gifted would, a lot of times, would depend on identification." However, the model was changed, according to Dr. Horn, because "with children you often do [not] know what they can do until they [are] given opportunities. **Our goal is to provide opportunities for children to be challenged beginning in Kindergarten and as they move up in grade level [to] be sure they get the appropriate level.**"

Further, Dr. Horn clarified that AAP is strictly *academically focused*, meaning that the program does not consider giftedness in other areas. Because students can be "gifted" in areas such as art or music as well, FCPS renamed their model to reflect the academic emphasis on areas such as math, language arts, social studies, and science – Dr. Horn

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[140] "Elementary School Advanced Academic Programs (AAP)." Fairfax County Public Schools. https://www.fcps.edu/academics/elementary-school-academics-k-6/advanced-academics

explained that "those are the areas where we have curriculum that provides additional levels of challenge. We switched from 'gifted' to 'advanced academic' because that [is] what we do." In supporting a continuum of learner needs across academic capacities, FCPS offers AAP options according to four levels of service (Figure 2.5). These programs are predominately designated for younger students (i.e., elementary and middle schoolers), while high school students generally have the flexibility to enroll in advanced courses individually as needed, according to their academic strengths and interests.

Figure 2.5: Levels of AAP Programming at FCPS

Level I	Critical and Creative Thinking Strategies, Grades K-6
•Level I services are open-access and a part of the curriculum for all students. Teachers embed critical and creative thinking strategies in lessons across all subject areas and grade levels.	

Level II	Differentiated Lessons in Areas of Academic Strength, Grades K-6
•Differentiated lessons are offered to students who show potential in areas of specific academic strength. Eligibility for differentiated lessons (Level II services) is determined by a school-level screening committee.	

Level III	Part-Time Advanced Academic Program, Grades 3-6
•The Part-Time Advanced Academic Program (Level III) extends and enriches the FCPS Program of Studies in the four core content areas. Eligibility for part-time AAP is determined by a school-based screening committee.	

Level IV	Full-Time Advanced Academic Program, Grades 3-8
•Full-time Advanced Academic Program (Level IV) focuses on academic depth and complexity in the four core content areas. Eligibility for full-time Level IV services is determined through a central selection committee.	

Source: Fairfax County Public Schools[141]

Dr. Horn further explained that since **Level I** programming is offered to all Kindergarten students, it helps FCPS to identify "students that are potential that you may not see unless you have some sort of instruction that elicits higher level thinking […] such as point of view, decisions and outcomes, and using analogies in thinking. We have lessons that really stretch all children." This broad-based AAP curriculum is based on nine thinking strategies (presented in Appendix B). **Level II** programs use cluster grouping in heterogeneous classrooms to help more advanced students stay engaged "so they [are] not just sitting there waiting for the next strand or the next topic […] *as you go up in grade level, Level II is for students who have strength in the classroom, need additional challenge to stay engaged, but they do [not] necessarily need formal gifted services*."

Levels III and IV rely on pull-out or homogeneous groupings to convey more dedicated, whole-group advanced learning opportunities. In **Level III**, students with specific academic strengths are recognized – according to Dr. Horn, "they [are] not strong in every subject

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[141] Adapted from: Ibid.

area, so they do [not] need to go to a Level IV center, but they do benefit from direct instruction from an advanced academic resources teacher who will go into the school and meet with those kids either once or twice a week." At Level III, schools can decide independently whether they prefer to devote dedicate classrooms for AAP students, or if they prefer the pull-out method. Finally, **Level IV** is a center-based model for the most gifted AAP students in FCPS. At this level, "that [is] where students all day every day are working on using our curriculum framework in all subjects so they [are] being extended in their learning [in] every single subject started in third grade."

Finally, beginning in middle school, FCPS offers a wide range of honors classes, such as Advanced Placement (AP) and International Baccalaureate (IB) that students can enroll in independently of AAP status. Dr. Horn asserted that "we do [not] sort kids in middle school, except the center [i.e., Level IV]. If they want to go to the center, it [is] still a screening and selection process, but the honors is really self-selection. We let students take one, two, three, or four depending on their interests and their strengths."

STUDENT PLACEMENT

Dr. Horn stated that FCPS uses a "holistic case study approach to identification […] When you use a holistic case study approach, no one piece of information can determine eligibility or non-eligibility. That [is] why we use multiple sources of information." This holistic process allows FCPS to identify student strength and provide services to develop those strengths, meaning that every student can be eligible for AAP programming at a different level. The holistic case study approach is guided by a District understanding that intelligence:

- Develops over time;
- Can be nurtured;
- Manifests itself in different ways in different cultures; and
- Is complex and affected by both genetic and environmental influences – not only do genes and the environment cooperate as we develop, but genes require input from the environment to work properly.[142]

Dr. Horn noted that this approach is one of the AAP program's biggest challenges, as parents often do not understand that there is no specific cut-score that determines eligibility. Indeed, she said, "some parents want to know 'what test score does my child need?' […] We have to talk the parents through the file and explain that we focus on strengths and that depending on what the teachers and what the assessment says at this point in time does [not] support a certain level, but over time, if the school continued to work with them, that can change." Despite these challenges, Dr. Horn believed that the identification process is a success and that focusing on both qualitative and quantitative information is beneficial for the students.

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[142] Bullet points taken verbatim from: "A Holistic Case Study Approach for Identification: Matching Students with Services." Fairfax County Public Schools. https://www.fcps.edu/node/32650

Students who qualify for Level II or III instruction are evaluated at the school level to determine which school-based services will be the best match for their strengths and learning needs. The school-level identification committees at FCPS are made up of "the classroom teacher, the advanced academic resource teacher, an administrator, and other teachers who work with the student. Students are discussed in screening committee meetings using multiple data and artifacts through a holistic cast study approach."[143] The screening committee thus considers a wide range of student attributes, derived in part from any number of the following data sources:

- Ability and achievement test scores;

- Assessment data from classroom instruction;

- Rating on a Gifted Behaviors Rating Scale (GBRS) which includes classroom anecdotes regarding the student's exceptional ability to learn, application of knowledge, creative/productive thinking, and motivation to succeed;

- Work samples from tasks that give opportunities to show critical and creative thinking; and/or

- Parent/guardian questionnaire.[144]

Dr. Horn clarified that at Level II, all decisions are "deferred to the specific classroom and that [is] pretty much decided by the resource teacher and the classroom teacher talking about individual kids that they see that need additional challenge." FCPS then screens all kids for Level III at the end of Grade 2, "then every year after that." Certain indicators, such as a high ability or GBRS score will automatically enter a student into the screening process. For Level IV consideration, the identification process is central, rather than school level. Advocates for the student assemble a portfolio, which includes "a referral form, ability test scores, the GBRS with commentary, progress reports, parent questionnaire, work samples, and additional optional information, [and] is assembled by the advanced academic resource teacher to create a file that is sent to Central Office to be screened by a committee."[145]

The Department of Instructional Services at FCPS also facilitates the **Young Scholars** program, which is a nationally-recognized model for identifying historically underrepresented students for AAP services. Dr. Horn summarized the program as "finding students from poverty, who speak other languages, from Title I schools, with potential as early as possible and they get a separate code in our student information system, which is a YS code." **This early identification "says that there [is] potential there and the school must become their advocates."** The program tracks students from Kindergarten through Grade 12, and "curricular interventions and supports are provided through the collaboration of the classroom teacher and the advanced academic resource teacher. As students progress through elementary and secondary school, continuing support and opportunities for

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[143] Ibid.
[144] Bullet points taken verbatim from: Ibid.
[145] Ibid.

accessing rigorous coursework are provided by school staff."[146] Figure 2.6 identifies the central tenants of the Young Scholars program.

