CollegeBoard

COLLEGE CREDIT IN HIGH SCHOOL

Working Group Report

Includes:

PROGRAM QUALITY AND ACCOUNTABILITY

VALUE FOR TIME AND DOLLARS INVESTED

EQUITY AND ACCESS

TRANSPARENCY AROUND CREDIT TRANSFER

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Executive Summary

Over the past six decades, opportunities for high school students to earn college credit have multiplied. From early career and technical education offerings to the Advanced Placement Program® (AP®), to several different models of dual enrollment and early college high schools, these programs now serve millions of students each year.

Surging demand from students, high schools, postsecondary institutions, and state policymakers has driven this expansion, which has been accompanied by a small but growing research base analyzing course access, participation, and outcomes. However, more rigorous research is needed to ensure that college credit in high school (CCHS) classes are academically sound and that they place students on a path to success. To promote and invest in the most effective advanced coursework for high school students, policymakers and program leaders need better tools for understanding best practices and achieving desired outcomes.

To provide practical guidance on this issue, the College Board Policy Center convened a College Credit in High School Working Group composed of program experts. The Working Group identified four factors essential to strong CCHS programs and developed a checklist of related questions for state and local policymakers, as well as for school and program leaders seeking to promote highly effective CCHS programs. The factors are listed below, followed by relevant questions:

PROGRAM QUALITY AND ACCOUNTABILITY

Are programs rigorous, and are there clear accountability structures for student outcomes?

- What methods are used to track and report student success after completing a CCHS program? What outcome measures, such as students' success in subsequent courses, are in place to track the long-term effects of the program? How are those results made available to the public, and how are they used to inform program decisions?
- Are outcome measures consistent across CCHS programs and across the state?
- What role do campus faculty have in evaluating CCHS coursework in their discipline?
- **STRATEGIC QUESTION:** Who is—and who should be—held accountable for student outcomes in CCHS courses?

VALUE FOR TIME AND DOLLARS INVESTED

Are students, institutions, taxpayers, and the workforce seeing positive outcomes?

- How much funding is appropriated at the state, district, and/or city level for CCHS programs? Do costs vary according to how the course is delivered (high school versus college campus, or online)?
- If a school district receives average daily attendance (ADA) and/or other state funding for a dual enrollment student, and the higher education institution sponsoring that class receives state aid for the same student, how does the state track whether that investment results in an accelerated pathway for the student? Is there a way for policymakers to find out whether all CCHS students are able to apply credits earned in high school to their major or degree, or whether they have to retake the same level course for college credit after matriculation?
- What is the total cost per student served for each CCHS program type, and who is responsible for covering each component of that cost? Is that full cost (including any fees, materials, instructor training, etc.) transparent to families and other stakeholders?
- What outcomes are achieved for all funds invested in a given program (by the state, institution, student, etc.)? Is it possible to calculate cost per successful outcome by program level?
- **STRATEGIC QUESTION:** What would an ideal funding model look like (including flexibility for different programs to try new ideas)?

EQUITY AND ACCESS

Do all students have access to programs, and are efforts made to help a diverse population of students succeed?

- To what extent are CCHS programs available to all students—and what barriers to academic preparation or awareness of course options exist that might unnecessarily limit enrollment? At what rates are students in different demographic subgroups taking and succeeding in these classes?
- How is information disseminated at the high school level to ensure students and parents are aware of all of the various CCHS opportunities? What resources are made available to students to ensure successful outcomes?
- How does course distribution vary across the state? How do high schools select which courses to offer to which students?
- **STRATEGIC QUESTION:** What strategies are in place to encourage student access and success, and how do they align with larger state goals around attainment and public school accountability?

TRANSPARENCY AROUND CREDIT TRANSFER

Do students know upfront if and how CCHS credits will transfer to a college program, credential, or degree?

- Do CCHS credits transfer across state institutions in the same manner as other postsecondary credits?
- How many credits are successfully transferred each year? Do they transfer for general education credit, electives, or toward a specific major or program of study?
- Are counselors and others in student-facing roles informed about the transferability and applicability of CCHS courses to various college degree and certificate programs? And do they communicate that information to students and parents?
- Does credit-earning focus on utility and value to students in the context of larger state attainment goals?
- **STRATEGIC QUESTION:** What is being done to ensure that students understand exactly how course or exam credit will apply and how this matches their own educational goals before they enroll in a CCHS program?

In addition to the questions outlined above, the report includes the following:

- **Key Background Facts** *to inform anyone making decisions about these programs*;
- **Guiding Principles for Effective CCHS Programs** *as a foundation for policymakers and program leaders involved with this work*, plus profiles of three CCHS programs that exemplify one or more of those principles;
- **Core Outcome Metrics** *for researchers and those analyzing data about program effectiveness*;
- **Research Questions to Inform Smart CCHS Decisions** *for researchers and policy staff*.

Every student deserves the opportunity to prepare for and participate in rigorous coursework that puts them on a successful path to higher education and the workforce. The Working Group hopes that the tools provided in this report can help make that aspiration a reality.

