

Early Entrance to College: Academic, Social, and Emotional Considerations

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Abstract

As one of many accelerative options available today, early college entrance provides some young students who are ready for the demands of college early with the unique opportunity to move forward in their educational trajectories one, two, or even more years sooner than most of their age peers. Early college entrance has increased in popularity among high school students in search of greater challenge, as evidenced by the upsurge in early college entrance programs in the United States. This chapter provides an historical overview of early college entrance and describes the widely varying program models being implemented today. Research findings highlighting both academic and social/emotional outcomes of early entrants and the implications of this research for educators are presented.

INTRODUCTION

Students who are eager for greater academic challenge than their high schools provide may consider early college entrance as a way to access the advanced courses and stimulating academic environment that a college or university can provide. For many, the image of an early college entrant may be of a very young-looking student with no prior college experience heading to college with other students who are considerably older and more knowledgeable, an image that provokes much concern about the student's academic, social, and emotional readiness to handle the college environment. While this scenario may have been the case for many early college entrants in the past, it is much less true today.

Due to the widespread availability of other accelerative options for high school students, such as AP (Advanced Placement) and IB (International Baccalaureate) courses, academic summer programs, and online options, many students who enter college at younger-than-typical ages are likely to have already completed considerable advanced coursework and may have been in classes with older students while still in high school. Furthermore, those who accelerated in grade placement earlier in their educational careers may naturally be graduating from high school at young ages so that college is the next obvious step for them, while those leaving high

school without graduating may be enrolling in one of the special early college entrance programs that have been specifically developed to meet the academic, social, and emotional needs of young college students. Other students, perhaps not ready to enroll full-time in college, may be dually enrolling in high school and college, thus continuing to have the support of their family and school community while also gaining access to greater academic challenge at a local college or university. The availability of such diverse options allows students to consider early college entrance in a way that meets their individual needs and makes it a much less radical choice today than perhaps it was in the past.

HISTORICAL OVERVIEW OF EARLY COLLEGE ENTRANCE IN THE UNITED STATES

Early in America's history, many students were educated at home by tutors or in other settings (e.g., one-room schools) that allowed them to learn at their own pace. Those fortunate to attend college were often able to enter when they were academically ready to pass any required entrance examinations, with the most precocious of them enrolling at young ages. As schools were created that grouped students together on the basis of chronological age, such individualized progress was

less common, though whole-grade acceleration was sometimes recommended for advanced students, leading them to enter college sooner than they might have without skipping grades. Studies such as those by Gray (1930), Keys (1938), Terman and Oden (1947), and Cronbach (1996) all attest to the presence of relatively young students attending America's colleges in the past. As enrichment programs were gradually established to serve gifted students, however, acceleration was less favored, resulting in fewer students entering college at younger-than-typical ages (Brody & Stanley, 1991; Daurio, 1979).

Exceptions occurred during times in our history when young college entrants were recruited to meet particular societal needs. For example, universities were encouraged to accept younger students during World War II so that they could earn degrees before being drafted for military service. Similarly, around the time of the Korean War, the Ford Foundation provided scholarship support for students under age 16½ to enroll full-time at any of 12 colleges or universities for two years before entering the military (Fund for the Advancement of Education, 1953). After its financial support for the university-based early entrance programs ended, the Ford Foundation turned its efforts to helping establish the College Board AP program, and also funded a study of the newly developing IB program. Today, the widespread availability of AP and IB coursework offers students access to college-level coursework within their high schools. For some students, these courses serve as a viable alternative to entering college early, while those who decide to enter college early may still benefit from having had prior exposure to content at the AP and/or IB level (Brody, Assouline, & Stanley, 1990; Curry, MacDonald, & Morgan, 1999).

THE STUDY OF MATHEMATICALLY PRECOCIOUS YOUTH (SMPY)

In 1969, when Johns Hopkins Professor Julian Stanley met 13-year-old Joe Bates, the AP and IB programs were still not readily available, nor were other accelerative options typically offered to students with advanced academic abilities and needs. Although Joe had scored above the mean of graduating high school seniors on the SAT and other college entrance exams, the high school he was scheduled to attend, as well as other public and private schools in the Baltimore area, proved unable and/or unwilling to accommodate his need for accelerated content. Consequently, Stanley intervened to help him enroll full-time at Johns Hopkins University, a very radical move at the time. After Joe and several other students who followed in his footsteps experienced extraor-

dinary success as young college students, Stanley wondered if there were other brilliant students whose potential might be limited by unchallenging instructional programs during their middle and high school years. He established SMPY at Johns Hopkins to find such students and develop ways to help them achieve their full potential. Soon, large numbers of students with advanced mathematical reasoning abilities were being identified through SMPY's talent searches (Stanley, 1996; Stanley, 2005).

With the support of SMPY, quite a few students opted for early college entrance as a strategy to serve their need for advanced coursework, and considerable research was done to evaluate their performance (e.g., Stanley & Benbow, 1983). Although the experiences of these students tended to be quite positive, the SMPY staff knew that radical acceleration into college would not be optimal, or even possible, for most of the students that were being identified. Consequently, they experimented with other strategies to serve mathematically talented students, such as fast-paced accelerated math and science classes, and established residential academic summer programs to bring students together on college campuses. The value and importance of placing advanced students in environments where they could interact with intellectual peers was definitely emphasized as a critical component in SMPY's recommendations, and continues to be a focus of the talent search programs today (Brody & Stanley, 2005; Stanley, 2005).

EARLY ENTRANCE PROGRAMS

While there was evidence that most of the SMPY students who entered college early as individual students excelled (e.g., Brody, Lupkowski, & Stanley, 1988), concerns persisted among the staff about those who were less prepared for college and who encountered academic, social, and/or emotional difficulties. Thus, Stanley became intrigued with the concept of early college entrance programs, an option that could provide able students with access to age peers who are also intellectual peers, as well as to advanced courses. He encouraged the creation of such programs (Stanley, 1991), and assisted in the development of the Texas Academy of Mathematics and Science at the University of North Texas, the Advanced Academy of Georgia at the University of West Georgia, and the National Academy of Arts, Sciences, and Engineering at the University of Iowa.

Early college entrance programs actually have a fairly long history, with the first systematic early entrance program being established at the University of Chicago in 1937. In the 1950s, as noted previously, the Ford Foundation provided financial support to establish early college entrance programs

at 12 colleges and universities, and the one at Shimer College continues today. In 1966, Simon's Rock College was founded, initially as a women's college that combined the last two years of high school with the first two years of college. Over time, it became co-ed, eliminated its high school component so that students remaining for four years could earn a bachelor's degree, and affiliated with Bard College, a structure it retains today. It remains the only four-year residential early college program housed on its own campus.

