## **Gifted Education Strategies**

https://www.nagc.org/resources-publications/gifted-education-practices



Separate studies conducted during the last few decades have demonstrated both the need for and the benefits of gifted education programs. Of special interest are the documented benefits that occur for all children when gifted education strategies and programs are extended to other students, as well. Simply stated . . . Gifted education works! Please click on a link below for more information on the research-based evidence supporting the distinctive method or methods listed below.

Why Gifted Programs are Needed

Gifted and talented students and those with high abilities need gifted education programs

that will challenge them in regular classroom settings and enrichment and accelerated

programs to enable them to make continuous progress in school. Read more about why

# gifted education programs are needed. Why Are Gifted Programs Needed?

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- According to one report on high-achieving students, more than 7 in 10 teachers of these students surveyed noted that their brightest students were not challenged or given a chance to "thrive" in their classrooms. [1] Additionally, gifted students need gifted programming in many cases because the "general education program is not yet ready to meet the needs of gifted students" (p. 9) due to lack of general educators' training in gifted education and the pressure classroom teachers face to raise the performance of their struggling students. [2]
- It's more than just giving students a challenge in classrooms: Gifted programming positively influences students' futures. Several longitudinal studies have shown that gifted programs have a positive effect on students' post-secondary plans. For example, studies found that 320 gifted students identified during adolescence who received services through the secondary level pursued doctoral degrees at more than 50X the base rate expectations. [3] In a follow-up report on the same study participants at age 38, 203 participants, or 63%, reported holding

advanced terminal degrees (master's and above). Of these, 142 (44%) held doctoral degrees and 8 of these 142 had more than one doctoral degree. As a benchmark for this accomplishment, the authors of this study compared these rates to the general U.S. population, noting that only approximately 2% of the general population held a doctoral degree according to the 2010 U.S. Census. [4]

- Additionally, in a study looking at gifted students who participated in talent development through competitions, the researchers reported a long-term impact on these students' postsecondary achievements, with 52% of the 345 students who participated having earned doctoral degrees. [5]
- Further benefits of gifted programs have been shown to include that students who had participated in gifted programs maintained their interests over time and stayed involved in creative productive work after they finished college and graduate school. [6]
- A sample of 2,409 intellectually talented adolescents (top 1%) who were assessed on the SAT by age 13, and provided services through a talent search program, was tracked longitudinally for more than 25 years. Their creative accomplishments, with particular emphasis on literary achievement and scientific-technical innovation, were examined and results showed that distinct ability patterns identified by age 13 foreshadowed creative accomplishments in middle age. Among the sample, participants had earned 817 patents and published 93 books, one had been awarded the Fields Medal in mathematics, and another had won the John Bates Clark Medal for the most outstanding economist under 40. [7]

<sup>1</sup> Loveless, T., Farkas, S., & Duffett, A. (2008). *High-achieving students in the era of NCLB*. Washington, DC: Thomas B. Fordham Institute.

<sup>2</sup> Hertberg-Davis, H. L., & Callahan, C. M. (2013). Introduction. In H. L. Hertberg-Davis & C. M. Callahan (Eds.), *Fundamentals of gifted education* (pp. 1–10). New York, NY: Routledge.

<sup>3</sup> Lubinski, D., Webb, R. M., Morelock, M. J., & Benbow, C. P. (2001). Top 1 in 10,000: A 10 year followup of the profoundly gifted. *Journal of Applied Psychology*, *4*, 718–729.

<sup>4</sup> Kell, H. J., Lubinski, D., & Benbow, C. P. (2013). Who rises to the top? Early indicators. *Psychological Science*, *24*, 648–659.

<sup>5</sup> Campbell, J. R., & Walberg, H. J. (2011). Olympiad studies: Competitions provide alternatives to developing talents that serve national interests. *Roeper Review*, *33*, 8–17.

<sup>6</sup> Westberg, K. L. (1999, Summer). What happens to young, creative producers? NAGC: *Creativity and Curriculum Division Newsletter*, *3*, 13–16.