Introduction

For most Americans, education holds the promise of many things—a path to individual growth and success; the key to a better society; a ticket to the middle class; and more. Higher education, in particular, is increasingly valuable in our evolving economy. Nine out of 10 jobs in the fastest growing sectors of the economy require postsecondary credentials.[1] Americans with bachelor's degrees, on average, earn 66% more than those with only a high school diploma.[2]

Given these realities, state and national leaders have elevated college attendance and completion as a major policy priority. Making this priority a reality requires an understanding of the challenges now facing American secondary and postsecondary education—challenges that range from increasing equity and access, reducing remediation, and reining in costs to improving career-aligned pathways and reducing time to degree.

Recognizing that an early start on preparing for higher education can drive greater student success, a fast-growing number of states, districts, and schools have introduced programs—and legislation—that offer college credit to high school students. These programs are intended to increase academic rigor, to engage students more effectively, and to better prepare students for college and career opportunities. Depending on the program of study and the receiving institution, students who accumulate college credit while earning a high school diploma may be more likely to complete college on time, and at lower cost. Over the past six decades, these opportunities have grown from early career and technical education offerings to the beginning of the Advanced Placement Program to several different models of dual enrollment and early college high schools—all serving many millions of students each year.

While surging demand from students, institutions, and state policymakers has driven this increase in college credit in high school (CCHS) offerings, it has been accompanied by concerns about the consistent delivery of rigorous academic coursework, impact on college success, equal access to the benefits for disadvantaged students, and the extent to which families realize savings in college costs. States often struggle to define and publicly report on CCHS program effectiveness, and often have limited data about course access and outcomes. Compounding these challenges, there is growing concern in several states about whether and how students who successfully complete CCHS programs are able to apply their credits toward their college major or degree. Public reporting on CCHS transfer outcomes is scarce, and some states are pursuing legislative or other means to ensure that credits successfully transfer.[3]

1. **High Schools With High Expectations for All**, U.S. Department of Education, 2007 and **Rigor: It's All the Rage, But What Does it Mean?**, The Hechinger Report, 2010.
2. **A Guide to Major U.S. College Completion Initiatives**, American Association of State Colleges and Universities, 2011 and **Digest of Education Statistics**, U.S. Department of Education National Center for Education Statistics, 2014.
3. **Are Dual Enrollment Programs Overpromising?**, *Education Week*, September 6, 2016; **Idaho is Spending $12 Million on Courses that Colleges Don't Always Accept**, *Idaho Statesman*, July 17, 2017; **Students Learn: College Credits from High School Don't Always Help Them**, *Detroit Free Press*, November 21, 2016

These issues are particularly poignant in the context of our current college completion realities. Despite record high school graduation rates, too many students lack the rigorous instruction they need to thrive in college and the workforce. By the time high school graduates enter college, 40% to 60% must take noncredit remedial classes in English, math, or both—at a cost to students and families of $1.3 billion each year.[4] What's more, too many college students don't make it to graduation—in part because of inadequate academic preparation. More first-time students entered college in 2008, but the percentage of students who had completed a bachelor's degree six years later was just 55%.[5] Only one-third of full-time students pursuing a bachelor's degree graduate in four years, and less than 25% of full-time students seeking an associate degree graduate in three years.[6]

To better understand the challenges and opportunities provided by CCHS programs, the College Board Policy Center convened the College Credit in High School Working Group in fall 2016 and spring 2017. We brought together 18 experts with diverse perspectives and expertise in relevant policy, research, and practice (see Appendix for a list of Working Group members). Participants focused on how policymakers can understand how CCHS programs and practices can be most effectively implemented and targeted, which questions policymakers should ask about the programs they fund and create, and what we know and don't know about the research evidence behind different programs. Our discussions were informed by memos drafted by participants in their areas of expertise, covering topics from quality and accountability to credit portability and research needs.

The report that follows broadly reflects the group's deliberations and recommendations. The group paid special attention to the need to provide practical guidance to a wide audience of policymakers and educators. Although not every member agrees with each recommendation, all believe that CCHS classes must be rigorous and cost effective, offer equitable access to students, and provide transferable credit. Most important, all believe that every student deserves the opportunity to prepare for and participate in rigorous academic coursework that will put them on a successful path to higher education and the workforce.

The report consists of five sections:

I. Key Background Facts

II. Guiding Principles for Effective CCHS Programs, Plus Profiles of Three Exemplary Programs

III. Questions Policymakers Should Ask to Promote Effective CCHS Programs

IV. Core Outcome Metrics

V. Key Research Questions to Improve Transparency About Key Facets of CCHS Programs

4. **Remedial Education: The Cost of Catching Up**, Center for American Progress, 2016.
5. A First Look at How the Great Recession Affected College Completions, National Student **A First Look at How the Great Recession Affected College Completions**, Clearinghouse, 2014.
6. **Guided Pathways to Success: Boosting College Completion**, Complete College America.

Key Background Facts

CCHS programs take many forms, as detailed in Table 1. Some are delivered on high school campuses, some on college campuses. Some are taught by college faculty, some by high school teachers who have been certified and approved to teach a college course according to state and/or institution requirements. Some focus on academic subjects, others include vocational training. Some grant college credit automatically to students who pass a class; others require students to pass an end-of-course exam to receive college credit. While their individual formats and goals may vary, all promise improved opportunity for students.

