

Types of Acceleration: Dimensions and Issues¹

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Abstract

Acceleration allows academically talented students to move ahead through the curriculum at a pace commensurate with their abilities. “Acceleration” is a term that encompasses many different educational options, including early entrance to kindergarten, moving up a grade for math, concurrent enrollment in middle school and high school, or entering college early. It typically results in the student completing curriculum at a younger age than most students. The authors describe 20 different types of accelerative options, as well as the dimensions of acceleration. Issues in implementing one or more acceleration interventions, such as unintended consequences, pacing, curricular decisions, and costs are also considered.

INTRODUCTION

Pressey’s (1949) definition describes acceleration as “progress through an educational program at rates faster or at ages younger than conventional” (p. 2). According to that definition, Southern, Jones, and Stanley (1993) identified 17 educational types of accelerative options. In this chapter, we discuss those 17 applications and three others. Specifically, entrance to school is now distinguished between early entrance to kindergarten and early entrance to first grade; also, we have included two other options outlined by Karen Rogers in this volume, International Baccalaureate and Accelerated/Honors High School, for a total of 20 options (see Table 1). The chapter also considers five dimensions of acceleration that characterize and may affect their availability to students who demonstrate academic precocity.

TYPES OF ACCELERATION

1. Early Admission to Kindergarten: Students enter kindergarten prior to achieving the minimum age for school entry as set by district or state policy. The entry age specified varies greatly throughout the country and is generally stated in terms of birth date. For example, entry to kindergarten will be allowed for prospective students who will achieve the age of five years on or before September 30 of their entry year.

2. Early Admission to First Grade: This practice can result from either skipping kindergarten entirely or from moving a

student from kindergarten into first grade in what would be the student’s first year of school.

3. Grade-Skipping: A student is considered to have grade skipped if he or she is given a grade-level placement ahead of chronological-age peers. Grade-skipping may be done at the beginning of or during the school year. Radical acceleration is any whole-grade acceleration that is two (Stanley, 1976) or more (Gross, 2004) years above the student’s grade based on chronological years.

4. Continuous Progress: The student is given content progressively as prior content is completed and mastered. The practice is accelerative when the student’s progress exceeds the performance of chronological peers in rate and level.

5. Self-Paced Instruction: With this option, the student proceeds through learning and instructional activities at a self-selected pace. Self-paced instruction is a sub-type of continuous progress acceleration. Self-paced instruction is distinguishable from the more general continuous progress in that the student has control over all pacing decisions. Most self-paced instructional opportunities are provided within a larger instructional plan or Individualized Education Plan (IEP) for the younger student.

¹ An earlier version of this chapter appeared in *V.II of A Nation Deceived: How Schools Hold Back America’s Brightest Students* (Colangelo, Assouline, & Gross, 2004). This revision of the original chapter was completed by the editors of *A Nation Empowered*.

Table 1: Types of Acceleration

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|---|---|---|
| 1. Early Admission to Kindergarten | 8. Curriculum Compacting | 16. Accelerated/Honors High School or Residential High School on a College Campus |
| 2. Early Admission to First Grade | 9. Telescoping Curriculum | 17. Credit by Examination |
| 3. Grade-Skipping | 10. Mentoring | 18. Early Entrance into Middle School, High School, or College |
| 4. Continuous Progress | 11. Extracurricular Programs | 19. Early Graduation from High School or College |
| 5. Self-Paced Instruction | 12. Distance Learning Courses | 20. Acceleration in College |
| 6. Subject-Matter Acceleration/Partial Acceleration | 13. Concurrent/Dual Enrollment | |
| 7. Combined Classes | 14. Advanced Placement™ | |
| | 15. International Baccalaureate program | |

6. Subject-Matter Acceleration/Partial Acceleration: Also known as content-based acceleration, this practice allows students to be placed in classes with older peers for a part of the day (or with materials from higher grade placements) in one or more content areas. Subject-matter acceleration may be accomplished by the student either physically moving to a higher-level class for instruction (e.g., a second-grade student going to a fifth-grade reading group) or using higher-level curricular or study materials while remaining in the original classroom. Subject-matter acceleration may also be accomplished outside of the general instructional schedule (e.g., summer school or after school) or by using higher-level instructional activities on a continuous progress basis without leaving the placement with chronological-age peers. Often content-based acceleration is accomplished by a whole class where the materials are deliberately advanced by one year. Honors classes at middle and early high school may choose to provide such advanced learning.

