Academic Acceleration: An Overview
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Acceleration is an educational intervention for advanced and gifted students that provides select students an appropriate academic challenge at little or no cost to the school. Unfortunately, it is underutilized, largely due to misconceptions about what it is, how it can be used, and how it affects students. Below is an overview that defines acceleration, links it to the requirements of gifted education law in Pennsylvania, summarizes relevant research outcomes, provides an overview of assessments that help identify students appropriate for acceleration, and reviews some issues involved in implementing acceleration. Throughout the document, links to online resources are provided; these and other resources are listed at the end.

What is Acceleration?

Forms of Acceleration
Acceleration means moving more quickly than is typical through the school curriculum. The most common forms of acceleration are listed below.

- Early entrance to kindergarten or first grade: A student enters kindergarten or first grade before reaching the customary age designated by the school.
- Grade-skipping: A student moves ahead one or more grades and spends the entire day with older peers. This may occur at the beginning of a school year or in the middle of the year.
- Subject-matter acceleration: A student stays with age-mates most of the day, but moves to a classroom with older students for a particular subject, such as mathematics. A single student may move up to a class with older students, or a school may establish a special class for academically talented students. For example, a high school math teacher might travel to the middle school to teach geometry to a talented group of 8th graders.
- Independent study, self-paced instruction, and distance learning courses: Students move at their own pace. They may work through curriculum independently or participate in a formal distance-learning course, such as one offered by the Educational Program for Gifted Youth at Stanford University (see http://epgy.stanford.edu/).
- Curriculum compacting: Extra drill and review is removed from the curriculum. The time saved allows students to move ahead more rapidly.
- Diagnostic Testing ➔ Prescriptive Instruction: Students are first tested to see what they already know. Instruction is tailored to focus on what they have not yet learned.
• Dual enrollment: For example, a middle school student takes courses part-time at the high school, or a high school student takes college courses. The student receives appropriate credit for the class completed.
• Combined classes: Students are placed in classes where two or more grade levels are combined (for example, first and second graders are in the same classroom).
• Advanced Placement (AP): Middle school or high school students take college level classes. Students achieving a minimum score on a standardized examination may receive college credit for their work.
• Early entrance to middle school, high school, or college: The student advances one or more years early to the next level of instruction. For more information on early college entrance, see http://www.hoagiesgifted.org/early_college.htm
• Telescoping: Students spend less time than is typical in a course of study. For example, a student may complete three years of schooling in two years.
• Mentorship: A mentor provides advanced training in a content area.
• Academic (Talent Search) summer programs: Programs such as those offered by the Center for Talented Youth at Johns Hopkins University (http://www.cty.jhu.edu) allow students to study advanced material and receive credit for the work completed. Students in these fast-paced programs may receive credit for one or more years of work completed in three weeks.
• Credit by examination: A student is permitted to “test out of” a course by achieving a test score at a specific level. Typically, students earning scores at the 85th percentile are allowed to test out of the course.

Benefits of acceleration
Students benefit from acceleration by:
• Being placed with intellectual peers
• Being challenged by an appropriate curriculum
• Learning new material, rather than being required to stay with same-age students and study material already mastered.

Schools benefit from permitting and encouraging students to accelerate by:
• Establishing systems and programs that tailor instruction to the student’s level
• Recognizing that students do not all learn at the same pace
• Raising educational expectations for their students
• Providing an appropriate academic challenge, as required by law, at little to no financial cost.

Acceleration and Chapter 16: Special Education for Gifted Students
Chapter 16: Special Education for Gifted Students (hereafter “Chapter 16”) is the part of the Pennsylvania Code that governs the education of gifted students. Chapter 16 clearly states that schools must offer academic acceleration when it is appropriate for a gifted student:

§ 16.41. General
(b) Districts may use administrative and instructional strategies and techniques in the provision of gifted education for gifted students which do not require, but which may include, categorical grouping of students. The placement must:
(3) Provide opportunities to participate in acceleration or enrichment, or both, as appropriate for the student’s needs. These opportunities must go beyond the program that the student would receive as part of a general education.

It is against the provisions of Chapter 16 for a school to have a policy against acceleration. The regulations do not require acceleration for every gifted student, but they do require that acceleration be included in a student’s Gifted Individualized Education Plan (GIEP) when it is an appropriate way to meet the student’s needs. A policy governing acceleration is not required, but can help schools fairly and consistently implement solid decision-making about acceleration. Detailed recommendations for developing such a policy are available through the Institute for Research and Policy on Acceleration, at http://www.accelerationinstitute.org/Resources/Policy_Guidelines/
Acceleration is an Evidence-Based Practice for Educating Gifted Students

Decades of research on academic acceleration supports its use with gifted students who are appropriately selected. More information on determining whether acceleration is right for a particular student is presented under Assessment/Identification below.