<sup>7</sup> Park, G., Lubinski, D., & Benbow, C. P. (2007) Contrasting intellectual patterns predict creativity in the arts and sciences: Tracking intellectually precocious youth over 25 years. *Psychological Science*, *18*, 948–995.

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### **About NAGC**

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- Acceleration

Educational acceleration is one of the cornerstones of exemplary gifted education practices, with more research supporting this intervention than any other in the literature on gifted individuals. The practice of educational acceleration has long been used to match high-level students' general abilities and specific talents with optimal learning opportunities. Read more about acceleration.

### **Acceleration**

Acceleration occurs when students move through traditional curriculum at rates faster than typical. Among the many forms of acceleration are grade-skipping, early entrance to kindergarten or college, dual-credit courses such as Advanced Placement and International Baccalaureate programs and subject-based acceleration (e.g., when a fifth-grade student takes a middle school math course). Many researchers consider

#### Developing Academic Acceleration Policies

acceleration to be "appropriate educational planning. It means matching the level and complexity of the curriculum with the readiness and motivation of the student" (p. 66). [1]

- In a study of high-ability children who had been accelerated, 71% reported satisfaction with their acceleration experience. Of the participants who reported they were unsatisfied, the majority indicated they would have preferred more acceleration. [2] In addition, in a series of interviews with students who were accelerated, an overwhelming majority of these students said that acceleration was an "excellent experience" for them. [3]
- Some argue that acceleration can be harmful to students' self-concept, ability to fit in with older peers, or other social-emotional needs. However, research on acceleration has demonstrated multiple academic benefits to students and suggests that acceleration does not harm students. As the National Work Group on Acceleration determined, there is "no evidence that acceleration has a negative effect on a student's social-emotional development" (p. 4). [4]
- In one study, students who were allowed early entrance to elementary school averaged 6 months ahead in achievement when compared to their age peers during the same year. Additionally, these students showed improvement in socialization and self-esteem compared to slight difficulties faced by advanced students who were not accelerated. [5]
- In another study, researchers noted that a sample of students who had participated in wholegrade acceleration were not noticeably different in their perceived interpersonal competence (including interacting with others and their ability to form friendships) when compared to a heterogeneous group of students in the norming sample. In addition, the researchers found that the academically gifted students had higher academic self-concepts and more positive overall self-concepts than their peers in the comparison group. [6]
- Accelerated students have also been shown to outperform nonaccelerated peers academically in the long term. A longitudinal study of students highly talented in mathematics showed that students who skipped a grade were more likely to obtain graduate degrees, publish work, and receive patents in the STEM areas [7], and another report noted that these students earned

other advanced degrees at rates higher than their peers [8]. In addition, researchers have found that, overall, acceleration influences high-ability students' academic achievement in positive ways, and that these students outperform peers in other areas, including scores on standardized tests, grades in college, and the status of the universities they attend and their later career paths [9].

• Acceleration is a cost-effective intervention. Grade-based forms cost little to implement, and yield societal benefits in that students complete schooling ahead of schedule and become productive adults earlier in their lives. Costs of subject-based forms may be slightly higher, but still less prohibitive than other forms of gifted programming. [10]

[1, 3, 9] Colangelo, N., Assouline, S., & Gross, M. U. M. (2004). *A nation deceived: How schools hold back America's brightest students* (Vol. 1). Iowa City: University of Iowa, Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development.

[2] Lubinski, D., Webb, R. M., Morelock, M. J., & Benbow. C. (2001). Top 1 in 10,000: A 10-Year followup of the profoundly gifted, *Journal of Applied Psychology*, 86(4), 720.??

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[5] Rogers, K. B. (2002). *Re-forming gifted education: How parents and teachers can match the program to the child*. Scottsdale, AZ: Great Potential Press.

