# WHAT THE RESEARCH SAYS ABOUT

# Influences on Gifted Students' Academic Success Transitioning From Secondary Schools to Higher Education Institutions

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The *Texas State Plan for the Education of Gifted/Talented Students* (Texas Education Agency [TEA], 2009) requires school districts to provide an array of learning opportunities to gifted students that are appropriately challenging and include acceleration in the students' areas of talent so that they will develop advanced-level products or performances. Similarly, the National Association for Gifted Children's (NAGC, 2010) *Pre-K–Grade 12 Gifted Programming Standards* require school districts to develop a variety of programming options such as acceleration and enrichment in varied grouping arrangements and within individualized learning options (e.g., independent study, mentorships, online courses, internships, vocational programming experiences) to enhance students' performance in cognitive and affective areas and to assist them in identifying future career goals. These two sets of standards provide educators with a framework for implementing practices that are evidence-based and grounded in research and theory.

Although many options exist for serving gifted secondary students in preparing them for college, educators at the secondary school level tend to select from a few options. According to the *2014–2015 State of the States in Gifted Education* national survey (National Association for Gifted Children & Council of State Directors of Programs for the Gifted, 2015), states reported the most common methods for serving high school students, which included Advanced Placement (AP) classes (23 states), dual-credit enrollment in college classes (15 states), honors/advanced coursework (17 states), International Baccalaureate (IB) programs (11 states), magnet schools (8 states), virtual coursework (7 states), acceleration by subject (6 states), and credit given for demonstrated mastery (3 states).

To examine what factors influence gifted students' academic success in these programming options during their transition from secondary school to higher education, this review includes articles published since 2006 in *Gifted Child Today*, *Gifted Child Quarterly*, *Journal for the Education of the Gifted*, *Journal of Advanced Academics*, and *Roeper Review*. For inclusion, articles needed to report on empirical research studies conducted in the United States that examined variables related to academic success from

middle school to college. We excluded research that primarily addressed specific precollegiate programs, examined students' personal characteristics (e.g., self-efficacy, motivation, gender), or compared individual differences on assessment instruments. Research on early college entrance programs or success factors during college using a university student population were also excluded. Using these criteria, 17 empirical research articles were identified and summarized. The articles included qualitative ($n$ = 8), quantitative ($n$ = 4), or mixed-methods research ($n$ = 5) and reflected a diversity of topics from effects of early grade acceleration to high school experiences that contributed to success in higher education. Other themes included the impact of advanced coursework in middle school, achievement loss during the transition to high school, coursework and learning experiences in high school, and factors influencing success in special populations such as minority, low-income, or twice-exceptional secondary students.

## EARLY GRADE ACCELERATION

Although many parents and educators still hold the mistaken belief that early grade acceleration will negatively impact long-term achievement, meta-analytic studies (see Kulik & Kulik, 1984; Slavin, 1990) have concluded that acceleration is an effective instructional intervention for gifted students. McClarty (2015) compared the high school and college outcomes of students who skipped a grade in school to students matched on demographic and achievement measures who did not skip a grade. The results indicated that accelerated students, on average, earned a higher GPA in high school and college and scored higher on portions of the PSAT, SAT, and ACT. Minimal differences, if any, in attending highly selective colleges and college graduation rate were reported between accelerated compared to non-accelerated students. For the greatest long-term academic benefit, early acceleration needs to be accompanied with additional advanced academics during their secondary learning experiences.

## ADVANCED COURSEWORK IN MIDDLE SCHOOL

Three of the articles examined the effects of enrolling in advanced coursework in middle school and its correlation with academic success. For example, Spielhagen (2006) investigated long-term outcomes for similar high-ability students who enrolled in algebra in eighth grade compared to those who enrolled in ninth grade. Although both groups scored similarly on the math section of the SAT, the students who enrolled in eighth-grade algebra took more math classes and were more likely to attend college. Shiu, Kettler, and Johnsen (2009) reported that eighth-grade native Spanish speaking students who enrolled in AP Spanish were more likely to enjoy reading in English, have peers who valued earning good grades, take AP courses in high school, and believe that steady employment, a happy family, and serving the community were more important than their Hispanic peers who did not enroll in AP Spanish. After the creation of advanced middle school science and English courses that allowed open enrollment, Friend and Degen (2007) reported that 18% to 36% of students elected to take an advanced middle school course. As a result, students benefited from a more demanding curriculum with middle school and high school teachers experiencing opportunities for positive collaboration. The researchers, however, noted that low-income (Friend & Degen, 2007) as well as male and Black students (Spielhagen, 2006) were underrepresented in the middle school advanced courses

## TRANSITION TO HIGH SCHOOL

One of the articles focused on educational transitions. Using a national longitudinal dataset, Smith (2006) examined the long-term impact of achievement loss during the transition from middle school to high school. He found that high-achieving middle school students who experienced a substantial drop in their ninth-grade GPA were more likely to leave their first college before graduating. Moreover, Latino high achievers had lower levels of college retention than White high achievers. The author concluded that college retention might be enhanced by connecting with an adult on campus, quality academic advising, and high academic motivation.