In 1977, the Early Entrance Program at the University of Washington was established, a fairly radical program that admits students prior to age 15 and that continues today. Its creation was influenced by news about the success of radical accelerants at Johns Hopkins (Robinson & Robinson, 1982), but it was designed to include many safeguards and supports to help ensure the early entrants' success. The program administrators have since also established the UW Academy, a residential program for students enrolling at the University of Washington after 10th grade, thus creating an opportunity for students opting to enter the university early but a bit later in their high school career than the Early Entrance Program requires.

Spurred by increased interest among educators to offer more opportunities for academically advanced students, ongoing concerns that young college students might need more academic, social, and emotional support than other students as they transition to college, and positive reports about the success of students enrolled in some of the early programs, the 1980s and 1990s brought renewed interest in establishing additional early college programs (Boothe, Sethna, Stanley, & Colgate, 1999). Typically designed for students leaving high school prior to graduation, students enroll in these programs in cohorts, thus gaining a peer group as well as considerable programmatic support to help them succeed. Today, early college entrance programs can be found at a variety of colleges and universities around the country.

Though they share similar goals related to enhancing the academic performance and social and emotional adjustment of early college entrants, the nature of early college entrance programs can vary significantly. For example, some are intended for commuting students (e.g., the Early Entrance Program at California State University, Los Angeles), while others are residential (e.g., the Missouri Academy of Science, Mathematics and Computing at Northwest Missouri State University, where the living arrangements enhance the sense of a community of peers). Some accept students at a much younger age (e.g., the Early Entrance Program at the University of Washington) than others (e.g., the Resident

Honors Program at the University of Southern California). They vary in cost (e.g., a private institution such as Simon's Rock College can be expensive unless the student is awarded a scholarship, while a state-funded program such as the Advanced Academy of Georgia is less costly, especially for those who qualify for in-state tuition, and the Bard High School Early College programs, which are partnerships between Bard College and public school systems in several U.S. cities, are free of charge to local residents). The size of student enrollment in the early college programs also differs (e.g., the Texas Academy of Mathematics and Science enrolls about 200 rising high school juniors per year, while the National Academy of Arts, Sciences, and Engineering only accepts about 10-12 students in a typical class), as well as the campus environment (e.g., Simon's Rock College utilizes a whole campus, while most residential early college programs offer separate housing but are located on the campus of a larger college or university). Some programs are open to any qualified applicant, while others have restrictions (e.g., the Program for the Exceptionally Gifted and the Early College Academy at Mary Baldwin College are for females only; the Texas Academy of Mathematics and Science is restricted to Texas residents).

Programmatic components can vary in important ways as well. Whereas certain programs are noted for their strengths in mathematics and science (e.g., the Massachusetts Academy of Mathematics and Science, which is affiliated with Worcester Polytechnic Institute), others emphasize the humanities (e.g., the Texas Academy of Leadership in the Humanities at Lamar University) or have a broad liberal arts focus (e.g., the Resident Honors Program at the University of Southern California). Some programs include special classes for their early entrants (e.g., the Early Entrance Program at the University of Washington's one-year Transition School) or offer one or more years of high school coursework as part of their program before having students enroll directly in university courses (e.g., Boston University Academy), while others are designed for students to take courses with other university students from the start (e.g., the National Academy of Arts, Sciences, and Engineering). Some programs have the authority to grant high school diplomas (e.g., Texas Academy of Mathematics and Science), while other programs suggest that students encourage their high schools to accept the college credits and issue high school diplomas (e.g., The Clarkson School at Clarkson University) or take the position that a high school diploma is unnecessary (e.g., the Early Entrance Program at the University of Washington). Table 1 provides a list of selected early college programs and highlights some of their unique characteristics. See also Muratori (2007).

STATE-SUPPORTED RESIDENTIAL HIGH SCHOOLS

State-supported residential high schools offer an alternate model for serving advanced students. Interestingly, when the Texas Academy of Mathematics and Science was founded as a state-supported institution, a decision was made specifically to design it as an early entrance program and not a residential high school (Jones, 2011), and Stanley (1991) applauded this decision. Since then, however, as more early college programs and residential high schools have been established, the distinction between these two models has become a bit blurry.

Both serve academically talented students by providing access to advanced (e.g., college-level) coursework and a community of intellectual peers. Perhaps the major difference is that the goal of the high schools is to prepare students to graduate from high school and subsequently enroll in college as freshmen, while completion of an early college entrance program should lead to placement in college as an upper classman. However, as noted earlier, some early college programs grant high school diplomas, while many of the residential high schools offer considerable credit-bearing college courses, and other differences between these program models are inconsistent as well.

For example, early college programs are usually administered by a college or university and located on that institution's campus, in contrast to typical residential high schools, such as the Illinois Mathematics and Science Academy and the North Carolina School of Science and Mathematics, which have their own campuses and are not university affiliated. Nonetheless, the Indiana Academy for Science, Mathematics, and Humanities, which is considered a high school, is on the campus of Ball State University, and Simon's Rock College, as mentioned earlier, has its own campus and is about 50 miles away from Bard. Furthermore, the Arkansas School of Science, Mathematics, and the Arts, though a high school, is administered by the University of Arkansas system as one of its campuses.

A relative newcomer to the scene, the Gatton Academy of Mathematics and Science in Kentucky was honored by *Newsweek* as the best high school in the United States. Yet, we have included this high school on our list of early college entrance programs because it is located on the campus of Western Kentucky University, and students can graduate with as many as 60 college credits. Clearly, early college entrance programs and state-supported residential high schools are not dichotomous models, but include numerous individual examples that are hybrids of the two with their own distinguishing characteristics.

EARLY COLLEGE HIGH SCHOOLS

Another variation of early college entrance programs is the early college high school, which enrolls ninth graders and pairs two years of high school with two years of college for a four-year early college experience leading to an associates degree. Adopting this framework, the Bard High School Early College opened in New York City in 2001 as a collaborative initiative with the New York City public schools. This tuition-free program, supported by public funds and private donations, has since expanded to other sites in New York City, as well as Newark, NJ, New Orleans, LA, Cleveland, OH, and Baltimore, MD.

In 2002, the Early College High School Initiative was launched by the Bill and Melinda Gates Foundation. Similar in format to the Bard High School Early Colleges in coupling two years of an enriched high school experience with two years of college, in this case typically at a community college, this initiative is not primarily intended for exceptionally advanced students who lack access to advanced courses in school. Rather, it hopes to propel students who are at risk of dropping out of high school and/or avoiding college to earn at least a bachelor's degree (Kaniuka & Vickers, 2010). This model, which has grown dramatically in size and scope with high school and college partnerships being established throughout the country, has since attracted additional funding from public and private sources, and studies suggest improved high school and college graduation rates for participants (American Institutes for Research, 2013).