[6] Lee, S. Y., Olszewski-Kubilius, P., & Thomson, D. T. (2012). Academically gifted students perceived interpersonal competence and peer relationships. *Gifted Child Quarterly*, 56, 90–104.

[7] Park, G., Lubinski, D., & Benbow, C. P. (2013). When less is more: Effects of grade skipping on adult STEM productivity among mathematically precocious adolescents. *Journal of Educational Psychology*, 105, 176–198.

[8] Steenbergen-Hu, S., & Moon, S. M. (2011). The effects of acceleration on high-ability learners: A meta-analysis. *Gifted Child Quarterly*, 55, 39–53.

[10] Assouline, S. G., Colangelo, N., & VanTassel-Baska, J. (2015). *A nation empowered: Evidence trumps the excuses holding back America's brightest students* (Vol. I).Iowa City: University of Iowa, Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development.

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#### • Curriculum Compacting

This important instructional strategy condenses, modifies, or streamlines the regular curriculum to reduce repetition of previously mastered material. "Compacting" what students already know allows time for acceleration or enrichment beyond the basic curriculum for students who would otherwise be simply practicing what they already know. Read more about curriculum compacting.

### **Curriculum Compacting**

Curriculum compacting is a technique for differentiating instruction that 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 options, or other activities. Researchers recommend that teachers first determine the expected goals of the unit or lesson in terms of the content, skills, or standards students must learn before assessing students to determine which ones have already mastered most or all of the specified learning outcomes. [1]

• Elementary teachers can eliminate from 24%-70% of high-ability students' curriculum by compacting without any negative affect on test scores or performance. [2]? In fact, curriculum compacting can have a positive affect on students' performance. Because many talented students receive little differentiation of instruction from their peers, they spend a great deal of time in school doing work that they have already mastered. Curriculum compacting allows

these students to avoid having to relearn material they already know, which research has shown can lead to frustration, boredom and, ultimately, underachievement. [3]

- Researchers have reported that when classroom teachers eliminated between 40%-50% of the previously mastered regular curriculum for high-ability students, no differences were found between students whose work was compacted and students who did all of the work in reading, math computation, social studies, and spelling. [4] In an analysis of gifted education literature on the topic, another researcher found curriculum compacting to be very effective overall in mathematics, science, and foreign languages. [5]
- In a national study of curriculum compacting, the students who received compacting in science and mathematics actually scored significantly higher on achievement posttests than their peers in the control group, suggesting the benefits of compacting for increases on standard achievement assessments. Analyses of data related to students' thoughts about replacement activities indicated that the students viewed the new curricular options as much more challenging than standard material. [6]
- Some concerns have arisen regarding the need to train teachers in the compacting process. In one study focused on curriculum compacting, almost all classroom teachers participating learned to use compacting, but needed coaching and help to substitute appropriately challenging options. [7] When interviewing teachers about the instructional methods used in fast-paced classes, other researchers found that few teachers mentioned curriculum compacting as a strategy used to eliminate instruction. [8] Teachers in a small study looking at compacting with first-grade students stated that they were "eager to continue implementing curriculum compacting in the future" because of the benefits toward students, but it was determined that further in-service and other training opportunities were needed to help them modify instruction and find replacement activities. [9]

[1, 3] Renzulli, J. S., & Reis, S. M. (2014). *The schoolwide enrichment model: A how-to guide for talent development (3rd ed.)*. Waco, TX: Prufrock Press.

[2, 4, 7] Reis, S. M., Westberg, K. L., Kulikowich, J. M., & Purcell, J. H. (1998). Curriculum compacting and achievement test scores: What does the research say? *Gifted Child Quarterly*, 42, 123–129.
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[6] Reis, S. M., Westberg, K. L., Kulikowich, J., Caillard, F., Hébert, T. P., Plucker, J. A., ... & Smidst, J. (1993). Why not let high ability students start school in January? The curriculum compacting study (Research Monograph 93106). Storrs: University of Connecticut, The National Research Center on the Gifted and Talented.