Figure 2.6: Pillars of FCPS's Young Scholars Model

Committed Professionals	Find/Identify	Nurture, Guide, and Support	Essential Elements
•Leadership of school principals •Collaboration among teachers and specialists	•Observations and conversations •Performance assessments •Portfolios •Nonverbal ability tests •Standard achievement tests	•Cluster Young Scholars •Provide the needed level of Advanced Academic service •Challenging curriculum •Flexible grouping	•Summer school and/or afterschool programs •Ongoing professional development for teachers •Differentiated curriculum and instruction for advanced learners •Parent/guardian involvement and support

Source: Fairfax County Public Schools[147]

Dr. Horn emphasized that the Young Scholars program is really a holistic opportunity, where FCPS and AAP professionals ensure that children from underrepresented communities succeed in advanced programming. According to her,

> *The resource teachers work with them, pull them together in groups. We strengthen the basic skills and the goal is we want them to become competitive so that by the time of second grade, many of our young scholars do go on to Level III and Level IV, but **if we did [not] start working with them early, they may not have the skills or the self-efficacy to be successful in an advanced course.***

TEACHERS AND STAFF

Given the size of FCPS, the Department of Instructional Services maintains dedicated staff to oversee the AAP programs. Dr. Horn outlined the department, stating that there is a high school specialist, a middle school specialist, an IB specialist, various elementary school specialists, and data managers. This team administers the various AAP offerings in the District and ensures that the programs align with state and district standards, as well as the AAP curriculum framework.

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[146] "Young Scholars (K-12)." Fairfax County Public Schools. https://www.fcps.edu/academics/middle-school-academics-7-8/advanced-academics/young-scholars-k-12

[147] Adapted from: Ibid.

In addition, each school has an Advanced Academic Resource Teacher (either full- or part-time) to help teachers lead heterogeneous classrooms for advanced learners, and many of these dedicated resource teachers will also lead pull-out or part-time classes. Having a dedicated AAP Resource Teacher at each school provides principals and other school-level administrators with the flexibility to offer AAP programs that reflect their budget, resources, and student population. According to Dr. Horn, "the resource teacher […] they [are] responsible for how those services are delivered in their school." Further, "as far as flexibility goes, it [is] the role of the resource teacher to constantly be looking for students who are ready for that next level of challenge."

Overall, **FCPS heavily invests in professional development for its AAP faculty and staff.** Dr. Horn explained that "all of [the] professional development that we offer revolves around the curriculum framework […] we do a lot of professional development. We have it two or three times a year." She listed several key professional development opportunities that AAP teachers in the District participate in – these include a four-day **summer institute in June** where FCPS brings in "national consultants and some of our teacher leaders to provide training in the materials and resources on our curriculum framework"; **in-service days in the fall**, "where we bring in consultants or use our teacher leaders and provide all-day in-service on the curriculum"; a **summer institute in August** "for teachers when they come back"; and the **Fairfax Academy**, "where we offer graduate-level courses, but they [are] offered through the Academy free for teachers."

GREENWICH PUBLIC SCHOOLS

Located in Fairfield County, Connecticut, Greenwich Public Schools (GPS) is a smaller school district with roughly 8,800 students enrolled across 11 elementary schools, three middle schools, and one high school. GPS has a diverse student population, with 36 percent of students identifying as minority, 15 percent eligible for free- and reduced-price lunch, and 5 percent qualifying as English learners.[148] The school district operates an alternative education program in conjunction with its high school, as well as an Advanced Learning Program (ALP) for gifted students. Over the years, the District's ALP has served about 19 percent of the student population (Figure 2.7).[149]

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[148] "District Profile." Greenwich Public Schools. https://www.greenwichschools.org/district-information/fast-facts
[149] "Advanced Learning Program (ALP) Monitoring Report." Greenwich Public Schools, February 2017. p.6. Provided by Ms. O'Regan.

Figure 2.7: Percentage of Students Who Receive ALP Education in GPS, 2012-2016
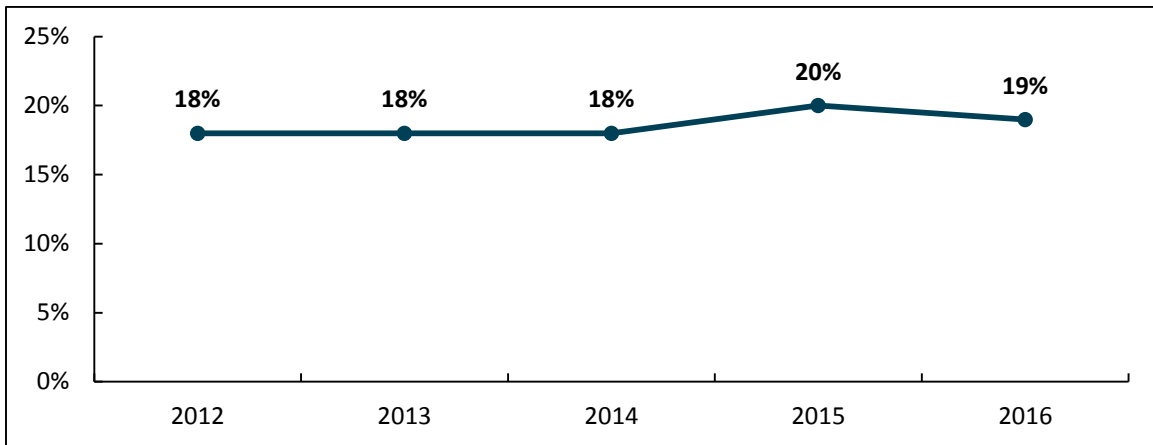
Note that unless otherwise specified, all information in this profile comes from a telephone interview conducted with Ms. Bonnie O'Regan, the Advanced Learning Program Facilitator at GPS.[151]

GIFTED PROGRAM GOALS

Ms. O'Regan explained that the "gifted program is part of the policy and the procedure for the entire District. It [is] not mandated [because] the state does not have a mandate to serve gifted children." As such, GPS is responsible for making ALP goals that meet the needs of their students and align with the mainstream standards. Formally, "the purpose of [the] Advanced Learning Program is to provide appropriate learning experiences and intellectual challenge that results in continuous academic growth."[152] The GPS policy for services and curriculum for gifted/talented education (Procedure E-001.9) further elucidates the overarching mission of the District's ALP:

> To enable students who demonstrate potential **far beyond that of their age peers to be challenged to their highest potential through** differentiated programs and services, to raise their level of critical and creative thinking, to develop skills that foster independent study, to encourage self-understanding that promotes reflective inquiry and the productive use of knowledge.[153]

According to the District's website, all ALP offerings throughout the District share seven main goals, regardless of grade level, placement, or content area. These driving objectives ensure that all ALP classes at GPS remain aligned with the District's gifted education

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[150] Adapted from: Ibid.