7. Combined Classes: While not in and of itself a practice designed for acceleration, in some instances (e.g., a fourth- and fifth-grade combined classroom), this placement can allow younger students to interact academically and socially with older peers. It may or may not result in an advanced grade placement later.

8. Curriculum Compacting: The curriculum is adjusted so the student's instruction entails reduced amounts of introductory activities, drill, and practice. Instructional experiences may also be based on relatively fewer instructional objectives compared to the general curriculum. The time saved may be used for more advanced content instruction or to participate in enrichment activities. Instructional goals should be selected on the basis of careful analyses for their roles in the content and hierarchies of curricula. The parsing of activities and goals should be based on pre-instructional assessment. Often the pre-assessment is accomplished through individual unit testing, followed by advanced activities for students who score near the ceiling.

9. Telescoping Curriculum: The student is provided instruction that entails less time than is normal (e. g., completing a one-year course in one semester, or three years of middle school in two years). Telescoping differs from curriculum compacting in that it involves larger chunks of time for the act of acceleration and the resulting time saved from telescoping always results in advanced grade placement. It is planned to fit a precise time schedule. Curriculum compacting, on the other hand, does not necessarily advance grade placement.

10. Mentoring/Tutoring: A student is paired with a mentor or expert tutor who provides advanced or more rapid pacing of instruction. The student may or may not receive credit for advanced work with a mentor.

11. Extracurricular Programs: Students elect to enroll in coursework, after school programs, or summer programs that confer advanced instruction and/or credit. Talent search programs are a good example of an extracurricular program offering accelerated classes during the summer. Most of these classes employ fast-paced learning and are content-based (Olszewski-Kubilius, this volume).

12. Distance Learning Courses: The student enrolls in coursework offered by an outside-of-school organization. Traditionally called correspondence courses and offered by mail, courses are increasingly offered online by a number of university-based and for-profit entities. The student may work on the computer at home or during school time. Local teachers are not responsible for instruction, although they may be responsible for supervising the students while they are working on the computer and are often responsible for assigning grades and assuring credit. Parents often pay for these courses, and the typical goal is for the student to earn advanced credit for the work completed.

13. Concurrent/Dual Enrollment: The student takes a course at one level and receives concurrent credit for a parallel course at a higher level (e.g., taking algebra at the middle

school level and receiving credit at both the middle school and the high school level). Another example of dual enrollment courses is provided by a College in High School program, where a high school student takes a class taught by a high school teacher who has been specially selected and trained by a local college or university; college credit is awarded to the student upon successful completion of the course. This option is most often used to compress high school and college coursework.

14. Advanced Placement (AP)[™]: The student takes a course (usually while in high school) that may confer college credit or placement upon successful completion of a standardized examination (e.g., achieving a three or higher on a scale of one to five). High school teachers receive specialized training before teaching AP courses. Students may take an AP examination without first taking the AP course at whatever age they wish as long as prerequisites have been met for math and science courses.

15. International Baccalaureate²: Schools are authorized by the International Baccalaureate (IB) program (see <http://www.ibo.org/>) to offer a specialized educational program. Students who successfully complete an IB high school diploma may receive advanced standing at selected universities worldwide if they perform well on the IB exams. Students may also select key courses for IB credit at some schools.