Table 1. CCHS Taxonomy

	Description	Student Participation	Course Instructor	Credit Accumulation
Advanced Placement (AP)	The AP Program includes more than 30 courses, each culminating in a standardized exam. Each course, taught by a high school instructor, is modeled on an equivalent college class.[7] All AP courses and exams are developed by committees of college faculty members and expert AP teachers.	2,611,172 high school students taking AP Exams (2015-16).[8]	High school teachers.	Varies, depending on the institution's or state's AP credit policy. In most cases, students must earn a 3 or higher on the 5-point AP Exam scale to earn college credit, which may be awarded upon college matriculation.
Dual or Concurrent Enrollment/ Dual Credit	High school students can take college-level courses taught by college-approved high school teachers or by college faculty. Instruction may take place on a high school campus, college campus, or online. Generally, local education agencies (LEAs) and institutions of higher education (IHEs) have articulation agreements to award college credit after students pass the course.	1,363,500 high school students taking college courses for credit in academic or CTE subjects (2010-11).[9]	Postsecondary faculty, high school teachers, or a combination.	Dual enrollment students earn transcripted college credit at the host institution by passing the course. Whether and how that credit transfers from the transcripting institution to another institution depends on the state/institution policies.[10]
Career and Technical Education (CTE)	Dual enrollment courses in CTE subjects prepare students for a range of career options through 16 Career Clusters and over 75 pathways nationwide. CTE courses are taught in high schools, career centers, community and technical colleges, and four-year universities.	601,500 enrollments by high school students in CTE subjects (2010-11). The same student may be counted multiple times in this figure if he or she took multiple CTE courses.[11]	Postsecondary faculty, high school teachers, or a combination.	Varies. High schools and postsecondary institutions partner to create clear pathways to certifications and potential degrees. Certification/ degree obtainment, and credit accumulation depend on the program, the host institution, and the transfer institution, if applicable.

7. **AP Chemistry Course and Exam Description**, The College Board, 2014.
8. **Annual AP Program Participation 1956–2016**, The College Board, 2016.
9. **Dual Enrollment Programs and Courses for High School Students at Postsecondary Institutions: 2010-11**, U.S. Department of Education National Center for Education Statistics, 2013.
10. **Increasing Student Access and Success in Dual Enrollment Programs: 13 Model State-Level Policy Components**, Education Commission of the States, 2014.
11. **Dual Credit and Exam-Based Courses in U.S. Public High Schools: 2010-11**, U.S. Department of Education National Center for Education Statistics, 2013.

Table 1: CCHS Taxonomy (continued)

	Description	Student Participation	Course Instructor	Credit Accumulation
Early College High School (ECHS)	ECHSs partner with colleges and universities to offer students an opportunity to earn an associate degree or up to two years of college credit toward a bachelor's degree during high school at little or no cost to students. ECHSs are generally located on or near a college campus.	80,000-plus students served at 280 ECHSs in 2015-16.[12]	Postsecondary faculty, high school teachers, or a combination.	Students are expected to complete an associate degree or industry-recognized credential, or enough credits to enter a four-year institution as a junior.[13]
International Baccalaureate (IB)	IB offers four programs of international education that develop intellectual, personal, emotional, and social skills. Student success in the Diploma Program often results in advanced standing, course credit, scholarships, and other admission-related benefits at many universities.	81,265 U.S. IB Diploma Candidates (2016).[14]	High school teachers.	Varies, depending on the institution's or state's IB credit policy. In most cases, students must earn a 4 and/or 5 or higher on the 7-point IB Higher Level exam scale to earn college credit. IB credit is based on an international standardized exam and awarded upon college matriculation.

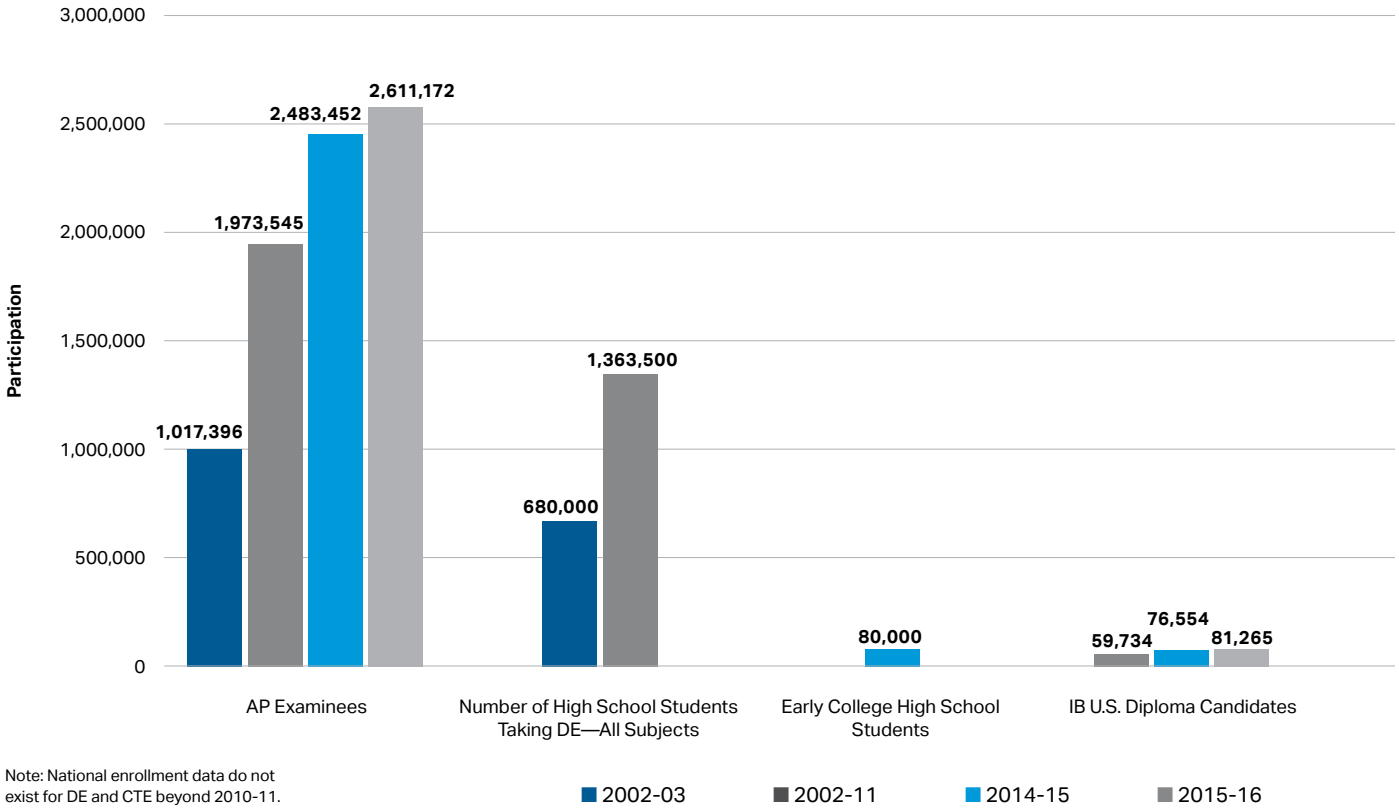
The largest CCHS programs are:

- Advanced Placement® (AP®), with some 2.6 million exam takers in 2015-16;
- Dual or concurrent enrollment (DE), with 1.4 million students participating in all subjects in 2010-11, the most recent year for which national data are available;[15]
- Career and technical education (CTE), a popular dual enrollment subject area in which there were 601,000 enrollments in 2010-11. This figure may include multiple course enrollments by the same student, so it is not directly comparable to the overall number of DE participants;[16]
- Early college high school (ECHS), which served 80,000 students in 2015-16; and
- International Baccalaureate (IB), which administered exams to 81,000 Diploma Candidates in the U.S. in 2016.

Depending on the options available, students may mix and match CCHS classes—taking AP classes, for example, along with dual enrollment classes.

12. **Reinventing High Schools for Postsecondary Success: Our Progress**, Jobs for the Future.
13. **Early College High Schools: Model Policy Components**, Education Commission of the States, 2016.
14. **The IB Diploma Programme Statistical Bulletin: May 2016 Examination Session**, International Baccalaureate, 2016.
15. **Dual Enrollment Programs and Courses for High School Students at Postsecondary Institutions: 2010-11**, U.S. Department of Education National Center for Education Statistics, 2013.
16. **Dual Credit and Exam-Based Courses in U.S. Public High Schools: 2010-11**, U.S. Department of Education National Center for Education Statistics, 2013.

Figure 1. CCHS Growth
Program Participation (AP, DE, ECHS, CTE, and IB)



Note: National enrollment data do not exist for DE and CTE beyond 2010-11.

With a powerful educational rationale and strong demand, CCHS programs have grown rapidly (see Figure 1). The number of AP examinees rose more than 150% from 2003 to 2015, while dual enrollment grew by 100% from 2003 to 2011, the most recent year for which comprehensive figures are available.

And while more recent national data for dual enrollment are not available, state-level data show significant increases in those figures as well. In Texas, for example, the number of high school students enrolled in dual-credit courses rose from about 17,800 in 2000 to more than 133,000 in 2015, according to the Texas Higher Education Coordinating Board.

Sources for Figure 1:

Annual AP Program Participation 1956–2016, The College Board, 2016.

Dual Enrollment Programs and Courses for High School Students at Postsecondary Institutions: 2010-11, U.S. Department of Education National Center for Education Statistics, 2013.

Dual Enrollment of High School Students at Postsecondary Institutions: 2002-03, U.S. Department of Education National Center for Education Statistics, 2005.

Reinventing High Schools for Postsecondary Success, Jobs for the Future.

CTE Dual Enrollment: A Strategy for College Completion and Workforce Investment, Education Commission of the States, 2014.

"The IB Diploma Programme Statistical Bulletin" (2016) **(2015) (2011)**, International Baccalaureate.

The purpose of this report is to identify common themes and to establish that while no one program can be judged by all programs' goals, each must be held accountable for meeting its particular objectives.

For students, CCHS classes are appealing for multiple reasons. They offer the prospect of exposure to the content and rigor of college and may reduce the need for remediation, which could mean saving students time and money. They allow students considering selective universities the chance to demonstrate their ability to handle advanced coursework, thus potentially increasing chances for admission. They may offer the ability for students to have greater flexibility in the courses they take and extracurricular or study abroad activities once they matriculate to college. And they can provide course credit to students that may allow them to shorten their time to degree and accelerate their entry into the workforce.

For policymakers, the rationale for supporting CCHS classes runs along similar lines. State, K–12, and college leaders see significant appeal in challenging students academically with postsecondary learning opportunities. They wish to boost college-going and completion rates. They hope to reduce the costs of postsecondary education for families and taxpayers by providing access to free or heavily discounted courses and by increasing college persistence and completion. And they want to do more to build a highly qualified workforce.