Academically, acceleration provides an appropriate level of challenge to students who find the level of regular classes too low and/or the pace too slow. As a result, students become more engaged in their learning. Some gifted underachievers have improved their academic performance when provided with an accelerated curriculum.

The Diagnostic Testing → Prescriptive Instruction (DT→PI) Model (see Assouline and Lupkowski-Shoplik, in press, 2011) was developed to ensure that students who accelerate in a specific subject do not have gaps in their knowledge. In essence, the DT→PI Model uses tests at higher grade levels than the student’s original placement to identify the level at which a student should be taught, and also to identify any concepts needed to study at that level that the student does not understand. The specific concepts are taught through tutoring, ensuring that the student is ready to move ahead at the higher level.

Studies have shown that gifted students who are accelerated by moving up a grade are able to keep up with IQ-matched students in their new classes. That is, they do as well academically as gifted students who are older than they are. Further, long-term studies show that accelerated students do above-average work in college, that many of them attend graduate school, and that those who attend graduate school do very well there. Such strong performance at advanced levels of study would not be possible if acceleration created significant gaps in students’ knowledge. Further, the high rate of college and graduate school attendance among accelerated students indicates that being accelerated does not cause gifted students to “burn out” on academics.

Research is less consistent regarding the relationship between acceleration and social experience, but the picture is still quite positive. Some studies have indicated that highly gifted students are better accepted by older students than by their age peers. No changes in general self-concept have been consistently linked to acceleration. An accelerated student’s academic self-concept initially may decrease a bit, but these changes are small and unlikely to last long. Students who have been accelerated typically look back on the decision with satisfaction and report that acceleration had positive effects on their personal development.

Overall, research presents a positive picture of acceleration for academically talented students, who:

- perform as well in school as the older students in their classes.
- have higher educational aspirations than non-accelerated students.
- do well socially.
- are happy with their decision to accelerate.


Assessment/Identification

IQ Testing

Most schools, if not all, include IQ testing in the process of identifying gifted students. Although Chapter 16 clearly states that “Determination of gifted ability will not be based on IQ score alone” (§ 16.21(d)), an IQ test is an appropriate component of the evaluation. The most commonly used individual IQ test is the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV).

The WISC-IV produces a composite score, called the Full Scale IQ. Often, a Full Scale IQ of 130 or above is presumed to indicate gifted ability, and in fact this score is cited in Chapter 16: “This term [mentally gifted] includes a person who has an IQ of 130 or higher or when multiple criteria...indicate gifted ability.” Note, however, that the use
of the word “or” in this sentence indicates that a child may be identified as gifted without an IQ score. Also, “A person with an IQ score lower than 130 may be admitted to gifted programs when other educational criteria in the profile of the person strongly indicate gifted ability.”

The WISC-IV also produces four index scores, each of which provides information about a different aspect of mental ability:

- Verbal Comprehension: Verbal ability
- Perceptual Reasoning: Nonverbal ability
- Working Memory: The ability to remember information long enough to work with it and produce a response
- Processing Speed: The ability to quickly and accurately process information

The section of Chapter 16 cited above also states that “Deficits in memory or processing speed, as indicated by testing, cannot be the sole basis upon which a student is determined to be ineligible for gifted special education.” If the Working Memory and/or Processing Speed score is relatively low, an alternate composite score called the General Ability Index (GAI) may be helpful. It is based only on the Verbal Comprehension and Perceptual Reasoning parts of the WISC-IV and can be used in place of the Full Scale IQ.

An IQ test is helpful in determining whether a child can be identified as gifted, but is of little use in making specific decisions about acceleration, because it cannot provide information about the academic level at which a child is working. One of the clearest ways to obtain information about academic level is through above-level testing.

**Above-Level Testing: Standardized Tests**

Typically, students are given standardized achievement tests designed for their grade level in the spring of the school year. A very high score on the test indicates excellent knowledge of grade-level material, but cannot indicate whether a student knows material beyond his or her grade level because advanced material is not on the test. Therefore, in-grade standardized achievement tests are not useful for acceleration decisions. These same tests can be used with younger students, however, in a procedure called above-level testing.

In above-level testing, students whose in-grade standardized achievement test scores are very high (typically at or above the 95th or 97th percentile) are given standardized achievement tests designed for students in higher grade levels. Thereby, they are given the opportunity to show whether they know advanced material. For instance, a sixth-grade student may take an 8th-grade standardized achievement test in math and earn a score equal to the average score obtained by 8th-graders. The score would indicate that the student is working on an 8th-grade level in math, which would suggest that two years of acceleration in math might be appropriate.