[151] O'Regan, Bonnie. Advanced Learning Program Facilitator, Greenwich Public Schools. Telephone interview, February 10, 2017.

[152] "Advanced Learning Program and Advanced Studies Placement Handbook 2016-2017." Greenwich Public Schools, January 2017. p.3. Provided by Ms. O'Regan.

[153] "Advanced Learning Program (ALP) Monitoring Report," Op. cit., p.3.

philosophy and facilitate high-quality, articulated learning for advanced students. These objectives are:

- Provide for cognitive development in core curriculum areas at an appropriate pace and depth.

- Develop self-understanding that encourages and fosters independent and self-directed learning.

- Develop intellectual and scholarly skills and attitude.

- Promote critical, creative, and divergent thinking skills.

- Develop research skills and methods.

- Foster intellectual inquiry at all levels.

- Develop aesthetic knowledge, skills, and appreciation.[154]

PROGRAM MODEL(S)

GPS's advanced programming for gifted students formally begins in Grade 2 and provides dedicated instruction for these children through Grade 8. The District adheres to two main models for gifted instruction: **enrichment** and **replacement** (Figure 2.8). In describing enrichment, Ms. O'Regan explained that it is "connected to what [students are] doing in their home-rooms for Science. *It takes that core and the core curriculum and moves on*." This is related to the cluster-group model, where teachers provide identified students with differentiated instruction in the regular classroom – this can be further supplemented if needed through pull-out opportunities.

Beginning in Grade 3, ALP students then have the opportunity to receive advanced instruction through content replacement. For example, Ms. O'Regan described the process: "Starting in third grade […] for math and reading, it [is] a replacement curriculum. Every day, instead of an hour of their Reading Block, they go to the ALP teacher for Reading. They still have their writing in their homeroom in third through fifth grade, but their Reading is with the ALP teacher, and it [is] a full five hours a week. Math is a complete replacement." So, students identified as needing replacement will attend completely separate content-area classes; for example, there are three different levels of math—core, one grade-level advanced, and two grade-level advanced—that students can place into depending on their need. Ms. O'Regan indicated that all ALP options at GPS, however, are "**academic based, and completely connected to what [students] are doing in the classroom […] it enriches and goes beyond what they [are] doing.**" Across both models, then, GPS ensures that ALP is linked with district-wide standards while allowing advanced students to move at a faster pace.

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[154] Bullet points taken verbatim from: "Advanced Studies: Curriculum." Greenwich Public Schools. https://www.greenwichschools.org/teaching-learning/academics/advanced-learning-program-alp

Figure 2.8: ALP Classes and Contact Hours at GPS

ALP CLASS	PROGRAM MODEL	CONTACT HOURS PER WEEK
GRADE 2		
Reading	Enrichment	2
Math	Enrichment	2
GRADES 3 THROUGH 5		
Reading	Replacement	5
Math	Replacement	5
Science	Enrichment	1.5
GRADE 6		
English/Writing	Replacement	10
Seminar	Enrichment	2.5 (one semester)
GRADES 7 AND 8		
English/Writing	Replacement	7.5
Seminar	Enrichment	2.5 (one semester)

Source: Greenwich Public Schools[155]

Given the ALP offerings, it is evident that GPS's gifted programming is geared toward academically advanced students in core content areas. Language arts, math, and science constitute the core elements of the program, as well as a Middle School Seminar for identified students beginning in Grade 6 (Figure 2.9). Ms. O'Regan stated that this seminar in particular is the "best thing we do." The interdisciplinary seminar builds on gifted students' knowledge and questioning skills throughout middle school to examine different elements of the main topic each year ("What does it mean to be human?").

Figure 2.9: Key Components of the ALP Curriculum at GPS

CONTENT	DESCRIPTION
Language Arts	The curriculum framework used is the *Integrated Curriculum Model* designed for gifted learners by Dr. Joyce Vantassel-Baska and the College of William and Mary. This model is organized for the integration of Big Ideas, Advanced Content, and Differentiated Process & Product. The use of this model allows students to extend their understanding of language beyond the literal and inferential into the realm of evaluative analysis. The goals of the Language Arts units are to develop students' skills in literary analysis and interpretation, persuasive writing, linguistic competency, and oral communication, as well as to strengthen students' reasoning skills and understanding of the concept of change.
Math	Advanced students require a mathematics curriculum that not only challenges their current abilities but also pushes them into new realms of understanding. This type of differentiation is best provided through an acceleration model that allows students to demonstrate mastery of grade level standards and move through the curriculum receiving instruction at their challenge levels. The math curriculum is enriched and generally accelerated by one year.

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[155] Adapted from: "Advanced Learning Program (ALP) Monitoring Report," Op. cit., p.28.

CONTENT	DESCRIPTION
Science	The Advanced Learning Program Science curriculum employs a problem-based learning format in order to encourage students to develop scientific habits of mind while actively involved in acquiring significant science content through solving a "real world" problem. This format requires the students to engage in the scientific process, from the problem-finding and information-gathering steps, to the evaluation of the experimental data, and the solution or recasting of the problem.
Middle School Seminar	The seminar program is a continuum that allows reasoning models and approaches to problem solving to be revisited, practiced and refined over a three-year period. Seminar students frame their own questions, engage in research, analyze and discuss ideas, and apply what they have learned to social problems. The overarching theme for all three grades is "What does it mean to be human?" In sixth grade the focus is on evolutionary change, seventh grade on the concept of systems, and in eighth grade on public health systems.

Source: Greenwich Public Schools[156]

Ms. O'Regan noted that the District strives to develop **individualized learning plans for gifted students** so that they are receiving the instruction that they need. For example, she stated that in some instances, GPS will allow highly gifted Grade 6 students to enroll in Algebra (three grade levels above their peers). All in all, she explained, "we customize as much as we possibly can. It [is] meeting the kids where they are and where they need to be going." Then, once students enter high school, GPS provides a wide array of advanced options from which students can select based on their level and interests. This is primarily offered through AP courses; according to Ms. O'Regan, "we have the Honors and the AP courses that the students feed into […] I do [not] know if there [is] an AP course that we do [not] offer."

STUDENT PLACEMENT

Ms. O'Regan explained that GPS recently revised its screening and student identification measures for gifted programming. Previously, the District would test Grade 1 students at the end of the school year for placement in Grade 2 enrichment courses, with Grade 2 students tested again at the end of the school year. According to Ms. O'Regan, "some of them would be placed into the replacement curriculum and some were [not], which was really hard for a five-year-old, six-year-old, to understand. *The difference between an end-of-year first grader and a beginning-of-year second grader…huge.*" Under the current, revised system, ALP specialists now begin formal programming screening in Grade 2.