PART-TIME COLLEGE OPTIONS

Part-time enrollment in college is an option that has long been available to qualified students who have chosen to pursue it. In contrast to enrolling full-time in college as an early entrant, keeping a foot in the door of the high school allows students to participate in high school activities (though some early college programs offer this as well), and to apply to college as freshmen, with or without advanced standing, which can greatly enhance their chances of being admitted to those highly selective universities that accept few transfer students. Eager to recruit talented students, many colleges are very willing to enroll high school students with strong standardized test scores and/or advanced content knowledge on a part-time basis.

Dual enrollment in high school and college took a leap forward in the mid-1980s, when states began supporting legislation that provided funding for these programs (e.g., Broughton, 1987; McCarthy, 1999). While the parameters

Table 1: Selected Programs for Early College Entrants

Name of Program	Inception Date	Program Features
Advanced Academy of Georgia University of West Georgia Carrollton, GA http://www.advancedacademy.org/	1995	<ul style="list-style-type: none"> • Residential program • Enter in 11th or 12th grade • All university programs available to students • Automatic enrollment in Honors College • Access to mentor program and to leadership, social, and residence hall activities
Bard College at Simon's Rock Bard College Great Barrington, MA https://simons-rock.edu/	1966	<ul style="list-style-type: none"> • Residential program • Enter in 11th or 12th grade • Option for accelerated 9th and 10th grades at Bard Academy • A liberal arts and sciences college affiliated with Bard College • Promotes a holistic, interdisciplinary approach and offers small class sizes • Activities range from cultural events and lecture series to student-led clubs and community service
Bard High School Early Colleges Bard College New York City, NY; Newark, NJ; New Orleans, LA; Cleveland, OH; and Baltimore, MD http://bhsec.bard.edu/	2001	<ul style="list-style-type: none"> • Commuter program • Enter in 9th grade • Complete high school and the first 2 years of college in 4 years • Many extracurricular activities and support services available • Only for students from the local public school system where the BHSEC campus is located
Boston University Academy Boston University Boston, MA http://www.buacademy.org/home	1993	<ul style="list-style-type: none"> • Commuter program • Enter in 9th grade, typically • Access to a classically-based core curriculum that leads into college courses at BU • Access to many extracurricular activities and college counseling
The Clarkson School Clarkson University Potsdam, NY http://www.clarkson.edu/tcs/	1978	<ul style="list-style-type: none"> • Residential program • Enter in 12th grade • Focus on meeting high school requirements and researching future college options • Access to Personal and Professional Development Program • “Family dinners” for students and staff, field trips, and special events scheduled • Option to participate in university activities
The Davidson Academy of Nevada University of Nevada, Reno Reno, NV http://www.davidsonacademy.unr.edu/	2006	<ul style="list-style-type: none"> • Commuter program • Free public day school on campus of UNR • Access to courses at UNR or other colleges • Serves profoundly gifted middle and high school students • No grade levels are designated • Provides a Personalized Learning Plan (PLP) • Access to many student activities

Table 1: Selected Programs for Early College Entrants (continued)

Name of Program	Inception Date	Program Features
<p>Early College Academy Mary Baldwin College Staunton, VA http://www.mbc.edu/early_college/eca/</p>	2011	<ul style="list-style-type: none"> • Residential program • Enter in 12th grade, typically • Only available to females ages 16 and 17 • Most resources of MBC available to ECA students
<p>Early Entrance Program California State University, Los Angeles Los Angeles, CA http://web.calstatela.edu/academic/eep/index.php</p>	1982	<ul style="list-style-type: none"> • Commuter program • Enter in 9th grade, typically (ages 11-16) • Provisional summer courses • Access to EEP resources: kitchen, study room, computer room and social areas; counseling • Participation in CSULA's Honors College Program • Expectation to complete degree at CSULA
<p>Early Entrance Program Shimer College Chicago, IL http://www.shimer.edu/</p>	1950	<ul style="list-style-type: none"> • Commuter program with residential option available • Enter in 11th or 12th grade, typically • Follows the Great Books core curriculum • Automatically awarded a modest annually renewable merit scholarship
<p>Early Entrance Program University of Washington Seattle, WA https://robinsoncenter.uw.edu/programs/early-entrance-program/</p>	1977	<ul style="list-style-type: none"> • Commuter program • Enter after 8th grade, typically • TS students must be younger than 15 • 2-step program: 1-year Transition School (TS) followed by early entrance into UW • Access to special support services, activities, and resources.
<p>Early Honors Program Alaska Pacific University Anchorage, AK http://www.alaskapacific.edu/academics/early-honors/</p>	2000	<ul style="list-style-type: none"> • Commuter program with residential option available • Enter in 12th grade • Program follows "Block and Session" format: intensive focus on few subjects • Can participate in high school or university clubs • EH travel courses offered • Complete a year of transferable college credit (1-year program)
<p>The Gary K. Herberger Young Scholars Academy Arizona State University Glendale, AZ http://herbergeracademy.asu.edu/</p>	2010	<ul style="list-style-type: none"> • Commuter program • Serves highly gifted middle and high school students • University coursework available based upon readiness • Program includes internships and research experience
<p>The Gatton Academy of Mathematics and Science in Kentucky Western Kentucky University Bowling Green, KY http://www.wku.edu/academy/</p>	2007	<ul style="list-style-type: none"> • Residential program • Enter in 11th grade • State-supported high school with STEM focus • Can accrue over 60 hours of college credit • STEM research opportunities and STEM + Critical Languages track available • Admits only Kentucky residents

Table 1: Selected Programs for Early College Entrants (continued)

Name of Program	Inception Date	Program Features
Georgia Academy of Aviation, Mathematics, Engineering & Science Middle Georgia State College Macon, GA http://www.mga.edu/games/	1997	<ul style="list-style-type: none"> • Residential program • Enter in 11th or 12th grade • Emphasizes preparation in STEM fields • Access to academic and social resources in Welch Hall • Option to participate in social committees and youth service projects • Most graduates transfer to other 4-year institutions
Kansas Academy of Mathematics and Science Fort Hays State University Hays, KS http://www.fhsu.edu/kams/	2009	<ul style="list-style-type: none"> • Residential program • Enter in 11th grade • Strong emphasis on math and science and research opportunities • Leadership development and civic engagement emphasized • Tuition, fees, and books paid for by KAMS • Designed for Kansas residents, but non-Kansas and international students can apply
Massachusetts Academy of Mathematics and Science Worcester Polytechnic Institute Worcester, MA http://www.massacademy.org/	1992	<ul style="list-style-type: none"> • Commuter program • Enter in 11th grade • Seniors complete a year of college courses at WPI • Emphasis on STEM with a rigorous curriculum in the humanities and world languages • Admits Massachusetts residents only
Missouri Academy of Science, Mathematics and Computing Northwest Missouri State University Maryville, MO http://www.nwmissouri.edu/masmc/	2000	<ul style="list-style-type: none"> • Residential program • Enter in 11th grade • Focus on STEM subjects • Program's philosophy based on Integrity and Quality (IQ) • Permitted to organize clubs under the guidance of a staff/faculty advisor and participate in university organizations • Community service encouraged
National Academy of Arts, Sciences, and Engineering The University of Iowa Iowa City, IA belinblank.org/academy	1999	<ul style="list-style-type: none"> • Residential program • Enter in 12th grade • Encouraged to earn bachelor's degree from UI • Automatic enrollment in UI Honors Program • Access to resources in Blank Honors Center • BBC staff facilitate weekly seminars and biweekly meetings with students and provide advocacy • Encouraged to participate in clubs and activities sponsored by NAASE, BBC, and UI
Program for the Exceptionally Gifted Mary Baldwin College Staunton, VA http://www.mbc.edu/early_college/peg/	1985	<ul style="list-style-type: none"> • Residential program • Enter in grades 9 through 11, typically • Only open to females 13 and older • Most resources of MBC available to PEGs • Social and cultural weekend and evening events planned • Leadership opportunities available (e.g., committees, peer advising)