[8] Lee, S. Y., & Olszewski-Kubilius, P. (2006). A study of instructional methods used in fast-paced classes. *Gifted Child Quarterly*, 50, 216–237.

[9] Stamps, L. S. (2004). The effectiveness of curriculum compacting in first grade classrooms. *Roeper Review*, 27, 31–42

#### Grouping

The practice of grouping, or placing students with similar abilities and/or performance together for instruction, has been shown to positively impact student learning gains. Grouping gifted children together allows for more appropriate, rapid, and advanced instruction, which matches the rapidly developing skills and capabilities of gifted students. Read more about grouping

### Grouping

Educators can use grouping strategies to allow gifted students access to appropriate levels of challenge and complexity. Almost any form of grouping used will provide an academic or achievement gain to gifted learners with researchers reporting positive social and emotional gains as well. Grouping often is the "most effective and efficient means for schools to provide more challenging coursework, giving these children access to advanced content and providing them with a peer group." [1, p. 4]

• In looking at the various types of grouping strategies used with gifted learners, the options can be divided into ability grouping and performance-based grouping. Specific strategies for grouping include regrouping for specific instruction, cluster grouping, and within-class/flexible

grouping. [2] Students may also experience between-class grouping or grouping by interest, as in the practice of enrichment clusters. [3]

- Educators and districts should note that ability grouping is not synonymous with tracking. As one set of researchers noted, "Grouping is flexible, targeted, and not permanent; tracking historically refers to an inflexible approach to placing students in tracks from which they could not move. Tracking is unquestionably bad; ability grouping is arguably good." [4, p. 31]
- Ability grouping was suggested as a way for schools to promote high levels of achievement and shrink excellence gaps among their populations. [5] When used properly, ability grouping allows for flexibility, letting students move—either up or down—during their educational careers. Flexible ability grouping allows schools to match a student's readiness with instruction, "delivering the right content to the right student at the right pace and at the right time." Additionally, grouping allows students to learn alongside others who have learn at similar rates, possess similar levels of knowledge, and share similar goals, resulting in a peer group where students can challenge one another. [6]
- Grouping can contribute to overall achievement gains as well. Gifted third-graders who participated in a cluster grouping study were shown to have significant gains in testing than nonclustered peers. In addition, the study found that clustering provided these students more direct contact with ability-level peers and the chance to explore content more deeply. Because the cluster grouping encouraged teachers to naturally implement differentiation strategies, the researchers found that the cluster grouping strategy actually benefited other students in the classrooms that included clustering as well. [7]
- In a study of between-class grouping in combination with curriculum designed for high-ability students (Project M3), researchers found that mathematically talented students were able to grow their conceptual understanding in advanced geometry and measurement topics, including a greater ability to explain their reasoning when exploring these concepts. [8]

[1, 2] Rogers, K. B. (2006). A menu of options for grouping gifted students. Waco, TX: Prufrock Press.

[3] Renzulli, J. S., & Reis, S. M. (2014). *The schoolwide enrichment model: A how-to guide for talent development (3rd ed.)*. Waco, TX: Prufrock Press.

[4, 5] Plucker, J. A., Burroughs, N., & Song, R. (2010). *Mind the (other) gap! The growing excellence gap in K-12 education*. Bloomington: Indiana University, Center for Evaluation and Educational Policy. Retrieved from http://www.jkcf.org/assets/1/7/ExcellenceGapBrief\_-\_Plucker.pdf

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[8] Gavin, M. K., Casa, T. M., Adelson, J. L., Carroll, S. R., & Sheffield, L. J. (2009). The impact of advanced curriculum on the achievement of mathematically promising elementary students. *Gifted Child Quarterly*, 53, 188–202.

#### • . Identificat

identification process.