However, overall, **the District has attempted to move away from using the terms "gifted" and "not gifted" during the identification and placement process.** According the GPS, "rather, the purpose of the placement process is to identify specific academic student needs and match learners with appropriate supplementary services."[157] In this way, given that the District has several different enrichment and replacement pathways for students in different core content areas, the placement process is used to highlight areas of student strengths and enroll them in the corresponding course. For example, students who are

[156] Adapted from: "Advanced Studies: Curriculum," Op. cit.
[157] "Advanced Studies: Placement." Greenwich Public Schools. https://www.greenwichschools.org/teaching-learning/academics/advanced-learning-program-alp

gifted in math can take one- or two-grade level accelerated math courses while still attending grade-level language arts and science classes. Nonetheless, Ms. O'Regan noted that "starting in second grade is when we start our formal programming. We have, at the very beginning of the school year, we go into the Grade 2 classrooms and set up and do higher level thinking type exercises, critical thinking."

The placement process used at GPS to determine which (if any) ALP courses students need involves three steps: *Referral, Evaluation,* and *Placement* (Figure 2.10). Overall, the ALP placement process seeks to identify students who display "Advanced Potential." These students may:

- Give evidence of significantly high performance capability when compared with others of their age, experience, or environment in specific academic fields; and
- Require services or activities not ordinarily provided by the school in order to fully develop such capabilities.[158]

The process is holistic, meaning that grades are only one aspect of the overall decision. The District believes that "students may have factors that make placement and performance more complex (including dual exceptionalities, limited English proficiency, cultural differences, or social/emotional considerations such as underachievement)." [159] This suggests that GPS considers prospective "Advanced Potential" students across all student subgroups, including those with previously demonstrated high performance (e.g., above-grade achievers) as well as those with underdeveloped performance but who show high potential (e.g., low socioeconomic status students or twice-exceptional).[160] Appendix C presents the qualities of learners with advanced potential that GPS considers in placement decisions.

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[158] Bullet points taken verbatim from: "Advanced Learning Program and Advanced Studies Placement Handbook 2016-2017," Op. cit., p.6.

[159] Ibid.

[160] Ibid.

Figure 2.10: Placement Process for ALP Screening at GPS

Referral

- The Referral Phase begins with screening. Screening is the process of reviewing current grade level data about each child to determine if a student should be referred for further assessment for possible placement in the Advanced Learning Program. The screening process includes: a review of current performance data, grade level standardized tests, and observational data using checklists based on gifted characteristics.
- Referrals (sometimes called Nominations) is the direct procedure that enters a student into the Evaluation Phase. Referrals may be initiated by teachers, parents, or others who may have knowledge of students' learning needs.

Evaluation

- In the Evaluation Phase GPS uses a multifaceted placement scheme to identify not only students who are already high achieving in the domain but also those with potential but underdeveloped achievement.

Placement

- In the Placement Phase the Building Advisory Committee (BAC), consisting of the ALP teacher(s), classroom teachers, a building administrator, and the ALP facilitator, conducts a comprehensive review of each child's record and performance during the evaluation in order to make final placement decisions.

Source: Greenwich Public Schools[161]

Finally, Ms. O'Regan explained that GPS also uses an early identification method to provide informal advanced education to students before Grade 2. It is based on FCPS's Young Scholars program: "based upon the Young Scholars and the critical thinking lessons that they use, if you [are] familiar with Fairfax County and their Young [Scholars] model. It was based off that." Like the FCPS program, the early identification program at GPS specifically targets students who may otherwise be underrepresented in ALP. According to Ms. O'Regan,

> *We wanted to catch the kids being smart – looking at not those kids that necessarily are going to show up anyway, but we [are] looking for those kids that may not necessarily show up […]* ***The students needed to have these experiences before they could actually show the gifted behaviors.*** *It was [not] an already developed ability that came in without the tutoring, without all of that, the enriched environment at home.*

FACULTY AND STAFF

Ms. O'Regan noted that many teachers in the elementary and middle schools, given the replacement model that is common in English and math classes, are often responsible for leading both core and accelerated courses. Because of this dual commitment, the District

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[161] Adapted from: "Advanced Studies: Placement," Op. cit.

prioritizes regular professional development for all educators that lead ALP classes. Ms. O'Regan explained that "for the teachers who are teaching within the ALP program, I meet with them the second Wednesday of every month for a program meeting […] We have early-release Wednesdays. There [are] five of those throughout the school year, plus two full days of professional learning." However, Ms. O'Regan posited that despite the prioritization of professional development, it can be challenging to coordinate training when teachers must assume responsibilities for both core and ALP classes.

This indicates that Ms. O'Regan, as the full-time ALP facilitator in the District, **personally meets with teachers to discuss professional development.** For example, she said that "I will put them into contact with modules, like online learning modules, in certain areas of learning that they want to do." By formally scheduling these monthly, one-on-one meetings with advanced education teachers, Ms. O'Regan ensures that each educator is receiving training that aligns with their needs or knowledge gaps, as well as their interests.

PARADISE VALLEY UNIFIED SCHOOL DISTRICT

Paradise Valley Unified School District (PVSchools) is a large school system located near Phoenix and Scottsdale, in Arizona. The District operates 30 elementary schools, seven middle schools, and five high schools, as well as several alternative schools and an online option, which together enroll approximately 31,000 students. PVSchools is an economically diverse district, with 36 percent of students qualifying for free- and reduced-price lunch and 18 Title I schools. Notably, about 12 percent of PVSchools students enroll in gifted programs.[162] A leading education scholar said of the gifted program at PVSchools that "if you are looking for a 'complete package' on how to serve gifted children, PVUSD is the Holy Grail you seek."[163]

Note that unless otherwise specified, all information in this profile comes from a telephone interview conducted with Dr. Dina Brulles, the Director of Gifted Education at PVSchools.[164]

GIFTED PROGRAM GOALS

Dr. Brulles stated that the overall goal of the gifted programs at PVSchools is "to make sure that all students, regardless of the area of identification, ethnicity, culture, language… that all gifted students are appropriately challenged, identified, and placed." The Department of Gifted Education, which is an independent unit within PVSchools, aligns its core mission with that of the District so that the "gifted education philosophy" supports student growth within the context of PVSchools more broadly (Figure 2.11).

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[162] "About PVSchools." Paradise Valley Unified School District. http://www.pvschools.net/domain/59

[163] "Gifted Programs." Paradise Valley Unified School District. http://www.pvschools.net/Page/149

[164] Brulles, Dina. Director of Gifted Education and Professor of Education at Arizona State University, Paradise Valley Unified School District. Telephone interview, February 14, 2017.

Figure 2.11: Gifted Education Philosophy at PVSchools

LEVEL	MISSION STATEMENT
District	The mission of the Paradise Valley Unified School District is to cultivate, lead and inspire world-class, innovative thinkers and expert communicators through a focus on the relationship between educator and student built around challenging, meaningful and engaging curriculum.
Gifted Education	PVSchools supports the philosophy that giftedness denotes the possession and use of untrained natural abilities (Gagne). We believe that gifted students' natural abilities translate to educational needs that require differentiated instructional programming as an integrated part of their regular school day.