## COURSEWORK AND LEARNING EXPERIENCES IN HIGH SCHOOL

High school course options for gifted students and other factors related to their success in these learning experiences were described in five of the qualitative studies. Similar to national reports (NAGC & CSDPG, 2015), gifted coordinators reported the three most common options for high school acceleration were AP classes, advanced classes, and dual-credit courses (Peters & Mann, 2009). As a majority of respondents indicated that requirements for enrollment in these classes were dependent on grades or standardized tests, Peters and Mann (2009) cautioned that these criteria might prevent underachieving students, such as those in poverty, from accessing potentially beneficial coursework.

Gifted students preferred classes that provided the opportunity to thoroughly engage with the material,

that were taught by quality teachers, that were comprised of intellectual peers, and that would enhance access to a competitive college (Hertberg-Davis & Callahan, 2008; Schmitt & Gobel, 2015). Similarly, intellectually gifted females enrolled in AP or IB classes generally felt the curriculum was appropriately challenging and reported benefiting from relationships with intellectual peers (Vanderbrook, 2006). Although several participants commented on the personal impact of outstanding teachers who demonstrated intelligence, passion and humor and made a personal connection with students, participants also reported high school challenges associated with ineffective teachers and a lack of college and career guidance (Vanderbrook, 2006). Schmitt and Goebel (2015) reported participants' course satisfaction was more related to their perceptions of a teacher's content knowledge and personality than to the course material. Students who dropped out of the program, including many from underserved populations, maintained that the classes were too demanding or that the teachers' attitude or methods did not meet their needs (Hertberg-Davis & Callahan, 2008).

In analyzing college freshmen's reflections on their high school experiences, Hudley et al. (2009) highlighted that attending an ethnically diverse high school is associated with several academic benefits. For example, belonging to an academically engaged peer group in high school predicted social and academic adjustment in college for both first generation college students (FGCS) and non-FGCS. Furthermore, relationships with high school teachers and counselors also correlated with positive college beliefs and actions.

## FACTORS INFLUENCING SPECIAL POPULATIONS OF GIFTED STUDENTS' ACADEMIC SUCCESS

Almost half of the articles addressed special populations of gifted students who face even greater obstacles in maintaining academic success and accessing college. These populations included minority low-income students and gifted students with disabilities (i.e., twice-exceptional).

### Minority Low-Income Students

Minorities at high-poverty high schools faced challenges in overcoming low expectations resulting from a less demanding curriculum, a negative public perception of their school, and negative stereotypes from their teachers and peers (Reddick, Welton, Alsandor, Denyszyn, & Platt, 2011). They also noted within-school segregation where fewer students of color opted to take advanced courses. Students believed the essential factor to success was self-motivation. Other helpful forms of capital reported included high-school-based college outreach programs (e.g., AVID, GEAR UP,), college-based outreach programs, support from family members and counselors, and assistance from church/community groups. Similarly, factors that contributed to male Puerto Rican students' success in high school included the development of supportive relationships through participation in extracurricular and church activities, the cultivation of a healthy ethnic identity, and positive support from their mothers and sisters (Garrett, Antrop-González, & Vélez, 2010). Overall, schools and teachers that positively affected achievement of high-potential, low-income minority students had schoolwide achievement expectations, challenged deficit thinking, provided advanced curriculum, and supported their students' diverse cultural backgrounds (Tomlinson & Jarvis, 2014).

Three studies examined the success of low-income minority students in AP and IB programs. Mayer (2008) examined an IB program at an urban school that was successful in attracting and retaining Black, Latino, and Native American low-income students. In addition to allowing any student who expressed interest to enroll, other academic and social supports that served a dual purpose of appealing to students and assisting in learner success included student retreats, lunch and afterschool tutoring, the development of IB small-group communities, and the provision of counselors to help with the college admissions, financial aid, and scholarship processes.

Hallett and Venegas (2011), however, found that increasing AP access for underrepresented students was not enough to address educational inequities. They found that although many low-income and minority participants enrolled in multiple AP courses, their end-of-course grades given by the school were not consistent with their AP exam scores, and their AP exam pass rates were much lower than national averages. Students attributed their failure to pass AP exams on ineffective teaching, course material that did not represent exam content, and difficulties related to school structure or limited counselor guidance.