Identification Identification is a critical component of effective gifted education programming. One size does not fit all. In addition to using assessments appropriate to the services provided, different strategies may be needed to ensure students with high potential are identified. Read more about best practices in identification. Read about including diverse populations in the

### Identifying Gifted Children from Diverse Populations

There has long been concern that high-ability students from underserved populations -- those who are limited English proficient, disabled, or from minority or low-income backgrounds -- are persistently underrepresented in advanced classes and in programs for students identified as gifted. While many

districts and states have made improvements in identifying and serving a broader range of advanced students, there remains much to be done to ensure that all high-ability students receive appropriate gifted education services to meet their needs.



### **Assessment Strategies**

Researchers and practitioners have examined the obstacles to identifying students from diverse backgrounds as gifted and talented and have developed numerous strategies focused on improving our identification and assessment practices. All high quality assessment practices related to identifying students for gifted education programs and services, which also ensures equitable participation, depends on the following:

- 1. the identification process and the assessments used are aligned with the program's definition of giftedness;
- 2. the process includes the use of multiple assessments that are combined in a reasoned way that is not biased against any particular subgroup of students;
- 3. the types of assessments used have sufficient psychometric evidence supportive of decisions about students' readiness for gifted programming;
- 4. all individuals involved in the assessment process have sufficient training in the administration and use of the assessments;
- 5. they themselves are fully informed about best practices in the field of testing as well as the latest research regarding the identification of gifted students; and
- 6. there is a process in place whereby the identification process is periodically evaluated to ensure it is reflective of best practices in the identification of gifted students.

Read Standard 2 (Assessment) from the NAGC Pre-K to Grade 12 Gifted Programming Standards

Download the following NAGC position statements related to identifying diverse students for gifted education

- Role of assessments in the identification process
- Identifying and serving culturally and linguistically diverse gifted students
- <u>Comprehensive assessment to ensure twice-exceptional students receive services</u>
- Use of the WISC-V for gifted identification

### **Information & Publications**

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#### • Pull-Out and Other Specialized Programs

Programming options for gifted and talented students occur in a variety of ways, and research demonstrates the effectiveness of pull-out programs, specialized classes, and other special programs and schools and the curriculum these services use in raising student achievement. Read more about pull-out and specialized programs.

### **Pull-Out Programs/Specialized Classes**

Gifted programming can be provided in a combination of ways, including pull-out programs; special classes in a subject or interest area; special state schools (e.g., Indiana Academy for Science, Mathematics, and Humanities) or local magnet schools; afterschool, Saturday, or summer programs; Advanced Placement, International Baccaleaureate, or other dual-enrollment courses; distance learning; and other similar services.

- In a study of four provisions for teaching mathematically talented students, one researcher found positive effects for using pull-out grouping to include good interaction between teachers and students, significant progress in level of skills, and increases in motivation. In a mathematics pull-out group with same-age peers, where the students were pulled from different classes other than their regular mathematics instruction, the teacher reported that the group met the needs of her students who showed more ability in mathematics, increased their motivation, and evidenced students' learning new knowledge. The students in the group shared positive attitudes toward the group and the chance to work with similar ability peers. In a second group, which included peers of different ages and abilities within their regular mathematic lass, all of the children progressed to the highest level of attainment on the math assessment by the end of the term. These children also reported positive feelings toward the group, and the teacher felt confident their needs had been met at the close of the service. [1]
- Additionally, the students in a pull-out program in grades 3-6 in South Korea said they felt their pull-out classes had significantly higher levels of interest, challenge, and enjoyment in their pull-out classes than their regular classes. After a review of literature on pull-out programs, the researchers for this study noted that teachers knowledgeable about gifted education in combination with more advanced curricula resulted in students' satisfaction pull-out programs.
   [2]
- A longitudinal study of identified gifted students reported that, at age 33, 70% of the students who had taken one or more AP courses or exams in high school had advanced degrees, compared to 43% of those who had not taken such courses. The students who took AP courses also appeared more satisfied with the intellectual caliber of their high school experience than their peers. [3] However, schools should note that AP and IB courses should not be considered the sole components of a gifted program. NAGC advises that the limitations of AP coursework mean that districts must offer additional curriculum options to be considered as having gifted and talented services. [4]
- Students may also receive services in a specialized state or local magnet school. In one study of specialized math and science high schools, 99% of the students went on to earn a bachelor's degree or higher, with over 50% of the students continuing in challenging science or math fields. [5] Students who attend magnet schools are more likely to commit to succeeding in school, leading them to experience greater satisfaction and improved achievement. Magnet school programs also often work hard to keep their course offerings innovative and challenging to remain competitive among other offerings for advanced students. [6]
- Out-of-school options for programming may include specialized courses or programs like the Catalyst Program, a special science course for adolescents with deep interests chemistry. The students in the course felt they improved their ability to present their scientific ideas more effectively and developed a better understanding of the creative process in science research. When surveyed, 18 of the 23 students in the course said it impacted their decision to study the sciences, particularly science research. Additionally 10 of the 23 students suggested the program increased their interest in pursuing research opportunities in general in college. The students also felt they benefited from the intense immersion in science research and the