Source: Paradise Valley Unified School District[165]

As such, the gifted education curriculum is in full compliance with the district-wide curriculum as well as the state standards mandated by the Arizona State Board of Education. The District's website defines five key academic objectives targeted across the gifted program:

- Promote critical thinking and reasoning abilities;
- Develop and expand thinking skills;
- Utilize differentiated strategies for learning;
- Build/extend cognitive language skills; and
- Facilitate opportunities for learning.[166]

PROGRAM MODEL(S)

According to Dr. Brulles, **the most common model of gifted education in PVSchools is the cluster-grouping model,** which they implement school wide. Overall, the District operates between 12 and 14 different programs for gifted students, although Dr. Brulles highlights cluster-grouping and content replacement as the main types of delivery: "We have our cluster-grouping model in every one of our elementary schools and we have content replacement daily with the math, with a gifted specialist, and that [is] for math and reading. That [is] for the vast majority of our gifted students." She also noted that PVSchools has several self-contained gifted programs "for highly [gifted] and for gifted children who are readily accelerated, and we have that in five locations." Broadly (i.e., across models), though:

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[165] Adapted from: "Gifted Education Philosophy." Paradise Valley Unified School District. http://www.pvschools.net/Page/3177

[166] Bullet points taken verbatim from: "Gifted Curriculum and Goals." Paradise Valley Unified School District. http://www.pvschools.net/Page/4423

> *PVUSD defines gifted education as **services and coursework that provide extended learning opportunities focused on the cognitive and affective needs of gifted students.** Gifted Education services in PVUSD are inclusive of all school populations and student demographics, and consist of integrated, differentiated learning experiences provided during the regular school day.[167]*

The array of gifted programming opportunities for students in PVSchools is thus quite extensive, with different program models (e.g., cluster-grouping, homogeneous schools, etc.) available for diverse learning needs. Across all of its gifted services, however, the District incorporates and addresses:

- Continuity of programming to fit the needs of all gifted students;
- Continual progress to ensure individual academic progress;
- Daily interaction with other gifted students in the content areas;
- Differentiated curriculum and instruction;
- Accelerated pacing in the core content areas;
- Critical thinking, creativity, and problem solving;
- Flexible grouping according to ability levels, learning styles, and areas of interest; and
- Attention to gifted students' social and emotional needs.[168]

PVSchools differentiates instruction for gifted learners by leveraging a variety of tools and pedagogies such as **content, process, products, learning environment,** and **assessments** (Figure 2.12). The District has further incorporated and aligned the new Common Core standards with its gifted programming, stating that "gifted education in Paradise Valley Schools focuses on interdisciplinary concepts, critical thinking skills, and problem solving across domains. With implementation of the Common Core, we will continue to differentiate for gifted learners within a set of standards that are reasonably rigorous in each subject."[169] Dr. Brulles explained that PVSchools is committed to "changing up the curriculum to reflect current initiatives [and] expanding once we identified additional students."

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[167] "Gifted Education Philosophy," Op. cit.
[168] Bullet points taken verbatim from: Ibid.
[169] "Gifted Curriculum and Goals," Op. cit.

Figure 2.12: Areas of Differentiated Instruction at PVSchools

AREA OF INSTRUCTION	DESCRIPTION
Content	Complex, abstract ideas presented in a variety of disciplines, including interdisciplinary curriculum.
Process	Higher-level thinking through Bloom's Taxonomy and the Multiple Intelligences.
Products	Alternative methods of demonstrating mastery with a range of complexity.
Learning Environment	Student-centered, flexible grouping based on readiness, interests, and abilities.
Assessments	Pre-assessment and testing out-of-grade level curriculum.

Source: Paradise Valley Unified School District[170]

Specifically, PVSchools separates gifted instruction by target student group; thus, they have gifted programs for preschool students, Kindergartners, and elementary (Grades 1 through 6), middle, and high school students. For the youngest learners, PVSchools offers a tuition-based **gifted preschool program** at four different locations. These children must score 90 percent or higher on an IQ test to qualify. The preschool program highlights critical and creative thinking, an accelerated curriculum, integrated technology, individualization, core content, and enrichment.[171] The **Kindergarten program** promotes several of the same program tenants, while also incorporating more advanced elements of Socratic questioning/ inquiry and reasoning. These classrooms are self-contained (i.e., homogeneous grouping), and "are designed for high-achieving gifted and talented students. Student work beyond grade level with intellectual peers and are taught by teachers who are Early Childhood Certified and hold a Gifted Endorsement."[172]

The gifted program at PVSchools becomes significantly more robust as students enter **elementary schools**, with the District offering three levels of instruction for these children: cluster-grouping model; Honors classes/content replacement; and self-contained programs. As shown in Figure 2.13, each of these models are tailored to a specific grade level span and student group; Dr. Brulles clarified that the grouping method changes based on program and that "we group differently for different programs." She further explained that there is some flexibility in grouping, such that PVSchools looks "at the numbers that we have identified and grouped, and then we use local norms to increase the numbers in our types of schools."

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[170] Adapted from: Ibid.

[171] "Start Your Gifted Child's Education in Preschool." Paradise Valley Unified School District. http://www.pvschools.net/cms/lib08/AZ01902189/Centricity/Domain/74/Gifted%20Preschool-2016%20update.pdf

[172] "Self-Contained Gifted and Talented Kindergarten." Paradise Valley Unified School District. http://www.pvschools.net/Page/4289

Figure 2.13: Program Models at PVSchools for Gifted Students in Elementary School

MODEL	GRADES	DESCRIPTION
Cluster-Grouping	1-4	In The Schoolwide Cluster Grouping Model gifted students are clustered into mixed-ability classrooms at each grade level. The teacher has had training in understanding, planning for, and instructing gifted students. If there are more than eight gifted students in the grade level, two or more clusters may be formed. High-average students are placed into classrooms without the gifted clusters to create a balance of ability/achievement levels in classes across the grade level.
Honors Classes (Content Replacement)	4-6	Gifted Education Specialists provide content replacement and content enrichment to gifted students in each elementary school for grades 4-6. Students receive accelerated and enriched instruction in mathematics and/or language arts, depending upon their area(s) of identification and needs. Students receive content replacement in lieu of the regular grade level curriculum provided in their homeroom classes, and content enrichment in addition to instruction provided in the homeroom or gifted cluster class. Curriculum in these content areas is accelerated to an appropriately challenging level.
Self-Contained	1-6	The Self-contained Gifted program in Paradise Valley is designed for high-achieving, highly and profoundly gifted students who are working at least two grade levels beyond their current grade. Gifted students who are radically accelerated in academics and highly motivated to learn, thrive in this program. Students in the Self-contained Program participate in daily special areas (art, music and PE), lunch and recess with other grade-level classes. Students are included grade-level activities and field trips.

Source: Paradise Valley Unified School District[173]

Students in **middle and high school** similarly have a variety of options for gifted programming, although they are somewhat more flexible than the elementary-level offerings. The most common option for secondary students is to enroll in Honors and advanced-level courses based on the specific content areas in which they excel. Instruction in these above-grade-level courses "incorporates creative and productive thinking, problem solving, critical thinking skills, research, personal development, and communication."[174] In addition to these higher-level courses, there are several academies for gifted secondary students at PVSchools. These include:

- *Digital Learning Center at Sunrise Middle School:* A project-based learning environment that embodies 21st century learning through ubiquitous technology, featuring literature integration within content areas.