16. Accelerated/Honors High School or Residential High School on a College Campus³: Students attend a selective high school program designed specifically for gifted students, which may be provided as a residential program on a college campus or as a Governor's School. Both day schools like Thomas Jefferson High School in Alexandria, Virginia and residential schools such as The Illinois Mathematics and Science Academy offer advanced coursework that is often correlated to college level work, mentorships with scientists, and internships at national labs. Students may complete requirements for high school graduation at the same time as they complete college courses. The Texas Academy of Math and Science (<https://tams.unt.edu/>) is an example. Students enter after their sophomore year of high school; at the end of the two-year program, students have completed two years of college in addition to earning their high school diploma.

17. Credit by Examination: The student is awarded advanced standing credit (e.g., in high school or college) by successfully completing some form of mastery test or activity. The College Board's CLEP tests (see <http://clep.collegeboard.org/exam>) are an example of a national program available to students to earn college credit by examination. Students typically have mastered material through indepen-

dent study or internship experiences and the tests document their level of mastery.

18. Early Entrance into Middle School, High School, or College: The student is provided an advanced level of instruction at least one year ahead of normal. This may be achieved with the employment of other accelerative techniques such as talent search classes for which they receive credit, dual enrollment and credit by examination, or by determination of teachers and administrators.

19. Early Graduation from High School or College: The student graduates from high school or college in three-and-a-half years or less. Generally, this is accomplished by increasing the amount of coursework undertaken each year in high school or college, but it may also be accomplished through dual/concurrent enrollment (see above) or extracurricular and distance learning coursework.

20. Acceleration in College: The student completes two or more majors in a total of four years and/or earns an advanced degree along with or in lieu of a bachelor's degree.

DIMENSIONS OF ACCELERATION

Despite conceptual distinctions that have been drawn, the practices of acceleration also overlap. For example, a mentor (see #10) may provide advanced instruction on a continuous progress basis (see #4). The mentor may function as an instructor, as a facilitator, or as a monitor of progress. On the other hand, even a cursory look at the list shows a variety of acceleration practices. There are several dimensions along which accelerative options differ. The five dimensions are: pacing, salience, peers, access, and timing (see Table 2).

PACING

The pacing or rate of instruction defines acceleration, and it is along this dimension that acceleration practices diverge. Some of the practices cited in Table 1 do not represent differential curriculum pacing. For instance, credit by examination and acceleration in college are not necessarily differential pacing; rather, they are forms of administrative recognition of a student's past achievement. In fact, Southern and Jones (1991) have noted that, given the resistance to acceleration by parents and practitioners, even the forms of acceleration

² This form of acceleration did not appear in the original Southern and Jones chapter. It was added by the editors of *A Nation Empowered*.

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Table 2: Dimensions of Acceleration and Related Concerns⁴

| Dimension | Concerns |
|-----------|---|
| Pacing | Calibration, reporting, continuity of the process over years |
| Saliency | Age of student, stage of schooling, type of acceleration |
| Peers | Knowledge of the acceleration by others, type of acceleration, group or individual, degree of acceleration |
| Access | Population centers, acceptability by schools, state policy, cost, availability of courses or programs, transportation |
| Timing | Age-related issues, during school vs. outside of traditional school time |

⁴ Table was modified by the editors of *A Nation Empowered*.

that look as if they increase the pace of instruction are really forms of administrative recognition. Students are rarely grade-skipped, and those who are represent students with an extreme mismatch between their readiness for higher-grade curriculum and the curriculum offered by the grade level for their age. The mismatch may be so extreme, in fact, that even an advanced grade placement represents no great academic challenge for the student and other accelerative options are needed in addition to the whole-grade acceleration. Concerns about the pace of instruction and the potential for harm to children's social and emotional well-being would seem unfounded for accelerative practices that merely recognize what students have already accomplished. So, too, would the concerns that students would suffer from instructional "gaps" that might deter later learning experiences.