Table 1: Selected Programs for Early College Entrants (continued)

Name of Program	Inception Date	Program Features
<p>Resident Honors Program University of Southern California Los Angeles, CA http://dornsife.usc.edu/resident-honors-program/</p>	<p>1961</p>	<ul style="list-style-type: none"> • Residential program • Enter in 12th grade • Expected to earn bachelor’s degree from USC • Automatic enrollment in Thematic Option Honors Program • Incorporated into the larger USC community • Encouraged to participate in university- and RHP-sponsored activities • Awarded a renewable merit scholarship
<p>Texas Academy of Leadership in the Humanities Lamar University Beaumont, TX http://dept.lamar.edu/taolith/</p>	<p>1993</p>	<ul style="list-style-type: none"> • Residential program • Enter in 11th grade, typically • Emphasis on the humanities and on the development of character and leadership skills through volunteerism and community service • Field trips to performing arts venues and museums • High school activities offered (e.g., Prom, yearbook, clubs) • Admits only residents of Texas
<p>Texas Academy of Mathematics and Science University of North Texas Denton, TX https://tams.unt.edu/</p>	<p>1988</p>	<ul style="list-style-type: none"> • Residential program • Enter in 11th grade • Strong emphasis on math and science and research opportunities • Many clubs and service organizations offered • Tuition, fees, and books paid for by TAMS • Admits only residents of Texas
<p>UW Academy University of Washington Seattle, WA https://robinsoncenter.uw.edu/programs/uw-academy/</p>	<p>2001</p>	<ul style="list-style-type: none"> • Commuter program; Students age 17 and older can apply to reside on campus • Enter in 11th grade • Participate in Bridge Program (summer group advising, Academy Camp, and Academy courses) • Involvement in UW Honors Program

vary among the states, the intent is to provide access, and usually funding, for high school students to attend local colleges on a part-time basis to take a course their high school does not offer. The credits typically will transfer to another public college or university within the state, but most highly selective colleges and universities do not grant credit for part-time college courses taken by high school students at local colleges because they cannot assess the level and quality of instruction. This is in contrast to more generous policies with regard to granting credit for AP and IB courses based on examination scores.

ONLINE COURSES

The emergence and widespread availability of online courses has opened another door for high school students to gain access to college coursework. Offered by numerous universities, talent search centers, school systems, and other organizations, online courses are utilized by high school students to accelerate through more basic coursework in order to enroll in advanced courses sooner, to study subjects of interest not available in their schools, and/or to complete college-level work without having to worry about the logistics of getting to a local college. Although online coursework presents able students with greater flexibility and, in many cases, the

opportunity to move through curricula at an individualized (i.e., faster) pace, schools can benefit from this option too. For example, a school can provide students with an advanced course such as linear algebra online without having to hire a teacher. When credit is not needed, the MOOCs (Massive Open Online Courses), Khan Academy, and others offer free non-credit options as a way to facilitate learning advanced content.

RESEARCH ON EARLY COLLEGE ENTRANTS

With such a wide range of early college options, in conjunction with the myriad factors that can impact a student's experience in college, it is difficult to generalize about the overall effectiveness of early college entrance as a strategy to serve gifted students. However, we can gain insight from the quantitative and qualitative research that has been done, as well as information drawn from biographical and anecdotal accounts of students' experiences as young college entrants. The summary that follows focuses on full-time early enrollment in college, whether pursued individually or through an early entrance program.

ACADEMIC AND OCCUPATIONAL SUCCESS OF EARLY ENTRANTS

Investigations of the academic performance of students who entered college early, as well as of the long-term impact on their careers, present a fairly compelling picture of high achievement and success (Brody & Stanley, 1991; Olszewski-Kubilius, 2002). Even among students who enrolled in college with little programmatic support, findings have been quite positive. For example, Gray (1930) found that young college students suffered fewer academic failures, were awarded more honors, and gained more recognition in extra-curricular activities than did a comparison group of older college students. In addition, studies of the Ohio State (Pressey, 1949), University of Chicago (Bloom & Ward, 1952), and Ford Foundation (Fund for the Advancement of Education, 1953) accelerants in the 1940s and 1950s also supported the positive effects of acceleration on students' academic performance and other factors.

The progress of students who entered college early through the guidance of the Study of Mathematically Precocious Youth (SMPY) was studied extensively, lending much credence to early entrance to college as a strategy for meeting the needs of highly able students. Most impressively, a follow-up investigation of six exceptionally young college graduates found that, at the time the study was conducted, five of

them had earned Ph.D. degrees and were working in prestigious positions, while the sixth was an 18-year-old graduate student (Stanley, 1985a). In research on larger cohorts of early entrants, the majority were found to excel throughout the college years, though there was some variability in their levels of performance (e.g., Brody & Benbow, 1987; Brody, Lupkowski, & Stanley, 1988; Stanley, 1985a; Stanley, 1985b; Stanley & Benbow, 1983; Stanley & McGill, 1986). Consequently, Brody, Assouline, and Stanley (1990) sought to identify factors that contribute to the highest levels of academic success among early entrants (e.g., earning concurrent bachelor's and master's degrees and/or honors at graduation). In their study of 65 young college students who entered a selective university, prior experience with AP coursework was found to be the strongest predictor of academic success, suggesting the importance of mastering a certain level of content knowledge prior to enrolling in college.