Administrator and teacher actions are therefore influential in the success of economically and ethnically diverse students enrolled in AP or IB courses (Kyburg, Hertberg-Davis, & Callahan, 2007). Teachers who modified instructional techniques to meet the needs of students' interests and preexisting knowledge were most effective with diverse populations. The cultivation of a broad network of family, community, teacher, and administrator support served to support achievement. Furthermore,

Mayer (2008) proposed that a widespread belief in students' ability to be successful and the additional scaffolding to aid struggling students and to stimulate capable students are two essential features to create an ideal environment for promoting academic success among diverse students.

### Twice-Exceptional Students

One article examined another group of students that also faces barriers to achievement: gifted students with disabilities. Schultz (2012) examined the factors that fostered twice-exceptional students' academic success and the obstacles that hindered them in their AP or dual-credit college classes. Factors that appeared to enhance achievement were a positive school culture, access to accommodations, and supportive teachers, parents, and/or mentors. Barriers to success included teachers who required that twice-exceptional students perform under the same conditions (without accommodations) as their classmates.

## CONCLUSIONS

These research articles point to student, school, and community factors that are perceived to be helpful in fostering secondary and postsecondary academic success for gifted and advanced learners. Studies with middle school students reported that students who enrolled in advanced classes were more likely to have positive academic outcomes such as additional subject knowledge and a greater likelihood of enrolling in more AP classes or of attending college. On the other hand, achievement loss during the transition from middle to high school was associated with decreased levels of college retention. Factors that were associated with better educational outcomes for all students include opportunities for thoroughly engaging in challenging curriculum, being grouped with intellectual peers, and learning from quality teachers. Students who made a personal connection with teachers or guidance counselors were more likely to have positive college beliefs and actions. Researchers also identified supports and barriers that help promote an equitable education for gifted or high-ability students with disabilities or those from minority or low-income backgrounds. Supports included a positive school culture that challenged deficit thinking, educators who maintained a belief that all students could be successful, extra support for struggling students, and access to accommodations. Other factors associated with academic success among special populations included high-school-based college outreach programs, participation in church activities, cultivation of a healthy ethnic identity, educators who supported their students' diverse cultural background, and support from family, mentors, and counselors. It is apparent from this review that a variety of factors influence gifted and advanced students' successful transitions between secondary programs and achieving academic success in higher education institutions.

## REFERENCES


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Slavin, R. E. (1990). Achievement effects of ability grouping in secondary schools: A best-evidence synthesis. *Review of Educational Research, 60*, 471–499.

Texas Education Agency. (2009). *Texas state plan for the education of gifted and talented students*. Retrieved from http://www.tea.state.tx.us/index2.aspx?id=6420


## ANNOTATED REFERENCES

Friend, J. I., & Degen, E. (2007). Middle-level reform: The introduction of advanced English and science courses. *Journal of Advanced Academics*, *18*, 246–276.

This mixed-methods research examined the outcomes after allowing open enrollment for newly created advanced middle school science and English courses. Participants came from seven middle schools with 4,300 students from one Kansas school district. During the first three years that advanced middle school classes were offered, the percentage of students at each school varied from 18% to 32% enrolled in advanced science and 20% to 36% enrolled in advanced English courses. The percentage of students who elected to remain enrolled in ninth-grade honors English decreased, keeping the percentage of students taking advanced English fairly stable compared to the previous two years. Qualitative data from open-ended interviews traced the history of implementation and the desire to allow any interested students the opportunity to flourish as a result of a more demanding curriculum. The development of vertical teams provided a positive collaborative opportunity for middle school and high school English and science teachers. Since the open invitation to enroll in advanced courses did not seem to address the discrepancy in the percentage of low-income students taking advanced courses, the researcher suggested that additional supportive measures such as high expectations and equitable opportunities are needed to encourage low-

SES students to enroll in advanced coursework.

Garrett, T., Antrop-González, R., & Vélez, W. (2010). Examining the success factors of high-achieving Puerto Rican male high-school students. *Roeper Review*, *32*, 106–115. doi:10.1080/02783191003587892

Researchers investigated the factors that influenced high academic achievement in working-class Puerto Rican males from an urban Midwestern high school using a qualitative phenomenology framework. Information gleaned from three interviews with each participant suggested four factors that contributed to high academic achievement. First, participation in a religious community and/or extracurricular activities contributed to developing social capital that aided access to mentoring, assistance with homework, and greater college knowledge. Second, although the participants felt marginalized at school because of their ethnic identity, participants were proud of their heritage and these feelings served as a springboard to encourage them to prove their ability to be academically successful. Third, participants' mothers and/or sisters helped with homework, facilitated necessary learning resources, and took pride in the achievements of their son/brother. Finally, participants indicated the potential influence of caring teachers and counselors in their achievement; however, because of the perceived lack of concerned educators, participants attributed most academic success to home and community-based relationships. The research suggests that involvement in church and extracurricular activities should be encouraged because this participation protects from oppositional youth culture and fosters intergenerational social networks. Educators are exhorted to respect the Puerto Rican culture and demonstrate high academic expectations by encouraging students to enroll in AP/honors classes.