Several acceleration practices do involve changes in pacing, such as continuous progress, curriculum compacting, and subject-matter acceleration. However, even many of these practices differ in terms of the degree of differentiation and the control of pacing differences. In self-paced instruction, the student controls the pace toward completion of the learning experience. In other types of acceleration, such as curriculum compacting, a teacher is required to first assess the adequacy of the student's prior learning and then present materials at more traditional rates when students do not demonstrate prior accomplishments or more rapid learning. In telescoped classes, one might expect to see more potential failure from participants resulting from an inappropriate pace of instruction. After all, a group of students is put through a curriculum in half or two-thirds of the time. In practice, however, such problems rarely occur. Telescoped curricula tend to be employed in large urban areas where it is most likely one could assemble a highly homogeneous group of learners (Southern, Jones, & Stanley, 1993). Whenever a cohort group needs to be identified, the criterion level of students selected is set at very high levels. In the national talent searches (see Olszewski-Kubilius, this volume), students are given college

admissions tests at the middle-school level, and qualifications for fast-paced mathematics courses are set at about the same level as the average score of college-bound seniors. This results in very few false positives in these programs (although it may result in larger numbers of students who might have been able to do the work but who did not meet the criterion). The most rapidly paced programs, therefore, often have the most stringent criteria for participation. This reduces the likelihood that students will experience stressful levels of challenge, or even perceive a rapid pacing of instruction.

SALIENCY

Accelerative options vary by the degree to which they are noticeable to others, particularly to peers, and the acceptability of options tends to vary depending on their prominence. The degrees to which accelerative options are readily noticeable are apt to raise concerns about the risks of acceleration to the student's adjustment and achievement. The saliency of acceleration may also bring it into conflict with values issues such as elitism and egalitarianism. Practices such as grade-skipping and early entry are particularly salient, while Advanced Placement (AP) or distance-learning courses are not likely to attract much attention, partially based on the age of the accelerant. The older the accelerant, the less saliency is usually present. The saliency of acceleration practices are noticeable depending on how they are employed. For example, self-paced instruction may be readily apparent to peers if it is provided only to students in the gifted education programs or if it is labeled as an "honors" class. If it is more broadly available or more modestly labeled, few if any peers are likely to be aware of the practice. Grade-skipping seems more salient and controversial. However, it is also possible to speculate that subject-matter acceleration is more salient in that the physical move may be required daily over an entire school year rather than all at one time. In point of fact, neither process has been demonstrated to cause academic or

social/emotional difficulties (e.g., Kulik & Kulik, 1984; Rogers, 2002, 2004, this volume).

PEERS

The degree to which acceleration will result in social separation from peers is the issue that raises the greatest concern with parents, educators, and students themselves (Jones & Southern, 1991; Southern, Jones, & Fiscus, 1989a, 1989b). There is a lack of empirical research to support the notion that separation from age-/grade-level peers is associated with difficulties in adjustment or achievement (Kulik & Kulik, 1984; Robinson, 2004; Southern, et al., 1993), but the concerns persist because the decisions to accelerate individual children are made by parents and educators regarding a child they know. This is not an abstract exercise. It is important to consider two issues regarding the dimension of separation. First, acceleration options vary in the degrees to which they involve separation. For example, early admission, grade-skipping, and some forms of content acceleration result in a complete separation from a chronological peer group for some or all of the academic day. On the other hand, subject-matter acceleration or telescoped curriculum is generally managed for groups of individuals, and leave a core chronological peer group intact.

Early entrance to school or skipping one grade level would arguably cause less dramatic separations from chronological peers than multiple grade-level placements. Those students who are placed at least two grade levels above chronological peers are considered to be radically accelerated (Stanley, 1976; Jung & Gross, this volume). For example, the Early College Program at the University of Washington allows students to enter college when they typically would be entering 8th or 9th grade (Hertzog & Chung, 2015; Janos & Robinson, 1985; Robinson & Janos, 1986).