To be sure, individual programs have different goals and outcome measures. The purpose of this report is to identify common themes and to establish that while no one program can be judged by all programs' goals, each must be held accountable for meeting its particular objectives.

PRINCIPLES IN ACTION

Lynwood Unified Advanced Placement Program

The College Board's **Advanced Placement (AP) program in Lynwood Unified School District** (California) has received national attention for reducing equity gaps. This majority Hispanic district serves a population of 96% low-income students, where 75% of recent graduates will be first-generation college goers. The AP model is designed to expose high school students to college-level coursework, with the opportunity to earn college credit through an end-of-course exam. In Lynwood, a concerted effort to ensure access and promote success for students in these courses led to its recent designation as one of only three AP Districts of the Year.

How It Works

Yearlong Instruction: As with all AP courses, students in Lynwood enroll in yearlong classes with a local high school teacher. At the end of the year, students take the AP Exam in the given course. Most colleges award credit for students earning a score of 3 or higher on the exam.

Course and Instructor Development: AP course curriculum and exams are developed by teams of experts, including college faculty. AP teachers have access to strong professional development opportunities throughout the year, including workshops to enhance instruction.

Funding: The district has allocated its own funds so that students do not pay for AP Exams. In addition, the district covers AP supports such as summer camps, ensuring funds are not a barrier to entry or success for student participation.

PROGRAM QUALITY AND ACCOUNTABILITY

- Lynwood Unified established a three-day AP summer camp for district high schools to help students develop necessary writing, goal-setting, planning, time management, and note-taking skills. In 2016, 374 students scored a 3 or higher on AP Exams—almost double the number from 2013.
- In 2016, 779 Lynwood students took 1,472 AP Exams—significantly more than the 427 students who took 849 exams in 2013. Of these, 42% scored a 3 or higher on the exams.[17]
- From 2014–2016, the Lynwood Unified pass rate for AP Exams increased by 4% annually, including a 5% annual pass-rate increase for traditionally underrepresented minority students.[18]

VALUE FOR TIME AND DOLLARS INVESTED

- AP college credit can reduce costs and improve time to degree. A typical student scoring a 3 or better on two AP Exams can save an average $1,779 at a public four-year institution, and over $6,000 at a private four-year institution.[19]

EQUITY AND ACCESS

- District leaders opened access to 18 different AP classes for all students. Fully 96% of Lynwood AP students represent ethnic or racial minority groups, and over 94% of them qualify for free or reduced-price lunch.[20]
- To support students, the district has offered AP summer camps and other supplemental activities outside of school hours, such as online tutoring.

17. **AP Success: Two District Stories**, The College Board, 2017; **Lynwood Unified School District Named a 2017 National AP District of the Year**, Lynwood Partners Educational Foundation, 2017.
18. **Lynwood Unified School District Named a 2017 National AP District of the Year**, Lynwood Unified School District, 2017.
19. **Lynwood Unified School District Named a 2017 National AP District of the Year**, Lynwood Partners Educational Foundation, 2017.
20. **Lynwood Unified School District Named a 2017 National AP District of the Year**, Lynwood Unified School District, 2017

Guiding Principles for Effective CCHS Programs

The recent popularity of CCHS programs has been so great, and the goals of those programs so praiseworthy, that their spread has not always been accompanied by adequate reflection about core principles and clear goals. What does it mean for a program to be effective? Precisely what goals should those programs be measured against, using which outcomes when defining success?

High program demand, both from students and participating institutions, has tended to drive continued funding and growth. But with few exceptions, policymakers and practitioners have not paused for further study and analysis before moving CCHS programs to scale. In its deliberations, the Working Group agreed on a series of guiding principles to help stakeholders understand whether CCHS classes are meeting their goals before expanding existing programs or creating new ones.

PROGRAM QUALITY AND ACCOUNTABILITY

CCHS students should demonstrate postsecondary academic outcomes at least equal to those of college students in similar courses. This means that an 11th grader who passes a dual enrollment English class or earns a qualifying AP Exam score should do as well in her subsequent college classes as a matriculated college student who passes the equivalent class. The promise of any CCHS program won't be fulfilled unless student outcomes such as persistence and graduation rates are comparable to those of undergraduates in conventional college classes.

The standard of care for students in CCHS programs must be consistently high. Students deserve rigorous college-level instruction, and their teachers must receive appropriate professional development to be effective. Some CCHS programs lack consistent oversight mechanisms to ensure that teachers are well prepared and that they deliver effective instruction. Without such quality control and training, college-level rigor cannot be sustained and students will be poorly served.

PRINCIPLES IN ACTION

P-TECH

The **Pathways in Technology Early College High School (P-TECH)** concept began in New York in 2010 through a partnership of the NYC Department of Education, City University of New York, NYC College of Technology, and IBM. The goal of this partnership was to establish a replicable school model using the expertise of education and industry to better prepare students for work and higher education. The P-TECH grade 9–14 model focuses student learning across an integrated six-year sequence of high school classes, college courses, and work-based learning experiences, with a primary focus on English, mathematics, workplace learning, and technical courses. Since 2011, the program has expanded from one to more than 80 schools across the world, including over 50 across six states, with more states actively pursuing P-TECH as well.[21]

How It Works

Rigorous Six-Year Sequence: Students earn a high school diploma, as well as an industry-recognized associate degree, and gain relevant work experience in a growing field. P-TECH leaders also collaborate with feeder middle schools to foster stronger preparation.