Hallett, R. E., & Venegas, K. M. (2011). Is increased access enough? Advanced Placement courses, quality, and success in low-income urban schools. *Journal for the Education of the Gifted*, *34*, 468–487. doi:10.1177/016235321103400305

Hallett and Venegas studied the experiences of low-income students who were enrolled in AP courses in 15 urban high schools in the Los Angeles area. Through interviews, researchers examined the students' experiences in these classes and the benefits they enjoyed. Forty-eight college-bound low-income minority students were interviewed and observed during a 5-week summer bridge program. The researchers also collected data about the Los Angeles urban high schools the students attended and the students' race/ethnicity. Sixty percent of the students in the study were female, and all qualified for the federal free and reduced lunch program. Students were interviewed regarding their experiences in AP classes. Additionally, information regarding the class pass rate of the students was collected, and a comparison between final class grades and the students' scores on the AP exams was made. The findings indicated that although more low-income students enrolled in AP classes, their pass rates on the end-of-course exam were low and a significant difference existed between the students' class grades and their scores on the AP exam. Students suggested that their teachers were not well prepared and did not present curriculum that prepared them for the AP exam. They also commented on the overall school climate as having a negative effect on their experience in the AP classes. Although more AP classes are being offered to low-income students in urban schools, the researchers concluded that the quality of the teachers, fidelity of the curriculum, and climate of the schools does not provide the students with the same learning opportunities experienced by students in more affluent schools. The researchers concluded this inequity should be examined further.

Hertberg-Davis, H., & Callahan, C. M. (2008). A narrow escape: Gifted students' perceptions of Advanced Placement and International Baccalaureate programs. *Gifted Child Quarterly*, *52*, 199–216. doi:10.1177/0016986208319705

High-ability students' curricular needs are served through AP and IB classes in most high schools. This research focused on students' beliefs about the advantages and challenges of enrolling in AP and IB classes. Three hundred students, 200 teachers, and 33 school administrators or program coordinators across 18 schools in 7 states were interviewed regarding the reasons students enrolled in these classes and what the perceived benefits were for the students. The grounded theory technique was used to gather data. The data were then analyzed to develop a theory regarding the learning experiences these students experienced. The theory was then tested in the remaining five high schools through interviews of students and teachers. Researchers found most students preferred the challenge of the curriculum and the quality of the teachers who taught AP or IB classes. Students saw a potential benefit of making them more attractive to prestigious colleges and their future successes. Students who came from poverty or were living in rural areas suggested that taking these classes helped dispel the stereotypical view of these students' potential. Students who dropped out of AP and IB programs suggested that the curriculum was too demanding, the learning environment did not make them feel welcomed, and the teachers' instructional methods did not meet their learning needs.

Researchers offered five recommendations regarding AP and IB classes. These recommendations focused on the reasons students take the classes, training provided to AP and IB teachers, equity of classes offered to students in all geographic locations and from all SES backgrounds, and offering truly differentiated learning environments to high-ability students.

Hudley, C., Moschetti, R., Gonzalez, A., Cho, S. J., Barry, L., & Kelly, M. (2009). College freshmen's perceptions of their high school experiences. *Journal of Advanced Academics*, *20*, 438–471. doi:10.1177/1932202X0902000304

In order to understand the relationship between high school experiences and college adjustment, the authors surveyed 1,339 economically and ethnically diverse freshmen enrolled at four different colleges representing public, private, urban, and rural universities. Semi-structured follow-up interviews with 16 students from the suburban public university explored the connections further. The results indicated a relationship between attending a more ethnically diverse high school and seeking help from professors more frequently for Latino and White first generation college students (FGCS). Attending an ethnically diverse high school was also positively related to GPA for Latino, White, and Asian FGCS. The relationship of attending an ethnically diverse high school and studying with peers in college was found only for Black FGCS. For non-FGCS, however, high school ethnic diversity did not appear to impact collegiate academic adjustment significantly. The survey findings also indicated that belonging to an academically engaged peer group in high school predicted social and academic adjustment in college for both FGCS and non-FGCS. These students expected to do well in college and were more likely to study with classmates, report a feeling of academic belonging, and socialize with peers in college. Relationships with high school teachers and counselors were also correlated with positive actions and beliefs in college. Both FGCS and non-FGCS who had discussions with high school teachers and counselors were more likely to talk with professors or teaching assistants, use tutoring services, study with college classmates, and have expectations of doing well, graduating, and reaching their goals. Although FGCS from ethnically diverse high schools reported spending the least amount of time socially interacting with peers in college, these findings highlight that attending an ethnically diverse high school is associated with several academic benefits.