A recent follow-up study of SMPY participants confirms the long-term high achievement of early college entrants, and suggests that getting a jumpstart on their professional careers may have had an impact on their productivity (Park, Lubinski, & Benbow, 2013). Cohorts of students who were identified as mathematically talented middle school students in 1972-1974, 1976-1979, and 1980-1983, and who skipped grades during their school years or left high school early to go to college (presumably grade-skipping also resulted in entering college younger than is typical), were compared to a matched control group of individuals who had not accelerated in grade placement. The accelerated students, as a group, earned their degrees and published their first peer-reviewed papers earlier, and also had more citations of their work by age 50. However, this advantage was not evident among the group that had been identified the latest, i.e., in 1980-1983, when they were surveyed at age 42. The researchers suggest that the non-grade-skipping cohort to whom they were compared may have benefitted from other accelerative opportunities that were available by the time they were in high school, just as grade-skipping had facilitated the needs and fostered the achievements of the earlier cohorts (Park, et al., 2013). This later group had been advised by SMPY to take advantage of such options.

Additional evidence in support of the academic and occupational success of early college entrants comes from biographical data and anecdotal accounts that demonstrate the high levels of achievement among accelerated students, especially in their chosen career fields (Daurio, 1979). An often-cited example is Norbert Weiner, the father of cybernetics who earned a Ph.D. from Harvard in 1912 at age 17, and more recent examples include the distinguished mathematicians and Fields med-

alists Charles Lewis Fefferman, who earned his Ph.D. from Princeton at 20, and Terence Tao, a SMPY protégé who earned his Ph.D. at 21 from Princeton. While some critics of acceleration still point to the negative experiences of the prodigy William James Sidis, the remarkable accomplishments of so many others far outweigh his unique story.

Most of the work described above involves assessing the progress of students who accelerated on their own. Research has also been done to assess the performance of students enrolled in some of the early college entrance programs, with arguably the most extensive work being conducted by researchers at the University of Washington. An early study of participants in the Early Entrance Program there identified a fairly large number of underachievers among the radical accelerants (Janos, Sanfilippo, & Robinson, 1986), but a later follow-up study that compared those who entered this program between 1977 and 1986 with students who qualified for the program but opted to attend high school, and with non-accelerated National Merit Scholarship finalists, found most students in all three groups to be doing well several years later (Noble, Robinson, & Gunderson, 1993). In a survey by Noble and her colleagues (2007), graduates of the Early Entrance Program praised the peer and faculty support as well as the intellectual stimulation that they found there. For more research on the University of Washington's Early Entrance Program, see Janos, Robinson, and Lunneborg (1989), Noble and Childers (2008), Noble, Childers, and Vaughan (2008), Noble and Drummond (1992), and Noble and Smyth (1995).

After the UW Academy was established for able, albeit less accelerated, students to enroll as early entrants at the University of Washington, a comparison study was conducted between students in this program and the more radical Early Entrance Program. Surprisingly, the UW Academy students were less satisfied with their transition experience, a finding that led to some modifications to the program. It was hypothesized that some of the students who came to college later in their high school career may have had more difficulty adjusting to not being at the top of their class in the more competitive environment, at least until their study skills improved (Noble & Childers, 2008, 2009). A recent follow-up study of alumni from both University of Washington programs revealed that the majority of participants achieved at high levels, earned an above average income, felt satisfied with their decision to go to college early, and were generally happy (Hertzog & Chung, 2015).

Students at the Texas Academy of Mathematics and Science have also been studied, with overall positive results (Sayler, 2015). There is considerable evidence of the majority of stu-

dents' earning excellent grades in rigorous courses, being accepted as transfer students with scholarships to highly selective universities, and/or being accepted to prestigious graduate programs (e.g., see Jones, 2011; Sayler & Lupkowski, 1992). In support of a theme that others have found, Schumacker, Sayler, and Bemby (1995) found the use of appropriate learning strategies and study skills to be linked to the academic success of the early entrants, especially time management, being able to select main ideas in texts, and test/class preparation.

Similarly, a study of the performance of the inaugural class of the National Academy of Arts, Sciences, and Engineering at the University of Iowa found that the early entrants felt challenged by the academic offerings and, as a group, earned a first-semester GPA higher than that of the typical University of Iowa freshman (Muratori, Colangelo, & Assouline, 2003). However, within the small class of 10 students in this particular cohort, two encountered serious academic problems, forcing them to leave the university. After selection procedures were refined for subsequent classes, the retention rate was better, but there were still a few incidences of academic probation. Seeking to understand the factors that contributed to academic success or the lack thereof, Muratori (2003) found that those who thrived academically appeared to be more focused, perseverant, and motivated than those who were less successful. From her research, she concluded, tentatively, that personal attributes are important predictors of academic success, and that (perhaps unsurprisingly) difficulties students experience prior to enrolling in college are likely to continue in college if left unaddressed (Muratori, 2003). Again, these findings are in line with what researchers have concluded about students in the other early college entrance programs.

High performance overall was also the norm for early entrants at the Advanced Academy of Georgia. In a study of the first four cohorts, Sethna, Wickstrom, Boothe, and Stanley (2001) reported that the early entrants performed above the level of the typical-age undergraduates attending the State University of West Georgia, which has since been renamed the University of West Georgia. No students withdrew or were asked to withdraw for academic reasons. Many did transfer to other institutions to complete their undergraduate studies, but the list of those is quite impressive and is perceived as a positive result of the program. There is also evidence to support the academic and professional success of students who attended certain programs abroad, for instance, the Special Class for the Gifted Young (SCGY). This well-established residential early college entrance program is housed at the University of Science and Technology of China (USTC), which is affiliated with the Chinese Academy of Sciences (Dai & Steenbergen-Hu, 2015).

In an overall summary of the research on early college entrance, Olszewski-Kubilius (2002) concluded that the evidence regarding early entrants' academic success is "overwhelmingly positive" (p. 154). However, she cautioned that poor performers may not be included in many of the studies if they leave the program before completing it. In addition, the importance of a few students' encountering academic difficulties may not be stressed enough in studies where the majority of participants do well. On the other hand, another study of students who left an early entrance program found that it was not always for negative reasons; some transferred to another college or university that was a better fit for their developing interests (Heilbronner, Connell, Dobyns, & Reis, 2010).

SOCIAL AND EMOTIONAL ADJUSTMENT OF EARLY COLLEGE ENTRANTS

Expecting every young college student to be highly successful academically and socially is unrealistic, since many regular-aged college students experience varying levels of difficulty adjusting to the college environment. However, with young college students, in particular, parents and educators worry about their readiness to be independent, their maturity to make sound decisions, and their ability to interact with other college students, even in the early college entrance programs where they are provided with additional support. Although many researchers investigating the academic success of young college students have concluded that early entrants, as a group, are not hampered by social and emotional issues (Brody & Stanley, 1991; Daurio, 1979), fears about potential social and emotional difficulties for future early college entrants seem to persist.