Collaborative Management: P-TECH schools are public schools, supported by the local district. While the state governs key policy and operations decisions, P-TECH schools must be willing to work closely with external partners that shape school decisions, such as the curriculum. College faculty participate in the school's curriculum planning and development, as well as co-teaching, mentoring, and tutoring activities. Employer partners represent high-growth industries, bringing insight into the skills and qualities they seek in employees.

Funding: The majority of P-TECH funding comes through the local district. State career and technical education (CTE) funds may also be applied. Some states employ collaborations between colleges, the district, and/or philanthropies to cover costs.[22]

EQUITY AND ACCESS

- Schools are open by lottery to *all* students regardless of income, English language, or disability status, with no grade or testing requirements. The goal for P-TECH is to have 100% of unscreened students complete an associate degree within six years (grades 9–14).
- Program leaders hold themselves accountable for student success; Brooklyn, N.Y., and Chicago, Ill., P-TECH schools have graduated 100 students—each receiving both a high school diploma and an associate degree—since their founding six years ago; more than half of those graduates finished the program ahead of schedule.[23]
- The first cohort of students from the flagship Brooklyn P-TECH school reported an on-time completion rate four times higher than the national average for associate degree students, and over 80% of those students are now pursuing a four-year degree (compared to a citywide average of 55%).

PROGRAM QUALITY AND ACCOUNTABILITY

- All partners are responsible for ensuring that the scope and sequence of courses reflect current workplace needs. Through "Skills Mapping," P-TECH schools emphasize the skills required for high-wage, in-demand, entry-level jobs in industries like Information Technology (IT), healthcare, advanced manufacturing, and finance.

21. **While IBM Looks to Scale P-TECH, Founding Principal Davis Focuses on Completion Rates**, EdSurge, 2017. Earlier this year, **a federal bill** supporting the creation of more technical schools similar to P-TECH passed through the House and headed to the Senate. In addition, states like Texas are looking to build similar schools in their districts, **passing legislation to make that possible**.
22. **P-TECH 9-14 Schools are Funded Through a Variety of Mechanisms**, P-TECH.org, 2015.
23. **IBM-Inspired P-TECH Schools Graduate 100 Teens with College Degrees, Tech Career Skills**, IBM, 2017.

VALUE FOR TIME AND DOLLARS INVESTED

Public investment in CCHS courses should yield positive postsecondary/workforce outcomes. The states, districts, and, in many cases, students who are paying for these classes should have confidence that their investment is paying off, both in terms of students' progression along the path to and through college and in students' later participation in the labor force. Moreover, paying closer attention to the dividends of public investment in these programs will yield a better understanding of which investments are most effective in achieving specific educational goals.

Policymakers should carefully compare the cost of CCHS classes to the cost of conventional college classes. A significant selling point of some CCHS classes is that they save money for students and taxpayers by offering low-cost credit toward a college degree. However, in some cases, states and districts provide high schools full average daily attendance (ADA) funds for participating students, while also reimbursing the colleges that sponsor the classes. In addition, policies about student responsibility for various program, textbook, and exam fees, and the sources of those funds can vary from state to state and year to year. Further, CCHS credits do not always transfer to the degree program of study a student chooses to pursue. State and institutional decision-makers should understand the full cost of CCHS classes, the rationale for how any state funds are used to cover instruction, fees, etc., and if and how CCHS credits apply to earners' degrees, if cost savings is a goal of program offerings.

EQUITY AND ACCESS

Students should have access to, and support to succeed in, highly effective CCHS programs regardless of family income, race, ethnicity, and geographic location. The best CCHS programs offer significant educational benefits to those students who can take advantage of them. But in some states and programs, low-income and minority students are underrepresented in CCHS classes relative to their share of the population of qualified pupils. In Oregon, a recent report found that students in community college dual enrollment classes "are more likely to be white, female, high achievers, and not economically disadvantaged."[24] Students' access to these advanced course offerings should not be limited by their high school's proximity to a postsecondary institution or by their ability to pay.

All students and parents should be notified of the availability of CCHS programs and receive advising/counseling on the potential benefits (and risks) of program participation. Very few states require all students performing "college ready" on grade 11 college- and career-readiness assessments to be informed of advanced learning opportunities such as CCHS programs. As of 2016, just 12 states required all students and their parents to be notified of dual enrollment opportunities.[25] Students are unable to participate in programs that they are unaware of, and they may be deterred from participation by adults who perceive them as "not college material," or by parents or other advisers unaware of the actual costs and potential benefits of program participation.

24. **Earning College Credits in High School: Options, participation, and outcomes for Oregon students**, REL Northwest, 2017.
25. **Dual Enrollment: Students/Parents Must be Notified of Dual Enrollment Opportunities**, Education Commission of the States, 2016.

PRINCIPLES IN ACTION

OnRamps

Founded in 2011, the **University of Texas at Austin OnRamps**[26] program offers high school students yearlong courses designed and overseen by UT-Austin departments, faculty experts, and academic staff in math, English language arts, computer science, geoscience, physics, and history. Additional courses in fine arts and chemistry will launch in fall 2018. OnRamps's four-pillar approach emphasizes "college-aligned content knowledge, innovative pedagogy, technology-enhanced education, and teacher excellence."