Kyburg, R. M., Hertberg-Davis, H., & Callahan, C. M. (2007). Advanced Placement and International Baccalaureate programs: Optimal learning environments for talented minorities? *Journal of Advanced Academics*, *18*, 172–215. doi:10.4219/jaa-2007-357

Employing a grounded theory methodology, the authors examined AP and IB environments for gifted students from diverse backgrounds. Within three high-poverty urban high schools, they collected documents and conducted focus groups and individual interviews with students, teachers, administrators, counselors, and one gifted program coordinator. The multilevel expectations of achievement enabled proper, differentiated support and retainment of underrepresented students in AP classes. Superintendent- and community-level supports included those specific to changing student demographics. At the coordinator and administrative level, the emphasis on minority student achievement positively impacted policy implementation and quality of teacher recruitment and training. Within buildings, the leadership furthered teacher quality practices and gifted program options. Certain teacher veterans provided additional support for policies and students, modified instruction, genuinely cared for their students, and committed to helping their students succeed. Teachers encouraged participation in rigorous classes through grades, outside opportunities, and parent involvement. However, students found that a lack of rigor, teacher coordination, and/or teacher support inhibited their achievement.

Mayer, A. P. (2008). Expanding opportunities for high academic achievement: An International Baccalaureate Diploma Program in an urban high school. *Journal of Advanced Academics*, *19*, 202–235. doi:10.4219/jaa-2008-772

Research has shown there is a link between student success in college who successfully complete AP and IB courses in high school. However, not all students who enroll in these courses experience the same success. It is well documented that low-income African American and Latino students often do not share the same academic or family support background as their more affluent White peers. The purpose of this study is to determine what types of additional supports are most effective in preparing these students of color to attend and be successful in 4-year universities. The researcher conducted field observations and interviews at an urban high school that offered a variety of programs to attract students to the IB Diploma Program. The researcher found that, unlike most IB programs, the high school in this study had only one enrollment criterion: the student's desire to participate in the program. The school IB coordinators offered additional support systems for students who entered the program as freshmen who lacked some of the academic and social skills needed for success in the program. These services included counseling, lunch/afterschool tutoring by IB teachers, focused summer pro-

grams for students who voiced interest in the program as they transitioned from junior high to high school, and the establishment of IB communities for the students. The researcher found through interviews the students identified these extracurricular activities as part of the reason they enrolled and succeeded in the IB Diploma Program. These additional supports resulted in a significant increase in the number of low-income African American and Latino students who earned their IB diploma and sought college admission.

McClarty, K. L. (2015). Life in the fast lane: Effects of early grade acceleration on high school and college outcomes. *Gifted Child Quarterly*, *59*, 3–13. doi:10.1177/0016986214559595

McClarty's quantitative research investigated the effect of early grade skipping on long-term educational opportunities and outcomes. Using data from the National Educational Longitudinal Study, 105 students who had accelerated before the eighth grade were matched with 105 nonaccelerated students on the basis of race, sex, SES quartile, and achievement. Demographically, accelerated students were more likely to be females from advantaged social backgrounds and demonstrated higher performance. The results indicated that accelerated students scored statistically higher than their older matched peers on high school GPA, PSAT-Math, SAT-Math, and ACT-Composite, English, Math, and Science. Compared to matched students, accelerated students were equally likely to attend a highly selective college, but had a significantly higher college GPA. Differences between the two groups in college graduation rates and degree attainment were small and not statistically significant. Although most grade-skipping students elected to participate in other advanced coursework, some did not. The findings indicated that early grade skippers who took advantage of additional academic challenges such as grouping with high-ability peers, accelerated courses, and AP exams typically outperformed both their nonaccelerated peers and their accelerated peers who did not pursue additional academic challenges on the SAT or ACT and on their high school and college GPAs. For the greatest long-term academic benefit, this research supports the use of early acceleration accompanied with additional advanced academics for gifted students.