Above-level testing using standardized achievement tests is available to Pennsylvania students through the Carnegie Mellon Institute for Talented Elementary and Secondary Students (C-MITES; [www.cmu.edu/cmites](http://www.cmu.edu/cmites)) and the Center for Talented Youth (CTY; [http://www.cty.jhu.edu/](http://www.cty.jhu.edu/)). The drawback to above-level testing with standardized achievement tests, however, is that the material on the test is not necessarily the same material that is in a particular school’s curriculum. To make the best acceleration decision for a student in a given school, it is necessary to know how well the student does at an advanced level in that school’s curriculum. This information is best gathered by using above-level curriculum-based assessment.

**Above-Level Testing: Curriculum-Based Assessments**

The above-level testing principle also can be used with the tests a school uses to assess students’ classroom learning. Suppose, as described above, a sixth-grade student took an above-level standardized achievement test and earned a score equal to that of the average eighth-grade student for whom the test was designed. That sixth-grader then could take his or her school’s end-of-year eighth grade math test. If the student again does as well as a typical eighth-grader does, then placement in ninth grade math may be appropriate. If the student does extremely well, the end-of-year ninth grade test should be administered to see if tenth-grade math placement is appropriate. If the student does poorly, he or she might then take the end-of-year test for seventh grade math, to determine whether one year of acceleration in math would be appropriate. Above-level curriculum-based testing allows placement of a student within the curriculum of a particular school.
The Iowa Acceleration Scale (3rd Edition, 2009)

Academic ability and achievement are not the only factors pertinent to decision-making about acceleration. Research has identified a number of other factors that should be considered. The Iowa Acceleration Scale (IAS) was designed to guide families and school personnel in thinking through these factors so they can make good decisions about grade-skipping. It is designed for students in kindergarten through 8th grades. The IAS is not a test, but it provides:

- An analysis of the major factors to be considered in making a decision to accelerate
- Guidelines for weighting the relative importance of the major factors
- Documentation of the student’s abilities, strengths and concerns
- A numerical range to guide the discussion and decision of acceleration
- A means of comparing the student with other students who have had successful accelerations

The IAS includes 10 different sections. Each section includes information that should be discussed when making the decision about grade-skipping.

- General Information: includes address, age, family information, and names of individuals participating in the discussion.
- School History: includes information about exceptional talents demonstrated and prior professional evaluation data.
- Critical Items: specifies items critical to a student’s successful whole-grade acceleration: ability, age of siblings, and student’s desire to accelerate.
- Assessment of Ability: reports results for tests evaluating general ability.
- Assessment of Aptitude: reports results for tests evaluating aptitude and diagnostic information.
- Assessment of Achievement: reports achievement test results.
- School and Academic Factors: includes current grade level of siblings, student’s level of motivation, attitude toward learning, and participation in activities.
- Developmental Factors: includes age, physical size, and motor coordination information.
- Interpersonal Skills: evaluates emotional development, behavior, and interpersonal relationships.
- Attitude and Support: evaluates attitude of parent, student, and school personnel toward acceleration.

The student, parents, and school personnel are invited to contribute to the discussion about acceleration. The IAS provides a structure through which this discussion occurs. The IAS manual includes detailed instructions on how to complete the scale. A Form is provided for recording information, and a Summary and Planning Record summarizes the team’s findings and helps clarify recommendations. The manual also includes many sample IAS Forms and Summary and Planning Reports, to illustrate how it is designed to work. The case studies presented demonstrate how the IAS is designed to help students, not only by helping the team decide whether or not to have the student skip a grade, but also by suggesting other possible interventions if grade-skipping is determined not to be the best choice.

How to Implement Acceleration

Returning to the section of Chapter 16 cited earlier, we see that schools have an obligation to facilitate educational interventions that best meet gifted students’ needs:

§ 16.41(e) Gifted educational placement may not be based on one or more of the following:

1. Lack of availability of placement alternatives.
2. Lack of availability or efforts to make educational or support services available.
3. Lack of staff qualified to provide the services set forth in the GIEP.
4. Lack of availability of space or of a specific facility.
5. Administrative convenience.