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173 Adapted from: [1] "Schoolwide Cluster Grouping Model." Paradise Valley Unified School District. http://www.pvschools.net/Page/4377

[2] "Content Replacement/Enrichment with Gifted Specialists Grades 4-6." Paradise Valley Unified School District. http://www.pvschools.net/Page/4376

[3] "Self-Contained Gifted." Paradise Valley Unified School District. http://www.pvschools.net/Page/4374

174 "Middle School Programs for Gifted Students." Paradise Valley Unified School District. http://www.pvschools.net/Page/144

- *Honors Academy at Desert Shadows Middle School:* The two Honors Academies provide honors core classes—English, math, science, social studies—with an emphasis in one of two programs: world languages and pre-engineering.

- *International Baccalaureate Program at Vista Verde Middle School:* The IB Middle Years Program is a rigorous academically challenging program; students are challenged to develop in an increasingly interrelated technological society.

- *Digital Academy for Advanced Placement Scholars at Shadow Mountain High School:* Students in this program enjoy the full range of extracurricular high school activities while being challenged in a program for gifted students interested in information technology. The DAAPS program features student-centered teaching; study that integrates course work in core subjects, showing relationships and dichotomies in major fields of study; inquiry and project-based learning; and extensive student collaboration. The course study is flexible, allowing students to choose a three- or four-year completion track and the opportunity to earn 30 or more college credits.

- *CREST Center for Research in Engineering, Science and Technology:* CREST offers exceptional students the opportunity to study in a school-within-a-school at Paradise Valley High School, and to focus their studies on Biotechnology, Engineering, or Computer Technology.

- *International Baccalaureate Program at North Canyon High School:* The IB Program is an internationally recognized honors program that creates well-rounded students, rigorous learners, and lets students earn college credit that is applicable not just to American universities but universities around the world.[175]

STUDENT PLACEMENT

Dr. Brulles noted that all the identification for gifted programs goes through her office, the Gifted Education Department. The Department oversees gifted testing three times a year in accordance with the Arizona State Mandate. PVSchools relies on the Cognitive Abilities Test (CogAT) and the Naglieri Nonverbal Ability Test (NNAT2) to identify these students. According to the website, "the assessment battery includes tools that are language-free and culturally unbiased to provide equal opportunities for identification of the District's English language learners and culturally diverse students."[176] Students must score in the 97th percentile or above in any one area (i.e., verbal, quantitative, or nonverbal) to be considered for gifted education.

Importantly, **PVSchools does not blanket test students for gifted identification.** This means that not all students will sit for the CogAT or NNAT2, because "practice shows that when

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[175] Bullet points adapted from: [1] "Middle School Programs for Gifted Students," Op. cit.
[2] "Programs for High School Students." Paradise Valley Unified School District. http://www.pvschools.net/Page/145
[176] "Gifted Testing Information." Paradise Valley Unified School District. http://www.pvschools.net/Page/4405

blanket testing is held, fewer students are identified."[177] Instead, the District restricts gifted testing to students who show particular promise or achievement (akin to how not all students are tested for special education placement). Mostly, teachers and parents who recognize that their children may excel in advanced education recommend those students for additional testing. PVSchools has developed a Parent Nomination and Teacher Nomination packet for these instances.[178]

FACULTY AND STAFF

According to Dr. Brulles, the Gifted Education Department staffs five full-time employees who serve as testing technicians and gifted mentors. Further, there are roughly 60 teachers that are involved with elementary school gifted programming, along with the various advanced and Honors teachers at the secondary level. Gifted specialists are hired to lead these classes and/or schools, and all specialists have dedicated training in gifted education. Each gifted specialist also works with a Gifted Program Mentor, who "provides support and training for elementary schools' gifted specialists."[179] Thus, the District ensures that all gifted education teachers are previously experienced and continuously trained in advanced curriculum and pedagogy.

Dr. Brulles further explained that ongoing professional development is critical to the success of PVSchools' gifted programs. According to her, the District has "workshops offered about three days a week – three workshops after school a week; Fall and Spring, and also throughout the Summer. We have ongoing trainings." All gifted teachers are required to attend certain trainings. Moreover, to incentivize teachers to continue to participate in trainings, Dr. Brulles noted that PVSchools gives them "clock hours for professional growth. We send them to different conferences when they [are] available and cover their subs. The teachers find benefits, they get benefits from them because then they get assistance with lesson planning and that type of thing." Finally, Dr. Brulles concluded by saying that the District's training opportunities are really guided by what the teachers need: "That [is] how we guide our trainings, by seeing what teachers need and develop[ing] our trainings based on current initiatives and what they need." Figure 2.14, shown on the following page, presents some of PVSchools' upcoming professional development opportunities for gifted education teachers.

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[177] "FAQs About Gifted Testing." Paradise Valley Unified School District. p.2.
   http://www.pvschools.net/cms/lib08/AZ01902189/Centrity/Domain/74/FAQs%20about%20gifted%20testing.p
   df
[178] Ibid.
[179] "Content Replacement/Enrichment with Gifted Specialists Grades 4-6," Op. cit.

Figure 2.14: Selected Professional Development Offerings for Gifted Teachers, Spring 2017

The Mighty 8 - Creative Strategies for Teaching the Eight Mathematical Principles

- Examine why teaching and motivating your students to recognize and discuss the 8 Mathematical Practices is paramount for strengthening math understanding. Explore how math games, computer coding and project-based learning opportunities can assist in teaching the 8 mathematical practices.

Introducing...Google Classroom

- This is an introductory class to implementing Google Classroom in your classroom. Resources and ideas on how to use Google Classroom will be provided.

Make Fractions Come Alive Grades 3-6

- Fractions can pose a challenge for learners, but all hope is not lost! Come learn about models and representations that support students making sense of operations involving fractions. Build understanding by teaching fraction operations conceptually and moving into abstract representation. Examine strategies for evaluating irregularly partitioned and unpartitioned areas, lengths, and number lines. Leave with ideas to take back to your classroom using Cuisenaire Rods, Fraction Kits and Pattern Blocks. (manipulatives not included with class).

Step-Up To Writing

- Teach a visual structure that enables the student to build a strong paragraph and then STRETCH it. Guide students to enhance their writing with elaborative detail as they add "the reds." Great strategy for both the young and intermediate writer!

Create and Collaborate with iPads

- Use iPads to create, produce and collaborate on great cross-content projects. There are many options for students to connect with the content and with other students.

Source: Paradise Valley Unified School District[180]

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[180] Adapted from: "Paradise Valley Unified School District Gifted Education Services Professional Development Offerings Spring 2017." Paradise Valley Unified School District. https://docs.google.com/document/d/1USKRmID0mbKzPp_Xj-jvFnWVZAOBHe6uQjgMbk9Y1EY/edit

APPENDIX A: TEACHER PREPARATION STANDARDS

This appendix presents the teacher preparation standards in gifted and talented education, as developed by the National Association for Gifted Children and the Council for Exceptional Children.