How It Works

Hybrid Model: Students are enrolled in a yearlong course taught by their high school teacher, for high school credit. Throughout the year, high school teachers use content, pedagogy, and online learning tools designed and overseen by university faculty and staff. Separately, students are also enrolled in college courses via distance education, where credentialed university faculty and instructors evaluate student work and provide feedback. If students successfully complete required assignments for their college courses, they may be eligible to earn college credit from the university. OnRamps courses incorporate best-in-class instructional materials aligned with current research on how students learn, including research related to cognitive science, mindset, and belonging.

Course and Teacher Development: A qualified university faculty member leads development of each course and oversees curriculum and teacher professional development and support, such as Summer Institutes, one-day workshops during the academic year, and ongoing professional coaching and support.

Funding: The Texas legislature appropriated $2 million in each fiscal year of the 2018-19 biennium to reimburse districts for costs of student participation and teacher training. Lumina, Google, and the National Science Foundation have provided additional funding to broaden program reach.

TRANSPARENCY AROUND CREDIT TRANSFER

- Texas Core Curriculum Credits are guaranteed to transfer to any public college or university in Texas. Since 2012, more than 10,000 students from more than 105 high schools have earned 18,000 Texas Core Curriculum credit hours from UT Austin or Texas Tech through OnRamps.

PROGRAM QUALITY AND ACCOUNTABILITY

- Students experience both high school and university level grading. In addition to earning high school credit, those who successfully enroll and earn a letter grade in the university course will have that grade appear on a college transcript and will receive three college credits. OnRamps curriculum and assessments are standardized and are aligned with expectations of leading research universities.
- Each new OnRamps teacher receives 80+ hours of training in a single year. The associated academic department at the university approves a faculty or instructional staff member for each course. To date, over 350 teachers in 145 high schools across 75 Texas districts have received over 30,000 hours of intensive professional learning and support from the university.

VALUE FOR TIME AND DOLLARS INVESTED

- Students can save up to $1,100 in college tuition and decrease time to degree for each OnRamps course (based on the average tuition costs at Texas public colleges for three total credit hours). OnRamps students also pay no textbook or lab fees. Through a direct investment in Texas students attending Texas schools, OnRamps is projected to generate a combined $9 million in college-tuition savings annually for Texans by 2018-19.

26. **OnRamps,** The University of Texas at Austin, 2017; Information provided by OnRamps Founder and Working Group Member Harrison Keller.

TRANSPARENCY AROUND CREDIT TRANSFER

Students should be clearly informed ahead of time whether and how the college credit they earn will be accepted for transfer credit by the college or university (and the program of study) where they wish to enroll. Transparency about the transferability of college credit from one institution or program to another is a vital element of CCHS policy. If a student discovers that the college credits she earned in high school are not accepted by the college she plans to attend, or do not apply to her intended major, the CCHS promise of cost savings and improved time to degree will remain unfulfilled. Both high schools and postsecondary institutions need to make CCHS credit transfer policies as clear as possible to students.

High schools, institutions of higher education, and employers must collaborate around CCHS program design and implementation. To ensure that the content and skills that high school students learn are aligned with what colleges and employers expect, and that credits transfer appropriately, collaboration between the relevant institutions is vital.

Questions Policymakers Should Ask to Promote Effective CCHS Programs

A broad range of policymakers and educators shape the creation and implementation of CCHS programs. These include state leaders and legislators, college presidents and provosts, and school district leaders. From their respective vantage points, each must gather and evaluate information about program quality, cost, access, and effectiveness. As CCHS programs expand rapidly, the risk that growth will come at the expense of quality means that the importance of asking clear, systematic questions about design, funding, and implementation is greater than ever.

To improve decision making, the Working Group identified four factors essential to strong CCHS programs and developed a checklist of related questions for state and local policymakers, as well as school and program leaders, seeking to promote highly effective CCHS programs. The factors are listed below, followed by the related questions.

In some cases the questions cannot be answered using readily available data; the research section that follows sets out some of the information gaps that need to be filled.

PROGRAM QUALITY AND ACCOUNTABILITY

Are programs rigorous, and are there clear accountability structures for student outcomes?

- What methods are used to track and report student success after completing a CCHS program? What outcome measures, such as students' success in subsequent courses, are in place to track the long-term effects of the program? How are those results made available to the public and how are they used to inform program decisions?
- Are outcome measures consistent across CCHS programs and across the state?
- What role do campus faculty have in evaluating CCHS coursework in their discipline?
- **STRATEGIC QUESTION:** Who is—and who should be—held accountable for student outcomes in CCHS courses?

VALUE FOR TIME AND DOLLARS INVESTED

Are students, institutions, taxpayers, and the workforce seeing positive outcomes?

- How much funding is appropriated at the state, district, and/or city level for CCHS programs? Do costs vary according to how the course is delivered (high school versus college campus, or online)?
- If a school district receives average daily attendance (ADA) and/or other state funding for a dual enrollment student, and the higher education institution sponsoring that class receives state aid for the same student, how does the state track whether that investment results in an accelerated pathway for the student? Is there a way for policymakers to find out whether all CCHS students are able to apply credits earned in high school to their major or degree, or whether they have to retake the same level course for college credit after matriculation?
- What is the total cost per student served for each CCHS program type, and who is responsible for covering each component of that cost? Is that full cost (including any fees, materials, instructor training, etc.) transparent to families and other stakeholders?
- What outcomes are achieved for all funds invested in a given program (by the state, institution, student, etc.)? Is it possible to calculate cost per successful outcome by program level?
- **STRATEGIC QUESTION:** What would an ideal funding model look like (including flexibility for different programs to try new ideas)?