While marked divergence from age-peers would seem to be an extraordinary intervention and potentially could result in serious difficulties, the separation can be managed and its influence can be mitigated. Consistent with best practices, programs that employ radical acceleration only admit students who score extremely high on appropriate entrance criteria. Support services in counseling and academic adjustment should be provided. Programs that recruit cohorts of students for radical acceleration have some advantage in dealing with the issue of separation from age-/grade-level peers compared to programs that are intended to provide for the needs of an individual student (Hertzog & Chung, 2015). Support services are generally easier to provide to groups of students,

and the groups themselves provide opportunities to develop friendships and peer support. Some proponents of radical acceleration also advise that the radically accelerated student be able to reside at home or with close supportive relatives, and to maintain some social and extracurricular contact with age-/grade-level peers (Brody & Stanley, 1991).

ACCESS

School districts vary widely in the kind of program offerings they make available to students. The number of AP classes is only a small part of the variance. The extent to which foreign languages are available (in range and depth) as well as the kind of mathematics courses that schools can offer students differentiate how students access accelerative options.

Access to accelerated educational opportunities is easier for students attending school districts where all school buildings are on one campus and a student can walk from one building to another for the necessary class if the student is accelerated in one subject, such as math. In the case where school buildings are across town from each other, transportation issues can limit student access to advanced courses.

Geographic isolation also limits the kinds of resources one might be able to access in given settings. Classically, rural schools have extensive bus networks to bring students to school. They also are more likely to have a limited number of teachers with advanced content expertise, thus offering fewer advanced courses in math, sciences, or foreign languages. Though a number of options are available to provide distance instruction, these often have cost implications that preclude their use by many families. For example, some online courses cost as much as \$1,000 per semester. If a school district does not pay the cost of the classes, they can be prohibitively expensive for most students. Family income also limits access to summer programs and other accelerative options that might have high costs. Although many academic summer programs provide generous scholarships, the cost of partial tuition plus transportation to the program may still be prohibitive.

Cost can also be an issue for dual enrollment programs intended for high school students needing college-level curriculum. Even if the college is conveniently located, the cost of a semester course can be too expensive for some students. Certain states, such as Michigan, provide programs for high school students to take college courses, and the school district pays for the majority of the costs associated with taking the courses (see http://www.michigan.gov/documents/mde/Early_College_Credit_3.2.07_188778_7.pdf).

The growing popularity of accelerated/honors high schools or Governor's schools (Roberts & Alderdice, this volume) has made it possible for students from rural areas to have access to higher-level curriculum and intellectual peers in states that provide these special schools. These schools, which are state-funded, are frequently available for free or a low cost to the participants. The trade-off is that the student would move away from home two or three years younger than is typical.

TIMING

The age at which the student is offered accelerative options is associated with additional complications. Skipping first grade might have vastly different consequences from early graduation from college. Intuitively, one might suspect that the former would carry more potential risk than the latter. Few researchers have given careful consideration to the timing of acceleration, although some attention has been given to the timing of grade-skipping. Feldhusen, Proctor, and Black (1986) provided guidelines for grade-skipping. They suggested that grade advancements should take advantage of natural administrative and curricular breaks (e.g., entering first grade early, or skipping the last year of the intermediate grade into the first year of middle school). They also considered that early in the academic year may be better than later in the year. While the recommendations seem logical, a review of the literature does not reveal systematic comparison studies for students who are grade skipped at various levels or at various times of the year. Nor do studies reveal that some forms of acceleration present more risk to adjustment or achievement than others.

It would also be well to remember that types of acceleration differ not only by dimension, but by degree on each dimension. For example, salience of acceleration may be more relevant when considering early entrance to school than when considering early high school or college graduation even though both types of acceleration result in placements with older peers. Similarly, both curriculum compacting in early grades and telescoping curriculum in middle school may impact students very differently. An additional complication is that many of these options can be applied simultaneously. For example, students may be engaged in online learning, fast-paced summer coursework, and concurrent enrollment at the same time. Sometimes the effect of participating in multiple forms of acceleration is cumulative and increases the salience of the differentiations in the student's educational program. Some students amass enough credits through concurrent high school/university enrollment and extracurricular offerings to be able to finish university degrees extremely rapidly.