Figure A.1: Teacher Preparation Standards in Gifted and Talented Education

STANDARD	DESCRIPTION	COMPONENTS
Standard 1: Learner Development and Individual Learning Differences	Beginning gifted education professionals understand the variations in learning and development in cognitive and affective areas between and among individuals with gifts and talents and apply this understanding to provide meaningful and challenging learning experiences for individuals with exceptionalities.	▪ Understand how language, culture, economic status, family background, and/or area of disability can influence the learning of individuals with gifts and talents. ▪ Use understanding of development and individual differences to respond to the needs of individuals with gifts and talents.
Standard 2: Learning Environments	Beginning gifted education professionals create safe, inclusive, and culturally responsive learning environments so that individuals with gifts and talents become effective learners and develop social and emotional well-being.	▪ Create safe, inclusive, culturally responsive learning environments that engage individuals with gifts and talents in meaningful and rigorous learning activities and social interactions. ▪ Use communication and motivational and instructional strategies to facilitate understanding of subject matter and to teach individuals with gifts and talents how to adapt to different environments and develop ethical leadership skills. ▪ Adjust their communication to an individual's language proficiency and cultural and linguistic differences. ▪ Demonstrate understanding of the multiple environments that are part of a continuum of services for individuals with gifts and talents, including the advantages and disadvantages of various settings and teach students to adapt to these environments.

STANDARD	DESCRIPTION	COMPONENTS
Standard 3: Curricular Content Knowledge	Beginning gifted education professionals use knowledge of general and specialized curricula to advance learning for individuals with gifts and talents.	▪ Understand the role of central concepts, structures of the discipline, and tools of inquiry of the content areas they teach, and use their understanding to organize knowledge, integrate cross-disciplinary skills, and develop meaningful learning progressions within and across grade levels. ▪ Design appropriate learning and performance modifications for individuals with gifts and talents that enhance creativity, acceleration, depth and complexity in academic subject matter and specialized domains. ▪ Use assessments to select, adapt, and create materials to differentiate instructional strategies and general and specialized curricula to challenge individuals with gifts and talents. ▪ Understand that individuals with gifts and talents demonstrate a wide range of advanced knowledge and performance levels and modify the general or specialized curriculum appropriately.
Standard 4: Assessment	Beginning gifted education professionals use multiple methods of assessment and data sources in making educational decisions about identification of individuals with gifts and talents and student learning.	▪ Understand that some groups of individuals with gifts and talents have been underrepresented in gifted education programs and select and use technically sound formal and informal assessments that minimize bias in identifying students for gifted education programs and services. ▪ Use knowledge of measurement principles and practices to differentiate assessments and interpret results to guide educational decisions for individuals with gifts and talents. ▪ Collaborate with colleagues and families in using multiple types of assessment information to make identification and learning progress decisions and to minimize bias in assessment and decision-making. ▪ Use assessment results to develop long- and short-range goals and objectives that take into consideration an individual's abilities and needs, the learning environment, and other factors related to diversity. ▪ Engage individuals with gifts and talents in assessing the quality of their own learning and performance and in setting future goals and objectives.
Standard 5: Instructional Planning and Strategies	Beginning gifted education professionals select, adapt, and use a repertoire of evidence-based instructional strategies3 to advance the learning of individuals with gifts and talents.	▪ Know principles of evidence-based, differentiated, and accelerated practices and possess a repertoire of instructional strategies to enhance the critical and creative thinking, problem-solving, and performance skills of individuals with gifts and talents. ▪ Apply appropriate technologies to support instructional assessment, planning, and delivery for individuals with gifts and talents. ▪ Collaborate with families, professional colleagues, and other educators to select, adapt, and use evidence-based strategies that promote challenging learning opportunities in general and specialized curricula. ▪ Emphasize the development, practice, and transfer of advanced knowledge and skills across environments throughout the lifespan leading to creative, productive careers in a multicultural society for individuals with gifts and talents. ▪ Use instructional strategies that enhance the affective development of individuals with gifts and talents.

STANDARD	DESCRIPTION	COMPONENTS
Standard 6: Professional Learning and Ethical Practice	Beginning gifted education professionals use foundational knowledge of the field and professional ethical principles and programming standards to inform gifted education practice, to engage in lifelong learning, and to advance the profession.	▪ Use professional ethical principles and specialized program standards to guide their practice. ▪ Understand how foundational knowledge, perspectives, and historical and current issues influence professional practice and the education and treatment of individuals with gifts and talents both in school and society. ▪ Model respect for diversity, understanding that it is an integral part of society's institutions and impacts learning of individuals with gifts and talents in the delivery of gifted education services. ▪ Are aware of their own professional learning needs, understand the significance of lifelong learning, and participate in professional activities and learning communities. ▪ Advance the profession by engaging in activities such as advocacy and mentoring.
Standard 7: Collaboration	Beginning gifted education professionals collaborate with families, other educators, related service providers, individuals with gifts and talents, and personnel from community agencies in culturally responsive ways to address the needs of individuals with gifts and talents across a range of learning experiences.	▪ Apply elements of effective collaboration. ▪ Serve as a collaborative resource to colleagues. ▪ Use collaboration to promote the well-being of individuals with gifts and talents across a wide range of settings, experiences, and collaborators.

Source: National Association for Gifted Children and Council for Exceptional Children[181]

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[181] Adapted from: "NAGC-CEC Teacher Preparation Standards in Gifted and Talented Education," Op. cit.

APPENDIX B: FCPS CRITICAL AND CREATIVE THINKING STRATEGIES

This appendix presents the nine key critical and creative thinking strategies espoused during Level I of FCPS's AAP framework. According to the District's website, "the advanced academic resource teacher and classroom teachers teach nine higher order thinking strategies across all subject areas and grade levels. The strategies are embedded in lessons that incorporate 21st Century thinking skills and extend and enrich the Program of Studies (POS) for all learners."[182]

Figure B.1: Critical and Creative Thinking Strategies for Level I Learners

STRATEGY	DESCRIPTION
Questioning	Active learners are always questioning. Students who take responsibility for asking their own questions become more productive and engaged in their learning processes. Metacognition, or thinking about thinking, involves questioning our individual learning processes. Such questioning helps us solve problems by developing, implementing, and evaluating plans of action. Guiding the development of thinking skills in all students empowers them, increases their independence, and helps them develop to their maximum potential. Children always have a wealth of questions – encourage questioning in your child and work with them to find answers.
Fluency, Originality, Flexibility, and Elaboration	When students are able to come up with ideas (fluency), combine ideas in new ways or come up with unusual ideas (originality), then categorize and develop their ideas (flexibility and elaboration), they are more able to make inventive or creative connections between ideas. Students should become comfortable with generating lots of ideas without pre-judgment. The process of suspending judgment is important to brainstorming and maintaining an open mind. Fluency and flexibility open up the thinking of students to consider many possibilities, and originality and elaboration stretch the uniqueness of their thinking. This is a great strategy to use with your children to generate ideas for a family trip, a way to spend the weekend, the best pet for the family, creative solutions to problems that arise, and other situations that lend themselves to multiple ideas for consideration.
Visualization	This strategy opens up student thinking by using sensory information to stimulate imagination with both spoken and written words. The process of visualization can also help students plan out an experience before execution. Students can "see" roadblocks and problems before encountering them. This strategy helps with planning, goal-setting, and organization. Research studies have shown that visualization greatly increases the level and depth of comprehension of both spoken and written words. Visualization can be a powerful strategy for helping your child set goals, picture the steps that need to be taken, consider alternatives, and visualize a plan to achieve their goals.