One concern is whether initial adjustment to campus at a young age may be especially difficult for the young students. This question was addressed in a study of the Ford Foundation-sponsored early college entrants, and some initial difficulties in adjusting to campus life were revealed. However, they were considered minor and soon overcome (Fund for the Advancement of Education, 1953). Adjustment during the first year of college was also the focus of a study of 24 SMPY participants who entered college at least two years early and attended any of 17 colleges or universities around the country, including five students who were accelerated by five or more years. Although no serious emotional issues were reported for any of the students, and social complaints were minor, primarily coming from commuting students who were too young to drive, two students residing away from home experienced some challenges. One of these students was quite homesick

and subsequently transferred to a college nearer to his home where he was much happier, while the other student, who had gone to college for academic reasons but had enjoyed the social aspects of high school, returned to high school after a year of college (Brody et al., 1988).

Responding to the special concerns about students whose acceleration is particularly radical, Pollins (1983) studied the adjustment of 21 male SMPY participants who were at least three years ahead in grade placement as college students. Compared with a group matched on age and ability, she found no negative social or emotional effects of acceleration, even though the accelerants had not received any special program support other than encouragement from SMPY. This study has often been cited as evidence that early college entrants are unlikely to experience social or emotional difficulties.

The more recent research on the social and emotional adjustment of early college students has primarily taken place within the early college entrance programs. Since much of the force behind the creation of these programs was to enhance social and emotional adjustment by allowing students to be with a compatible group of age peers, validation of this goal seems necessary to the continued support of these programs. In general, research and anecdotal reports on the social adjustment of students from the Texas Academy of Mathematics and Science (e.g., Lupkowski, Whitmore, & Ramsay, 1992; Sayler, 1994, 2015; Sayler & Lupkowski, 1992), the National Academy of Arts, Sciences, and Engineering (Muratori, 2003; Muratori et al., 2003), the Advanced Academy of Georgia (e.g., Sethna et al., 2001), and the University of Washington Early Entrance Program (e.g., Janos & Robinson, 1985; Janos et al., 1988; Janos et al., 1989; Noble, Arndt, Nicholson, Sletten, & Zamora, 1999; Noble & Drummond, 1992; Noble & Smyth, 1995; Robinson & Janos, 1986; Robinson & Noble, 1992) support the notion that most participants in these programs succeed in developing satisfying social relationships. In addition, early entrance was found to facilitate personal well-being overall for students who attended the Texas Academy of Mathematics and Science (Boazman & Sayler, 2011), and to be associated with lesser anxiety for Advanced Academy of Georgia students compared to their older college peers (Sethna et al., 2001).

However, in spite of such positive findings and reports about groups of early college entrants, there are some examples in the literature of individuals who did encounter social or emotional difficulties for whom early college entrance was not an optimal choice. Even among students at the Texas Academy of Mathematics and Science, for example, where reports of

satisfaction with the program are extremely high, some participants said they would not repeat their early entrance experience, citing such factors as leaving their home and school environments before they were ready, stress, and inadequate social skills to function independently (Boazman & Saylor, 2011). And, in her study of students enrolled in the first cohort of the National Academy of Arts, Sciences, and the Engineering, Muratori (2003) found that a few of them were plagued with homesickness or other socio-emotional issues that contributed to their leaving the program.

A few studies have sought to identify variables that predict social adjustment among early entrants. For example, Caplan, Henderson, Henderson, and Fleming (2002) found family environmental factors (e.g., cohesion, conflict, and expressiveness) and overall self-concept relevant to college adjustment among early entrants attending the Texas Academy of Mathematics and Science. Parental support and family values were also found to be important to successful early entrants in the Program for the Exceptionally Gifted at Mary Baldwin College (Solow & Rhodes, 2012). And after studying students' adjustment at the Advanced Academy of Georgia, Sethna and his colleagues (2001) concluded that social and emotional preparedness and academic and social maturity play a role in any early college student's success. These studies and others point to the importance of considering social and emotional factors in the selection process prior to admitting students to early college entrance programs. In fact, Muratori (2003) found that the adjustment difficulties that certain students in her study encountered might have been anticipated prior to enrollment because of challenges they were already experiencing in high school.

Consistent with the findings summarized above, and with the caveat that early college entrance programs are not appropriate for all students who might be academically qualified, researchers evaluating the Advanced Academy of Georgia program concluded as follows:

Clearly, early college entrance programs will not suit every intellectually talented high school student. They are one of many excellent ways to enable students to move ahead faster and better. For some mature, brilliant youngsters, however, they are manna from educational heaven. Being constantly with one's intellectual peers who are also one's age mates, feeling free to interact and express ideas without fear of ridicule . . . can be a blessed relief. (Sethna et al., 2001, pp. 19-29)

DISCUSSION

In a pivotal paper that described the rationale for the establishment of the Early Entrance Program at the University

of Washington, Robinson and Robinson (1982) noted the difficulty of trying to meet the individual needs of advanced learners in regular classroom settings. They argued for trying to achieve, as much as possible, an "optimal match" between the learning needs of each student and the intellectual challenge presented, while also paying attention to their social and emotional development. The Early Entrance Program was founded as one solution for students whose academic potential is significantly above their classmates. Julian Stanley, who had experimented even earlier with enrolling exceptionally advanced young students in college as an alternative to age-in-grade instruction, also endorsed the optimal match concept when he called for providing a "smorgasbord" of options to serve advanced students, from which students could choose those that best met their own unique needs (Stanley, 1979).

Thanks to the groundbreaking work of these researchers and the contributions of many other researchers and educators who have followed them, there are now many challenging curricular and out-of-school opportunities available for academically talented students. There is still work to be done to meet individual needs within classrooms, to assure that acceleration is maintained on a continuum, and that equity exists with regard to access to out-of-school options. The gifted education field has nevertheless made substantial progress on these fronts; we are rich with well-researched program models and strategies, some of which are described in this chapter (i.e., early college options), others elsewhere in this volume (i.e., other accelerative strategies), and still more that can be located through online directories and other resources. Being able to choose from these options lets students follow the path that best meets their own needs, for example, allowing one exceptional student to pursue early college entrance, another to stay in high school and tackle the challenge of national or international competitions, and a third to take a reduced high school course load so that she can do independent science research with a mentor at a nearby university.

With regard to early college entrance specifically, the research supports it as a proven and effective strategy to serve advanced learners who are academically ready to move beyond their high school environments at younger-than-typical ages. The fact that it is now an option that can be pursued in a variety of ways expands its usefulness and accessibility to many more students. Counseling is still an essential component to ensure that each student's readiness matches the program to which he or she is headed and that the student is going for the right reasons (e.g., to find greater challenge rather than escape an unsatisfying situation). But we must dispel any lingering notions that early college entrance inev-

itably causes social and emotional difficulties. For those who choose to pursue it, however, we must ensure that they are ready academically, socially, and emotionally for the challenges it will bring, have realistic expectations about college life and the early entrance experience, and feel confident that it is the optimal choice for them.