Students in self-paced mathematics instruction may exhaust the district's curricular options long before they graduate from high school (Assouline & Lupkowski-Shoplik, 2011). In other instances, students may not use their participation in accelerative opportunities to move quickly through levels of schooling. Instead, they may elect to take extra coursework or achieve additional content majors.

Another set of limitations arises from school district policies, some explicit and some tacit. Many schools have formal policies that severely limit students' abilities to enter school early or to access content acceleration across various levels of school (e.g., intermediate students accessing content at the middle or high school level or policies that do not allow course credit to be officially awarded to students taking higher-level coursework while in lower grades). Even where policies do not explicitly limit accelerative opportunities, district personnel may informally limit their use. Teachers or principals who have concerns about accelerative practices may actually discourage their use by employing alarmist rhetoric about consequences or even denying that it is possible or legal to accelerate students. Thus, districts may have *de facto* prohibitions that deny students accelerative options. Also, schools may simply choose not to recognize some forms of accelerative options as equivalent. High school credits earned in summer programs have been rejected by some high schools, for example, even though the same body that accredits the high school also accredits the program provider. The *Guidelines for Developing an Academic Acceleration Policy* (see Colangelo et al., 2010; National Work Group on Acceleration, 2009) are helpful in assisting school districts to develop acceleration policies, in order to avoid some of these issues. (See www.accelerationinstitute.org for more information.)

In other cases, state laws or regulations may impede access. These laws often expressly limit accelerative options. Many states have laws that limit early entrance to school based on a calendar cutoff. States also may place limits on the kind of concurrent enrollment opportunities students may access. For example, not allowing credit earned from a high school class taken while in middle school to be recognized on a later high school transcript would discourage students from using that resource. In addition, certain regulations may unintentionally discourage students from participating in accelerative options. For example, regulations that govern extramural athletics may reduce the time students are eligible to participate in team sports. While the intent of the law was to manage reasonable eligibility terms, its effect might be to discourage students who are also interested in sports from taking large numbers of high school credit early.

Ironically, use of a variety of accelerative options might end up limiting opportunities available to students. The more acceleration is employed, the more likely the student will exhaust the district's curriculum. This, in concert with the limitations of family income, geographic isolation, school policies and state regulations, can result in a student having no realistic options other than accessing university-level coursework. If students are very young when this occurs, parents and university admissions personnel may be reluctant to allow full-time placement. This can result in a student "marking time" in high school.

ISSUES IN ACCELERATIVE PRACTICES

When outlining the dimensions and complications above, one might note that there are points that raise issues for employing the various practices. In general, issues arise from the deliberate consequences of employing accelerative options and the unintended consequences that might ensue. Still other complications are related to the types of decisions that are required in pacing and recognition of student learning. Other issues surround the interaction of accelerative practices and other bureaucratic structures that might be triggered. The following sections outline some of these issues.

UNINTENDED CONSEQUENCES

Since much of the educational community views acceleration with some skepticism (Southern et al., 1993), it is likely that these practices (especially those of grade-skipping and the various forms of early entry) will be employed with a great deal of reluctance. Since some accelerative options seem to present some risk, systematic plans to address concerns and potential consequences need to be developed prior to implementation. Unfortunately, plans often are implemented ad hoc, without knowledge or concern for later consequences. As a result, educators learn very little about the problems with acceleration that concern them the most.

Other problems occur from not planning ahead. For example, curriculum compacting in science at the intermediate level may appear to be educationally justifiable for a highly precocious elementary student with a penchant for scientific pursuits. However, when the student outstrips the ability of that school to provide appropriate laboratory and learning resources, or to provide appropriate mathematics required to support the science instruction, it might result in an unscheduled hiatus from learning new scientific content until such resources are available at higher levels.