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[182] "Critical and Creative Thinking Strategies, Grades K-6 (Level I)." Fairfax County Public Schools. https://www.fcps.edu/academics/elementary-school-academics-k-6/advanced-academics/critical-and-creative-thinking

STRATEGY	DESCRIPTION
Mind Mapping	Mind mapping is a method of visual note taking that helps students organize information in unique and personal ways. It is appropriate for all students because it helps them retain, remember, and recall information. It also helps students to see the whole picture at once and make connections among related ideas without interruption. As students begin to work with more information in the content areas, this is a key skill which is especially important for visual learners and students who enjoy making connections among ideas. Mindmapping is a lot of fun – you and your child can write a word or draw a circle in the middle of a page. Next, draw lines and new circles to ideas and words or pictures that connect to the original word. For example, maybe your child is interested in space. Together you could create a mind map of all that you know about space and then add things that you want to investigate.
Point of View (POV)	This thinking strategy allows students to explore an idea from multiple perspectives. This helps to broaden students' thinking and demonstrates that an idea should be examined from many points of view before an opinion is formed. The discipline of examining an issue from many perspectives will provide students with a good model for open-ended receptive thinking and empathizing with the opinions of others. Everyone has a viewpoint! It is important for children to become comfortable sharing their own viewpoint and listening to and learning from others. Parents can help their children recognize different viewpoints through books and stories or conversations that encourage a discussion of questions that have no definite answers, e.g., what makes a good friend? Another example would be a discussion of a movie that you attend together that might lead to different viewpoints on the theme or message of the movie.
Analogies	Analogies allow students to make connections at a more sophisticated level. This structure for thinking helps students relate material to previously learned concepts as well as generate new comparisons. A facility for working with analogies gives students a structure for generating creative ideas, seeing complex relationships, and making unusual comparisons. Analogies are fun – how is thinking like a volcano? How is a dandelion like a good book? They stimulate the imagination and lead students to deeper understandings by connecting things that do not always appear connected.
Encapsulation	Encapsulation is the process of stating ideas in a concise, precise form. It is not a summary and does not involve simply stating the main idea or restating information or opinions. Encapsulation requires students to synthesize information and nuances in order to capture the essence of an idea, object, or activity, and then communicate their thoughts clearly. Vanity license plates are an example of encapsulating an idea with letters and symbols – try creating your own with your child!
Decisions and Outcomes	This strategy provides a framework in which students can assess and evaluate a variety of decisions and possible outcomes. Understanding cause and effect relationships helps students recognize the importance of examining the outcomes of multiple decision options before embarking on a course of action. The concept of examining outcomes is relevant for all students as they learn to consider both short-term and long-range consequences in the decision making process. For example, your child may want to make a purchase. This would be a great time to consider the short term consequences (the purchase may use up all of their savings, they may have to forego other purchases for awhile, etc.) and long-term consequences (it could be less expensive if they wait, a newer, improved model may come on the market, it may be impulse buying and later they may regret spending the money.) These are important considerations for children to think about that will carry on into adult life. This strategy also works well for decisions about what sport to play, whether or not they do their homework, and many others as they realize that all decisions have outcomes that must be considered.

STRATEGY	DESCRIPTION
Plus, Minus, Interesting (PMI)	The PMI strategy encourages students to think about many possibilities, and to explore the positive and negative aspects of ideas or activities. PMI encourages students to develop the habit of looking beyond the polarity of "yes or no," "wrong or right," "my answer or your answer." The goal of PMI is to develop independent thinkers who consider a range of ideas and/or possibilities and see beyond the obvious. The "interesting" category can also include questions. This strategy works well when discussing books, events, family trips, musical instruments or any other ideas that can be considered through the lens of pluses, minuses, and interesting aspects. For example, your child is trying to decide which musical instrument to play. Together you make a chart of the plus, minus, and interesting aspects of each instrument that they are considering. Often the interesting column leads to insights that will help them make a decision.

Source: Fairfax County Public Schools[183]

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[183] Adapted from: Ibid.

APPENDIX C: CHARACTERISTICS OF LEARNERS WITH ADVANCED POTENTIAL AT GPS

This appendix presents the various characteristics of learners with advanced potential that GPS gifted learning specialists consider when making placement decisions. Note that these characteristics are derived from FCPS's materials, suggesting alignment between the two districts' practices.

BEHAVIORAL AREAS	RANKING				GIFTED BEHAVIORS CONNECTIONS
	Emergent (1)	*Novice (2)*	*Maturing (3)*	*Independent (4)*	
Perceptive	Recognizes basic patterns in the environment	Applies understanding of similarities and differences	Seeks and examines novel patterns and relationships	Transfers patterns and relationships to new situations; looks beyond the obvious to notice verbal and nonverbal subtleties	*Exceptional Ability to Learn*
Strategic	Employs learned thinking strategies to solve problems	Investigates alternative solutions to problems	Analyzes situations, searches for additional information, and diligently works to find solutions to problems	Analyzes and researches potential solutions, tests theories, and verifies multiple conclusions to complex problems	*Exceptional Ability to Learn*
Communicative	Expresses ideas simply but clearly	Expands on ideas and provides additional information	Expands on ideas, compares and contrasts, and gives examples	Initiates and elaborates on complex ideas; providing examples, counter-examples, and inferred characteristics	*Exceptional Application of Knowledge*
Resourceful	Recognizes and uses available resources to complete a task	Completes tasks using available resources in a traditional manner	Adapts resources to use in a new and different way	Draws from experiences and transfers understandings to new situations; inventive	*Exceptional Application of Knowledge*
Creative	Explores ideas and materials freely	Expands on ideas and adds details	Uses fluency and flexibility to view ideas in new and unusual ways	Demonstrates innovative ideas to show new relationships and uses	*Exceptional Creative/ Productive Thinking*

BEHAVIORAL AREAS	RANKING				GIFTED
Curious	Asks questions on topics of interest	Demonstrates curiosity and actively seeks new ideas	Asks deep questions to initiate investigation and meaningful dialogue	Asks complex questions to explore, test, and evaluate sustained investigations	*Exceptional Creative/ Productive Thinking*
Leadership	Interacts effectively with others on assigned tasks	Initiates ideas and is sensitive to the contributions of others	Refines and extends the idea of others to build and foster the talents of a group	Organizes groups in various settings to implement plans of action, seeing complex tasks through to completion	*Exceptional Motivation to Succeed*
Resilient	Remains on task when faced with a difficult task	Demonstrates ability to work through difficult times in and out of the school environment	Recovers quickly from environmental and personal challenges	Exudes strength in times of personal hardship and maintains integrity	*Exceptional Motivation to Succeed*

Source: Greenwich Public Schools[184]

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[184] Adapted from: "Advanced Learning Program and Advanced Studies Placement Handbook 2016-2017," Op. cit., p.9.

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