IMPLICATIONS FOR EDUCATORS

To be ready to succeed in college, whether they enter early or at the typical time, enroll in a special early entrance program or on their own, students need to have a strong background in content knowledge, good study skills and work habits, and the confidence to interact socially in a new environment. Unfortunately, academically talented students can be less prepared than other students for the transition to college if they fail to develop adequate study skills or time management strategies in high school because their classes are too easy or fail to develop adequate social skills because they have little in common with their classmates. Furthermore, those who enroll in college at younger-than-typical ages may be at an even greater disadvantage, even in early college entrance programs, if they lack the prerequisite knowledge and skills to be able to excel in more advanced courses. With a national goal of preparing students to be college- or career-ready by the end of high school, educators need to consider what this means for their advanced students and ensure that they have access to appropriately accelerated coursework throughout their school years.

By the time students are in high school, if they have been exposed to accelerated content all along, college-level coursework is warranted, supplemented with a broad array of extracurricular activities that extend learning beyond the classroom. Educators should also be prepared to recommend the out-of-school summer programs, competitions, internships, and other opportunities that can be particularly valuable as venues for learning and that allow participants to interact with their intellectual peers. With a broad spectrum of such resources in place, early college entrance should not have to be the default simply because there are no appropriate courses or activities available as alternatives in the latter years of high school, but rather, it can be a conscious choice for some students. When students do inquire about early college entrance, educators can help them by being supportive, evaluating their readiness, describing options and alternatives, and helping them make the best decision about how to proceed in order to achieve their specific goals.

REFERENCES

- American Institutes for Research (2013). *Early college, early success: Early College High School Initiative impact study*. Washington, DC: Author.
- Bloom, B. S., & Ward, F. C. (1952). The Chicago Bachelor of Arts degree after ten years. *Journal of Higher Education*, 23, 459-467.
- Boazman, J., & Sayler, M. (2011). Early college entrance and life satisfaction: Personal well-being of gifted students following participation in an early college-entrance program. *Roeper Review*, 33(2), 76-85.
- Boothe, D., Sethna, B. N., Stanley, J. C., & Colgate, S. D. (1999). Special opportunities for exceptionally able high school students: A description of eight early-college-entrance programs. *Journal of Secondary Gifted Education*, 10(4), 195-202.
- Brody, L. E., Assouline, S. G., & Stanley, J. C. (1990). Five years of early entrants: Predicting successful achievement in college. *Gifted Child Quarterly*, 34(4), 138-142.
- Brody, L. E., & Benbow, C. P. (1987). Accelerative strategies: How effective are they for the gifted? *Gifted Child Quarterly*, 31(3), 105-110.
- Brody, L. E., Lupkowski, A. E., & Stanley, J. C. (1988). Early entrance to college: A study of academic and social adjustment during the freshman year. *College and University*, 63(4), 347-359.
- Brody, L. E., & Stanley, J. C. (1991). Young college students: Assessing factors that contribute to their success. In W. T. Southern & E. D. Jones (Eds.), *The academic acceleration of gifted children* (pp. 102-132). New York: Teachers College Press.
- Brody, L. E., & Stanley, J. C. (2005). Youths who reason exceptionally well mathematically and/or verbally. In R. J. Sternberg and J. E. Davidson (Eds.), *Conceptions of giftedness* (2nd ed.) (pp. 20-37). New York, NY: Cambridge University Press.
- Broughton, R. W. (1987). *The Minnesota 11th and 12th grade post-secondary enrollment options program: Is it changing the traditional structure of secondary and post-secondary schools?* (ERIC Document Reproduction Service No. ED 282 600). Jefferson City, MO: Council of North Central Community and Junior Colleges.
- Caplan, S. M., Henderson, C. E., Henderson, J., & Fleming, D. L. (2002). Socioemotional factors contributing to adjustment among early-entrance college students. *Gifted Child Quarterly*, 46(2), 124-134.
- Cronbach, L. J. (1996). Acceleration among the Terman males: Correlates in midlife and after. In C. P. Benbow & D. Lubinski (Eds.), *Intellectual talent: Psychometric and social issues* (pp. 179-191). Baltimore: Johns Hopkins University Press.
- Curry, W., MacDonald, W., & Morgan, R. (1999). The Advanced Placement Program: Access to excellence. *Journal of Secondary Gifted Education*, 11(1), 17-23.
- Dai, D. Y., & Steenbergen-Hu, S. (2015). Special Class for the Gifted Young: A 34-year experimentation with early college entrance programs in China. *Roeper Review* 37(1), 9-18.
- Daurio, S. P. (1979). Educational enrichment versus acceleration: A review of the literature. In W. C. George, S. J. Cohn, & J. C. Stanley (Eds.), *Educating the gifted: Acceleration and enrichment* (pp. 13-63). Baltimore: Johns Hopkins University Press.
- Fund for the Advancement of Education. (1953). *Bridging the gap between high school and college*. New York: Research Division of the Fund, Ford Foundation.
- Gray, H. A. (1930). Some factors in the undergraduate careers of young college students. *Contributions to Education*, No. 437. New York: Teachers College, Columbia University.