Sometimes students are placed in coursework without consideration of subsequent sequences of instruction. For example, a high school student might be placed in a university-level composition course while in high school, but might actually qualify for a higher-level course, one that would grant more advanced standing. Without adequate counseling and without considering issues of high school articulation, students may actually be put behind by the practice. As students gain more advanced standing at earlier ages, the potential difficulties increase. Students who qualify for dual enrollment programs might be selecting high school/university credit courses as early as eighth grade, and they will need advisors who are familiar with the articulation of requirements for both high school graduation and university majors. With the current bureaucracy of public school education, it is possible that a student completes all the mathematics available in the district through extracurricular options only to discover that a low-level mathematics course is still required to fulfill a district or state requirement for graduation. It is also helpful for advisors to understand how to navigate the bureaucracies of universities since issues such as the transfer of university course credit frequently need to be negotiated. In other instances, the process may be not open to negotiation and may influence decisions about attendance at one institution over another. Awarding of AP credit is often in the hands of individual departments at universities that may establish their own score levels to receive credit. Thus, a score of five may be required by some departments in some universities even though a three would be accepted by the same department at a different institution. Comprehensive planning and articulation of the various accelerative practices should be done not only to provide advantages for students, but also to avoid unfortunate and unanticipated bureaucratic complications.

PACING AND CURRICULUM DECISIONS

Many of the accelerative options employ differential pacing procedures. In some, the teacher would seem to control the pace, and in others, the student controls the pace. However, in both cases, the decisions about optimal pacing may present difficulties. Teachers have to decide if the rate of learning for the student is matched to the presentation pace. For example, in the case of curriculum compacting, decisions need to be made concerning:

- selecting the important elements of the curriculum to be pre-tested and monitored;
- interpreting the results of pretests and ongoing assessments to determine if the student has adequate knowledge to move on, or inadequate knowledge to move on

but easily remedied gaps, or must go through the entire instructional process.

The teacher must also give consideration to the summative assessment of mastery that will allow a student to proceed to levels of the curriculum that are not under that teacher's purview. Normally, the teacher allows a student to proceed after a set period of instruction.

Analyzing and modifying curricula are challenging tasks for which many teachers are not prepared. When a teacher certifies that a student has met mastery requirements in shorter periods of time, the teacher also implicitly assumes substantial responsibility for that student's continued success. As the content becomes more complex and abstract, it becomes increasingly difficult for the teacher to maintain confidence unless he or she has substantial expertise in the content area. Uncertainties are apt to be more problematic if teachers are required to predict the success of an accelerated student across the school levels. For example, elementary school teachers are likely to be confident in certifying that a student has mastered elements of fourth-grade mathematics, but may feel considerably less confident certifying that a nine-year-old student has mastered algebra concepts. Moreover, assessment of mastery of sequenced content, such as mathematics and science, are less complex than assessment of mastery of less well-sequenced content, such as social studies and language arts. The responsibilities for modifying curricula and certifying mastery may, however, be well beyond the expertise and the tolerance of individual teachers. It is better if teachers at different levels can collaboratively share the responsibilities for modifying curricula and assessing mastery of material across levels of schooling rather than leaving the responsibilities to a series of individual teachers.

One way to ensure that students continue to advance their skills in the language arts area is to employ research-based curriculum materials that are calibrated to be one year advanced for such students. Reading selections are calibrated to be two grade levels above the age and grade level provided, using Lexile levels to document. Activities, projects, and questions are then calibrated to be at advanced differentiated levels as well (VanTassel-Baska & Little, 2011). All units are aligned with Common Core State Standards and other sets of standards employed by states (see VanTassel-Baska & Johnsen, this volume). Additional supportive materials have also been developed for students from low-income backgrounds (VanTassel-Baska & Stambaugh, 2006). Performance assessments for each unit of study also document the level of learning in analyzing literature, persuasive writing, grammar and usage, and speaking and listening skills. These

data can be available for each subsequent teacher in the program to ensure that students continue to advance. Since the program is also calibrated to AP and IB coursework, a scope and sequence is available in the use of the units to ensure coverage into relevant AP and IB courses. Advanced and differentiated curricula are also available in other subject areas (see cfge.wm.edu).