Peters, S. J., & Mann, R. L. (2009). Getting ahead: Current secondary and postsecondary acceleration options for high-ability students in Indiana. *Journal of Advanced Academics*, *20*, 630–657. doi:10.1177/1932202X0902000404

This qualitative research examined acceleration options available to students in the state of Indiana. A survey was provided to high-ability coordinators in each of the 299 public high schools, with 260 schools completing the survey. The survey questions examined the types of acceleration options offered and criteria used to determine which students could access those options. Analysis of the responses to the survey revealed the three most common acceleration options offered were dual-credit classes (38%), advanced classes (49%), and AP classes (70%). Enrichment options such as differentiation and IB were reported by less than 5% of the schools. Requirements for enrolling in dual-credit classes included placement tests and class standing. Fifty-one percent of respondents indicated grades and completion of previous coursework were the most common prerequisite criteria needed to enroll in dual-credit classes. Based on the responses to the survey, it became clear that high school students who met the prerequisites for participating in these acceleration options were clearly high-achieving students who may have completed coursework early. The researchers were concerned that underachieving students, students in poverty, or young high-ability students might not be offered the option of taking dual-credit or AP classes. Recommendations from the study included redefining the way in which high-ability students qualify for enrollment in these accelerated program options, creating other dual-enrollment options for students that will increase the number of high-ability students who can be served, and focusing on identifying traditionally underserved populations who may benefit from these acceleration options.

Reddick, R. J., Welton, A. D., Alsandor, D. J., Denyszyn, J. L., & Platt, C. S. (2011). Stories of success: High minority, high poverty public school graduate narratives on accessing higher education. *Journal of Advanced Academics*, *22*, 594–618. doi:10.1177/1932202X11414133

Concerned that students of color are more likely to experience challenges in accessing postsecondary education than their wealthier peers, the researchers' goals for the qualitative research were to understand (a) how these students' urban Texas high school environments impacted their motivation to attend college, (b) the social and academic challenges they faced, and (c) how they utilized social capital to meet their goals. The public perception that their school had lower standards and was inferior to wealthier schools disturbed participants, but for some it galvanized their resolve and school pride. Although there were some exceptions, participants typically reported teachers' and students' negative stereotypes and a weak curriculum as reinforcing lower expectations for themselves. Within-school segregation was another barrier. Although students of color were the majority in less rigorous "regular" classes, they were the minority population in magnet pro-

grams or in the honors/AP classes. In terms of accessible social capital, high school-based college outreach programs (e.g., AVID, GEAR UP, Project ADVANCE) were very helpful in organizing visits to colleges and assisting students' with college preparation, college applications, and financial aid forms. Additionally, nearby college-based outreach programs assisted by providing peer mentors and college advisors. Participants' support from high school counselors and parents ranged from providing no noticeable support due to limited knowledge to offering considerable advice and setting college aspirations from a young age. Older siblings and extended family members who attended college were particularly helpful for some first generation college students. Some participants received support from their church or local community, but, in general, the authors noted more community support was needed. The essential characteristic shared by all participants included self-motivation. The researchers recommended that parents and educators should help students set high expectations as they plan for college and students should set goals and work to achieve them. Further recommendations included more personal contact with and from college students and mentors as well as college visits that include attending college courses.

Schmitt, C., & Goebel, V. (2015). Experiences of high-ability high school students. *Journal for the Education of the Gifted*, *38*, 428–446.

Using a qualitative case study method, the authors interviewed three high school seniors in order to better understand how their schooling challenged their academic abilities. Results from individual interviews and focus group questions indicated that the students had classes that both benefited and hindered their intellectual development. The students all felt "different" intellectually and desired a balance of coursework in terms of difficulty level. All believed that teacher qualities had more impact on class satisfaction than the course material. They enjoyed classes with the opportunity to engage thoroughly and deepen their knowledge. They often preferred classes with peers of a similar intellectual level. Implications for teacher practices, gifted students' social and emotional health, engagement, and coursework are discussed.

Schultz, S. M. (2012). Twice-exceptional students enrolled in Advanced Placement classes. *Gifted Child Quarterly*, *56*, 119–133. doi:10.1177/0016986212444605

Traditionally, twice-exceptional students have not had access to AP and for-college-credit classes because of their special needs. However, because they are gifted, the researcher believes they should have the same access as all other students. The researcher investigated factors influencing their participation in AP and for-college-credit classes by interviewing parents and teachers of twice-exceptional high school students, guidance counselors, and twice-exceptional college students about their experiences. The researcher found six common factors that affected these students' success in a high school AP program or for-college-credit classes: (a) the school culture, (b) the twice-exceptional student's early educational experiences, (c) access to documented accommodations, (d) mentors who supported the student, (e) the student's relationship with his or her teachers, and (f) the stakeholders' definition of equity. Schultz reported that some teachers accepted the challenges of meeting the needs of these students and some parents advocated for their children throughout their school experience. These teachers and parents insisted on providing twice-exceptional students an appropriately rigorous learning experience. There were also those teachers who did not adhere to the accommodations they were supposed to provide to twice-exceptional students. These teachers stated the students had to perform under the same conditions offered to all other students. The researcher concluded that the No Child Left Behind Act and the Individuals with Disabilities Education Act are quite clear: All students must be educated in their least restrictive environment. For twice-exceptional students, AP and for-college-credit classes might be the least restrictive environment.