- Heilbronner, N. N., Connell, E. E., Dobyms, S. M., & Reis, S. M. (2010). The "stepping stone phenomenon": Exploring the role of positive attrition at an early college entrance program. *Journal of Advanced Academics*, 21(3), p392-425.
- Hertzog, N. B., & Chung, R. U. (2015). Outcomes for students on a fast track to college: Early college entrance programs at the University of Washington. *Roeper Review*, 37(1), 39-49.
- Janos, P. M., & Robinson, N. M. (1985). The performance of students in a program of radical acceleration at the university level. *Gifted Child Quarterly*, 29(4), 175-180.
- Janos, P.M., Robinson, N.M., Carter, C., Chapel, A., Cufley, R., Curland, M., Daily, M., Guillard, M., Heinzig, M., Kehl, H., Lu, S., Sherry, D., Stoloff, J., & Wise, A. (1988). A cross-sectional developmental study of the social relations of students who enter college early. *Gifted Child Quarterly*, 32(1), 210-215.
- Janos, P. M., Robinson, N. M., & Lunneborg, C. E. (1989). Markedly early entrance to college. *Journal of Higher Education*, 60(5), 495-518.
- Janos, P. M., Sanfilippo, S. M., & Robinson, N. M. (1986). "Underachievement" among markedly accelerated college students. *Journal of Youth and Adolescence*, 15, 303-311.
- Jones, B. M. (2011). The Texas Academy of Mathematics and Science: A 20-year perspective. *Journal for the Education of the Gifted*, 34(3), 513-543.
- Kaniuka, T. S., & Vickers, M. (2010). Lessons learned: How early college high schools offer a pathway for high school reform. *NASSP Bulletin*, 94(3), 165-183.
- Keys, N. (1938). The underage student in high school and college. *University of California Publications in Education*, 7, 145-271.
- Lupkowski, A., Whitmore, M., & Ramsay, A. (1992). The impact of early entrance to college on self-esteem: A preliminary study. *Gifted Child Quarterly*, 36(2), 87-90.
- McCarthy, C. R. (1999). Dual-enrollment programs: Legislation helps high school students enroll in college courses. *Journal of Secondary Gifted Education*, 11(1), 24-32.
- Muratori, M. C. (2003). *A multiple case study examining the adjustment of ten early entrants*. Unpublished doctoral dissertation, The University of Iowa, Iowa City.
- Muratori, M. C. (2007). *Early entrance to college: A guide to success*. Waco, TX: Prufrock Press.
- Muratori, M., Colangelo, N., & Assouline, S. (2003). Early entrance students: Impressions of their first semester of college. *Gifted Child Quarterly*, 47(3), 219-238.
- Noble, K. D., Arndt, T., Nicholson, T., Sletten, T., & Zamora, A. (1999). Different strokes: Perceptions of social and emotional development among early college entrants. *Journal of Secondary Gifted Education*, 10(2), 77-84.
- Noble, K. D., & Childers, S. A. (2008). A passion for learning: The theory and practice of optimal match at the University of Washington. *Journal of Advanced Academics*, 19(2), 236-270.
- Noble, K. D., & Childers, S. A. (2009). Swimming in deep waters: 20 years of research about early university entrance at the University of Washington. In L. V. Shavinina (Ed.), *International handbook on giftedness* (pp. 999-1016). New York: Springer.
- Noble, K. D., Childers, S. A., & Vaughan, R. C. (2008). A place to be celebrated and understood: The impact of early university entrance from parents' points of view. *Gifted Child Quarterly*, 52(3), 256-268.
- Noble, K. D., & Drummond, J. E. (1992). But what about the prom? Students' perceptions of early college entrance. *Gifted Child Quarterly*, 36(2), 106-111.
- Noble, K. D., Robinson, N. M., & Gunderson, S. A. (1993). All rivers lead to the sea: A follow-up study of gifted young adults. *Roeper Review*, 15(3), 124-130.
- Noble, K. D., & Smyth, R. K. (1995). Keeping their talents alive: Young women's assessment of radical, post-secondary acceleration. *Roeper Review*, 18(1), 49-55.
- Noble, K. D., Vaughan, R. C., Chan, C., Childers, S., Chow, B., Federow, A., & Hughes, S. (2007). Love and work: The legacy of early university entrance. *Gifted Child Quarterly*, 51(2), 152-166.
- Olszewski-Kubilius, P. (2002). A summary of research regarding early entrance to college. *Roeper Review*, 24(3), 152-157.
- 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(1), 176-198.
- Pollins, L. D. (1983). The effects of acceleration on the social and emotional development of gifted students. In C. P. Benbow & J. C. Stanley (Eds.), *Academic precocity: Aspects of its development* (pp. 160-178). Baltimore, MD: Johns Hopkins University Press.
- Pressey, S. L. (1949). *Educational acceleration: Appraisal and basic problems*. Bureau of Educational Research Monographs, No. 31. Columbus, OH: Ohio State University Press.
- Robinson, N. M., & Janos, P. M. (1986). Psychological adjustment in a college-level program of marked academic acceleration. *Journal of Youth and Adolescence*, 15(1), 51-60.
- Robinson, N. M., & Noble, K. D. (1992). Acceleration: Valuable high school to college options. *Gifted Child Today*, 15(2), 20-23.
- Robinson, N. M., & Robinson, H. B. (1982). The optimal match: Devising the best compromise for the highly gifted student. In D. Feldman (Ed.), *New Dimensions for Child Development: Developmental Approaches to Giftedness and Creativity*, No. 17, 79-94.
- Sayler, M. F. (1994). Early college entrance: A viable option. In J. B. Hansen & S. M. Hoover (Eds.), *Talent development: Theories and practice* (pp. 67-79). Dubuque, IA: Kendall/Hunt Publishing Co.
- Sayler, M. F. (2015). Texas Academy of Mathematics and Science: 25 years of early college STEM opportunities. *Roeper Review*, 37(1), 29-38.
- Sayler, M. F., & Lupkowski, A. E. (1992). Early entrance to college: Weighing the options. *Gifted Child Today*, 15(2), 24-29.
- Schumacker, R. E., Sayler, M., & Bembry, K. L. (1995). Identifying at-risk gifted students in an early college entrance program. *Roeper Review*, 18(2), 126-129.
- Sethna, B. N., Wickstrom, C. D., Boothe, D., & Stanley, J. C. (2001). The Advanced Academy of Georgia: Four years as a residential early-college-entrance program. *Journal of Secondary Gifted Education*, 13(1), 11-21.
- Solow, R., & Rhodes, C. (2012). *College @ 13: Young, gifted, and purposeful*. Scottsdale, AZ: Great Potential Press.
- Stanley, J. C. (1979). The study and facilitation of talent in mathematics. In A. H. Passow (Ed.), *The 78th Yearbook of the National Society for the Study of Education: The gifted and the talented: Their education and development* (pp. 169-185). Chicago: University of Chicago Press.
- Stanley, J. C. (1985a). How did six highly accelerated gifted students fare in graduate school? *Gifted Child Quarterly*, 29(4), 180.

- Stanley, J. C. (1985b). Young entrants to college: How did they fare? *College and University*, 60, 219-228.
- Stanley, J. C. (1991). A better model for residential high schools for talented youth. *Phi Delta Kappan*, 72(6), pp. 471-473.
- Stanley, J. C. (1996). In the beginning: The Study of Mathematically Precocious Youth. In C. P. Benbow & D. Lubinski (Eds.), *Intellectual talent* (pp. 225-235). Baltimore, MD: Johns Hopkins University Press.
- Stanley, J. C. (2005). A quiet revolution: Finding boys and girls who reason exceptionally well mathematically and/or verbally and helping them get the supplemental educational opportunities they need. *High Ability Studies*, 16(1), 5-14.
- Stanley, J. C., & Benbow, C. P. (1983). Extremely young college graduates: Evidence of their success. *College and University*, 58(4), 361-371.
- Stanley, J. C., & McGill, A. M. (1986). More about "Young entrants to college: How did they fare?" *Gifted Child Quarterly*, 30(2), 70-73.
- Terman, L. M., & Oden, M. H. (1947). *The gifted child grows up: Twenty-five year follow-up of a superior group*. *Genetic studies of genius*, Vol. 4. Stanford, CA: Stanford University Press.

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