Student-managed pacing also has a concomitant set of issues. Most revolve around the student's own ability to recognize mastery. Entry-level learners in any discipline may not realize the precise demands of the field. As the work increases in complexity and amount, easy confidence of precocious students will frequently give way to more conservative assessment of mastery. Most practices outlined above have some external review of student self-assessment inherent in the practice. For example, self-paced learning generally allows for some benchmark testing, and the same issues that beset teacher-assessed mastery of content also apply with student-managed pacing. The testing dimensions must consider sufficient content and have sufficient criterion validity to support the student's self-assessment of mastery. It may be that for some content or for assessments where the consequences of inadequate certification of mastery present too much risk, the teacher-directed assessments should augment or replace the student's self-assessments.

The problems associated with pacing overlap with those of recognition of mastery. Bureaucratic recognition of achievement must, at some point, coincide with credibility at another level of recognition. Elementary schools must be able to convince middle and high schools that the student has credibly met standards of which the secondary schools are the usual arbiter. High schools must convince post-secondary institutions that they are credible arbiters of standards normally imposed by two- and four-year colleges. The result is that performance criteria must be explicitly and credibly documented.

INTERACTION WITH BUREAUCRATIC ENTITIES

The final area of concern about types of acceleration involves the interaction of outcomes of acceleration with impinging rules and regulations. Early school entrance for academically precocious students is considered good educational practice. However, it may violate state regulations to admit students who are younger than four-and-a-half years old. Similarly, it may be permissible to allow gifted students to enter post-secondary option programs while they are in middle and high school, but they might also risk loss of athletic opportunity or eligibility in middle school and high school. The unfore-

seen outcomes of acceleration are a natural issue of the interplay of regulation and the age/grade assumptions of modern American education. It is generally assumed that a student will be of a certain age in a certain grade. A large range of school policies and practices are built upon this expectation. They may determine such things as when a student can enter school training programs, participate in grade-level programs, and even when students enter programs for the gifted. Although academic acceleration options can provide educational opportunities for gifted students, they also can run afoul of the schooling bureaucracy. Planning for acceleration should also consider the possibility that with acceleration, gifted students may find themselves in bureaucratic and social environments that have very different expectations. For example, the students who participate in dual enrollment or early entrance to college will confront differences in academic expectations, bureaucratic organization, and peer social behavior that are likely to be very different from their secondary schools. They may need assistance and supervision beyond what was formerly provided.

SUMMARY

There is a broad range of accelerative options to address the varied academic needs of gifted students. Most types of acceleration have been well documented for effectiveness, and offer relatively low cost options to meet the needs of gifted students. Accelerative options, such as curriculum compacting and continuous progress, take advantage of the gifted student's capacity to learn more quickly and with less direction from the teacher. Accelerative programs may allow the student to move through and complete the standard curriculum more quickly than age-/grade-level peers. Some accelerative options will allow the student to clear the school's curricular requirements quickly and make time for participating in enrichment opportunities. They also allow students to explore multiple majors and degrees economically without delaying the beginning of their careers. Because the options serve a variety of purposes, educators should develop as broad a range of options as possible. Certainly, it will not be possible for some schools to develop the whole range. Rural schools, for instance, face challenges of distance and resources that may not be issues in suburban and urban schools (Jones & Southern, 1994; Hubbard & VanTassel-Baska, 2015). In developing options, it is important that educators recognize that accelerative programs will need to succeed in the context of schooling. The issues involved with pacing, salience, peers, access, and timing will need to be addressed deliberately. Issues include the range of curricular opportunities, popular beliefs about giftedness, and institutionalized assumptions that may

be woven into the bureaucratic fabric of the schools will also need to be taken into consideration. Planning and collaboration among professionals, parents, and students in articulation and decision making are crucial, because failure to address issues that are implicitly associated with the variety of accelerative options will diminish the efficacy of accelerative programs. It is important to remember that most gifted students should benefit from some form of acceleration during their career in K-12. Making these options available and making them work is one of the central tasks of educators of the gifted.

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