Shiu, A., Kettler, T., & Johnsen, S. K. (2009). Social effects of Hispanic students enrolled in an AP class in middle school. *Journal of Advanced Academics, 21*, 58–82. doi:10.1177/1932202X0902100104

Researchers investigated social factor differences between native Spanish-speaking eighth-grade students at four urban public middle schools who enrolled in an AP Spanish Language course and those who did not in order to examine if language skills facilitated general academic success. AP participants included 58 economically disadvantaged students (42 females, 16 males) who were compared to a random sample of 18 male and 6 female native Spanish-speaking peers who were not enrolled in the AP course. At the conclusion of middle school, participants completed a 28-item survey (in Spanish or English) addressing the students' peer group, parental influences, and academic attitudes. Compared to Hispanic students who did not enroll in AP Spanish, AP students were more likely to report that reading English was "more fun." They also agreed that having friends who cared about good grades as well as steady employment, a happy family, and community investment were important. Not only were females more likely to elect the AP Spanish course, but the females were more likely to report the former social con-

nections were important than males taking the AP course. Significant differences related to parental discussion, parental involvement, or academic self-confidence were not found between AP males and AP females or between AP and non-AP students. More than 98% of the students who elected the AP Spanish course continued taking at least one advanced class the following year. This finding was important because AP students tend to be more prepared for college and are more likely to graduate from college. The research also suggested that native Spanish-speaking students who elected to enroll in an AP Spanish course in middle school were more likely to have an academically supportive peer group and were more likely to enroll in additional AP courses in high school which may further influence postsecondary aspirations.

Smith, J. S. (2006). Examining the long-term impact of achievement loss during the transition to high school. *Journal of Secondary Gifted Education*, *17*, 211–221.

Using data collected by the National Center for Education Statistics 1988/2000, Smith (2006) investigated the extent that achievement loss during the transition from middle school to high school impacts college retention. Results from logistic regression analysis indicated that Asian descent, higher socioeconomic status, and higher parental educational attainment predicted college retention for all middle school students. High achievers ($n$ = 2,048) were defined as students who earned a cumulative 3.74 or higher GPA in middle school math and English courses. Compared to non-high-achievers ($n$ = 7,182), the odds of retention at their first college were 50% higher for middle school high achievers. Additionally, high-achieving middle students who earned below a 2.1 GPA after transitioning to ninth grade were considered to have demonstrated achievement loss and had 24% lower odds of remaining enrolled at their first college compared to high achievers who did not have an achievement loss. Latino high achievers had 38% lower odds of college retention than White high achievers (but reasons for this result were not explored in the article). Although middle school high achievers were more likely to remain in college than their

nonachieving peers, achievement loss after transitioning to high school predicted leaving college before graduation. Given these findings, additional research on high achievers' school transitions is needed in order to understand how to support effectively these students during school transitions. Parents and educators were cautioned against presuming that previous achievement will protect students from challenges that occur during school transitions. Furthermore, high school administrators may want to incorporate applicable retention initiatives similar to collegiate Freshmen Year Experience programs. Prior research regarding college retention indicates that connecting with an adult on campus, quality academic advising, and high academic motivation are valuable in keeping students enrolled.

Spielhagen, F. R. (2006). Closing the achievement gap in math: The long-term effects of eighth-grade algebra. *Journal of Advanced Academics*, *18*, 34–59.