When a student requires acceleration, creativity sometimes is necessary to facilitate its implementation. Some of the ways in which schools have accelerated students include:
- Holding core classes at the same time across grade levels, so that all students (not only gifted or accelerated students) can easily go to the grade level appropriate for them.
- Allowing students to go to the resource room for tutoring or small-group instruction in the accelerated subject, at the same time as the rest of the class receives grade-level instruction.
- Facilitating dual enrollment that occurs either at the beginning or the end of the day, so that special transportation must be arranged only one way (e.g., an 8th grader reports to the high school at the start of the school day for science class, then is transported to the middle school for the rest of the day).
- Placing several students who are talented in a particular subject in the same class for that subject, providing a teacher to work with them, then allowing that group to work through the curriculum at its own pace, and providing advanced curricula for them as necessary.
- Permitting students to participate in distance learning programs while other students are studying grade-level material. The advanced student works independently on the computer (perhaps in a resource room) while other students stay in the grade-level class.
- Encouraging students to participate in academic summer programs (such as those offered by the university-based talent searches at Johns Hopkins University, Northwestern University, and others) and awarding those students credit and appropriate placement for successfully completing courses.
- Students who accelerate in a particular subject (such as math or science) may find that they “run out of” appropriately challenging courses to take in the last year or two of school. Rather than using this as an excuse not to accelerate the student in the first place, this points to the necessity of long-term planning. What may be required is to establish a mechanism for the student to take a more advanced math or science course at a local college while remaining in high school for the rest of his or her courses.

Rather than devising only provisions for academically talented students, it is important for school personnel to think about developing programs and policies, so the educational opportunities school personnel devise will be offered equitably to talented students. That is, all students will be considered for these opportunities, not just those whose parents request them.

When school personnel are ready for the policy-writing stage, the Guidelines for Developing an Academic Acceleration Policy is a useful resource to consult. All schools should have a written policy designed to allow high ability students to accelerate. This policy should guide implementation of appropriate acceleration practices, and should be designed to complement (not replace) existing gifted education services. Elements of such a policy should include:

- Inclusion of high-ability students who have not been identified as gifted
- Various forms of acceleration (e.g., early entrance, grade-skipping, subject-matter acceleration, Advanced Placement courses, curriculum compacting)
- Child study teams, not individuals, making decisions about acceleration
- A transition period, after which the success of acceleration for a particular student is evaluated. Both academic and social adjustment should be considered.
- Support systems for students who struggle after acceleration
- Allowances for additional acceleration, or other special education interventions, if a student’s needs are not met by the initial acceleration
- A process for awarding credit for advanced classes
- A review process for the acceleration policy itself

To become more knowledgeable about gifted education in Pennsylvania, contact:

www.giftedpage.org
PAGE help line 1-888-736-6443
Resources


Carnegie Mellon Institute for Talented Elementary and Secondary Students (C-MITES) at Carnegie Mellon University. Provides programs and resources for gifted students in kindergarten through 9th grade. [www.cmu.edu/cmites](http://www.cmu.edu/cmites)

Center for Talented Youth (CTY) at Johns Hopkins University. Provides programs and resources for gifted students in kindergarten through 12th grade. [http://www.cty.jhu.edu/](http://www.cty.jhu.edu/)


Educational Program for Gifted Youth (EPGY) at Stanford University. An excellent example of a distance learning program. [http://epgy.stanford.edu/](http://epgy.stanford.edu/)

Early entrance to college programs: These include Bard College at Simon’s Rock, the PEG program at Mary Baldwin College, the Davidson Academy of Nevada, and NAASE at the University of Iowa. For more information, see [http://www.hoagiesgifted.org/early_college.htm](http://www.hoagiesgifted.org/early_college.htm)

Hoagies Gifted Education page, acceleration section: [http://www.hoagiesgifted.org/acceleration.htm](http://www.hoagiesgifted.org/acceleration.htm)

Institute for Research and Policy on Acceleration (University of Iowa): is dedicated to the study and support of curricular acceleration for academically talented students. The website, [http://www.accelerationinstitute.org/](http://www.accelerationinstitute.org/) contains many links to resources on acceleration, an annotated bibliography, and information about acceleration practices in many states. A PowerPoint presentation on acceleration suitable to present to school personnel can be downloaded from: [http://www.accelerationinstitute.org/Resources/PowerPoint/Default.aspx](http://www.accelerationinstitute.org/Resources/PowerPoint/Default.aspx)

National Association for Gifted Children position statement on acceleration: [http://www.nagc.org/index.aspx?id=383](http://www.nagc.org/index.aspx?id=383) In part, it reads, “Acceleration benefits many highly capable individuals by better motivating them toward schooling, enhancing their involvement with extracurricular activities, promoting more challenging options in the middle school and high school years, and preparing them to begin contributing to society at an earlier age.”

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