chance to receive mentorships and work with science professionals. [7] Other researchers have also found that students out-of-school enrichment programs such as Saturday programs have reported high levels of interest, challenge, choice, and enjoyment in these course offerings. [8]

• Another out-of-school option may include enrolling gifted students in specialized distance learning courses (often provided through talent search programs). In a study of the distance learning programs offered through Johns Hopkins University's Center for Talented Youth, outcomes of the program for gifted students ages 5-17 were examined by looking at both student and parent evaluations and final grades for the courses. Overall, the students and their parents found the course an effective learning experience, suggesting that such programs can be an effective approach for enriching or accelerating in-school opportunities. [9]

Dimitriadis, C. (2012b). Provision for mathematically gifted children in primary schools: An investigation of four different methods of organizational provision. *Educational Review*, 64, 241–260.
 Yang, Y., Gentry, M., & Choi, Y. O. (2012). Gifted students' perceptions of the regular classes and pull-out programs in South Korea. *Journal of Advanced Academics*, 23, 270–287.

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[4] National Association for Gifted Children. (2008). Common gifted education myths. Retrieved from http://www.nagc.org/commonmyths.aspx

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#### **About NAGC**

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#### • Teacher Training

Teachers who know how gifted students learn and are well trained in gifted education strategies are critical to high-level gifted programs; however, most gifted students spend their school days in the regular classroom. Providing basic training for all teachers on recognizing and serving advanced students helps identify and more appropriately educate those students in the regular classroom. Read more about why teacher gifted training is important for all teachers.

### **The Importance of Teachers**

- 73% of teachers agreed that, "Too often, the brightest students are bored and under-challenged in school we're not giving them a sufficient chance to thrive."
- Top three ways gifted students receive services: Resource Room, Cluster Classroom, Regular Classroom<sup>2</sup>
- Just one state requires preservice training in GT for general education teachers<sup>2</sup>

Every school and district should have an expert in gifted education available to provide services and advise colleagues. But because gifted and talented students often end up in the regular classroom or depend on regular classroom teachers for referrals for gifted education programs and services, it is crucial, that all teachers have a basic understanding of how to identify and work with gifted students. Unfortunately, most teachers do not receive any training in the needs of high-ability students or gifted education practices.

In schools with large minority and/or low-income populations, classroom teachers trained to recognize high-ability and in how to respond are especially important. Regular classroom teachers are the school's first line in the identification process for these high-potential, but not yet, high-achieving students.

Read the three knowledge and skill areas in gifted education NAGC says all teachers should have. Learn more about teacher preparation and programming standards in gifted education Read the Do's and Don'ts of good gifted education.

<sup>1</sup>NAGC and CDGP (2013). 2012-2013 State of the states in gifted education. Washington, DC: Author. <sup>2</sup>Farkas, S., & Duffett, A. (2008). *High-achieving students in the era of NCLB: Results from a national teacher survey*. Washington, DC: Thomas B. Fordham Institute.