Traditionally, the option to select algebra in eighth grade has been restricted to select student subgroups. As algebraic thinking is commonly taught in younger grades, some school districts have opted to allow more students the opportunity to enroll. Accordingly, this quantitative research examined the long-term outcomes associated for those who enrolled (45%, $n$ = 1,200) and who did not enroll in eighth-grade algebra (54%, $n$ = 1,434) from a large school district in the Southeast. Descriptive analyses highlighted that males and Black students were underrepresented in eighth-grade algebra compared to the entire class demographics. According to logistic regression analysis, the strongest predictor for early algebra enrollment was being identified as gifted. However, schools with higher percentages of low-income students had fewer identified gifted students. Not surprisingly, other early algebra predictors were higher seventh-grade math grades and higher Stanford Grade 8 pretest scores. With respect to long-term outcomes, students who took algebra in the eighth grade enrolled in a greater number of math classes on average and had higher high school math attainment than those who took algebra in ninth grade. Furthermore, early algebra students were more likely to attend college and more likely to attend 4-year institutions. The second phase of analysis compared the outcomes of students who took eighth-grade algebra with students who scored similarly on the Stanford pretest and who took algebra in Grade 9. Both groups of students continued to earn similar scores on the SAT math section despite having the potential of greater advanced math attainment for earlier enrollees. However, those with similar ability who took algebra in the eighth grade had the possibility of taking more advanced math courses and higher college attendance rates. The researcher cautioned that other factors, such as parental input and motivation, might have influenced early math enrollment for the equal ability group, so causation cannot be established. In conclusion, the results supported allowing more students to take algebra in eighth grade. School district personnel were encouraged to be attentive to potential inequalities in access for Black and low-income students.

Tomlinson, C. A., & Jarvis, J. M. (2014). Case studies of success: Supporting academic success for students with high potential from ethnic minority and economically disadvantaged backgrounds. *Journal for the Education of the Gifted*, *37*, 191–219.

Tomlinson and Jarvis used a multiple case study (qualitative) approach in three schools in order to identify possible factors for developing the talent of students from minority and low-income backgrounds. Using observations, interviews, and video data, the researchers found that styles varied by school composition. Although not all teachers or schools had the same key variables in order to help their students become successful, schools and teachers needed to share a schoolwide vision of achievement, implement rich curriculum and instruction, and meet the needs of their students with potential from diverse backgrounds. Moderate investment—especially in terms of staying consistent, molding formats to their students' backgrounds, providing advanced content, and challenging deficit thinking—helped their students achieve.

Vanderbrook, C. M. (2006). Intellectually gifted females and their perspectives of lived experience in the AP and IB programs. *Journal of Secondary Gifted Education*, *17*, 133–148. doi:10.4219/jsge-2006-396

Many high schools attempt to meet the needs of their gifted students by offering AP or IB programs. This qualitative study examined the factors that affected the success of the participation in these programs for five intellectually gifted females. These students were either enrolled in a suburban high school AP program or in an urban magnet school-within-a-school IB program. Although there was limited diversity in the suburban high school, most of the students in the urban high school were students of color. The researcher interviewed the five gifted females individually and on three separate occasions. The girls were asked to describe their early experiences in education, their experiences in the AP or IB program, and finally, to reflect on how those experiences had affected them. The study participants discussed challenges, their experiences with their teachers, their interactions with their intellectual peers, and the lack of guidance counseling. Although each participant had different experiences, all agreed that these two factors

resulted in positive experiences: effective teachers with whom they could relate and learning in an environment with their intellectual peers. Based on the interviews with the participants, the researchers made these suggestions for improvement: Teachers should be trained on how to meet the intellectual and affective needs of gifted students, and guidance and counseling services should be provided to gifted students enrolled in the programs so they can make informed decisions about career choices and enjoy the emotional support they need. By addressing these challenges, AP and IB programs may more effectively meet the academic and affective needs of gifted students.

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## 6 P'S OF PASSION PROJECTS

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### CONCLUSION

Genius Hour is a perfect way for gifted students to begin exploring their passions and learn by doing. It gives them an opportunity to experience failure, learn from that experience, and realize that learning happens best through application. There is no right way to run Genius Hour or magic formula for making it work. However, if you are considering introducing Genius Hour into your classroom, consider using the 6 P's as a map for students to use. It will make the steps clear and help them stay on track as they go through the process. As students experience this process, they will begin to realize the importance of each step. Remember to give opportunities for students to make mistakes and be patient. Genius Hour is not easy and does not always run smoothly; however, when you see the connections that are made and the learning that takes place, you will be so glad that you gave your students the opportunity to experience Genius Hour.

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**Andi McNair** was a classroom teacher for 16 years, teaching math and science before finding her passion as a gifted and talented teacher. She was the gifted educational specialist at Bosqueville Elementary for several years. She currently serves as the digital innovation specialist at Education Service Center Region 12. As a parent of gifted children, Andi realizes the importance of advocating for gifted education. She feels that all students deserve a meaningful learning experience, and it is the responsibility of teachers to provide them with this. As an educator, Andi is passionate about using technology in the classroom and finding innovative ways to engage students. She believes that students today are unique, and educators must be creative in their teaching strategies. Andi has spoken at many conferences and education service centers and has worked with school districts to provide innovative learning experiences for students. Last year, Andi was named one of the Top People in Education to Watch in 2016 by the Academy of Education Arts and Sciences. She is currently in the process of writing her first book about Genius Hour, which will be released in the Spring of 2017.