EQUITY AND ACCESS

Do all students have access to programs, and are efforts made to help a diverse population of students succeed?

- To what extent are CCHS programs available to all students—and what barriers to academic preparation or awareness of course options exist that might unnecessarily limit enrollment? At what rates are students in different demographic subgroups taking and succeeding in these classes?
- How is information disseminated at the high school level to ensure students and parents are aware of all of the various CCHS opportunities? What resources are made available to students to ensure successful outcomes?
- How does course distribution vary across the state? How do high schools select which CCHS courses to offer to which students?
- **STRATEGIC QUESTION:** What strategies are in place to encourage student access and success, and how do they align with larger state goals regarding attainment and public school accountability?

TRANSPARENCY AROUND CREDIT TRANSFER

Do students know upfront if and how CCHS credits will transfer to a college program, credential, or degree?

- Do CCHS credits transfer across postsecondary institutions in the same manner as other college credits?
- How many credits are successfully transferred each year? Do they transfer for general education credit, electives, or toward a specific major or program of study?
- Are counselors and others in student-facing roles informed about the transferability and applicability of CCHS courses to various college degree and certificate programs? And do they communicate that information to students and parents?
- Does credit-earning focus on utility and value to students in the context of larger state attainment goals?
- **STRATEGIC QUESTION:** What is being done to ensure that students understand exactly how course or exam credit will apply and how this matches their own educational goals before they enroll in a CCHS program?

Core Outcome Metrics

Like any set of policy tools, these principles and policymaker questions will only be effective if they include metrics with which to assess success. To that end, the Working Group agreed on a short list of indicators that can be used as metrics of success for the various goals of CCHS classes, including college enrollment, increasing postsecondary completion, and saving students money. While different programs may aim to promote different outcomes (associate degree completion versus bachelor's, for example), taken individually or in combination these indicators measure whether CCHS classes are fulfilling their promises to students, families, policymakers, and taxpayers.

1. **Enrollment and Persistence**
    a. Enrollment rate at two- or four-year postsecondary institution
    b. Persistence from freshman to sophomore year of college
2. **Success in Subsequent Courses**
3. **College Grade Point Average**
4. **Degree Attainment**
5. **Time to Degree**

Some of these measures, such as college enrollment rate, are already routinely studied, with generally positive results for most but not all CCHS programs.[27] Others, such as success in subsequent courses and time to degree, are analyzed more rarely but deserve much greater attention.

The use of rigorous research methods is as important as the choice of metrics. The quality of research currently cited to demonstrate the effect of CCHS programs on student outcomes varies tremendously. The least convincing studies are those that analyze single institutions, rely on very small samples, and draw on self-reported student survey responses. Research methods that allow causal interpretation are ideal, but these can be very hard to implement in an education context. At a minimum, policymakers should seek studies that compare similar students, control for background characteristics such as prior achievement and socioeconomic status, are based on representative samples, and when possible, use student-level records rather than self-reported data.

27. For example, while participating in DE on a college campus increases the odds of enrolling anywhere and enrolling at a four-year institution, a Florida study found that participating in DE at a high school is not associated with increased odds of college enrollment (Speroni, 2011). Further, participating in a DE program affiliated with a two-year institution decreased the odds of enrolling at a four-year institution (Wyatt, Patterson, & Di Giacomo, 2015. Speroni, C., 2011. **Determinants of students' success: The role of Advanced Placement and dual enrollment programs,** National Center for Postsecondary Research, 2015; **A comparison of the college outcomes of AP and dual enrollment students**, The College Board, 2015.

Research Questions to Inform CCHS Program Development and Implementation

Research to date on CCHS programs has produced a number of positive findings about their effect on high school graduation, college enrollment, first-year college grades, and degree attainment. However, because programs vary so greatly around the country, including within individual states, broadly generalizable research evidence is scarcer. This is particularly true given the challenge of fully accounting for the fact that students typically self-select into CCHS programs. Table 2 summarizes some limitations in what is known about CCHS program effectiveness and what questions need to be more fully answered; it is followed by suggested topics for researchers to explore to better illuminate best practices.

Table 2. College Credit in High School Research Limitations

What We Don't Know	Why It Matters	Recommendations
How does the delivery model (location, instructor, course length, etc.) influence student outcomes?	Understanding this would help identify CCHS best practices and determine best investments for states. For example, if the location of the course matters most, then policymakers and implementers could prioritize strategic placement and structure.	Study specific features of CCHS programs—e.g., review where the course takes place; who is the instructor; how long the course lasts; what are the course prerequisites; to differentiate the components that produce the strongest outcomes for different students.
Which inputs matter most for student success in CCHS programs (counseling, teacher preparedness and support, student maturity, etc.)?	The focus has been outcomes-heavy, but understanding the inputs could help identify necessary components to improve student outcomes.	Study specific input measures of CCHS programs and whether/how they influence student outcomes.
Can we generalize the outcomes of a specific program in a specific state to other programs with similar features and goals?	Many CCHS programs differ based on the state, region, district, course-taking, etc. Many reports generalize CCHS impacts on student outcomes, even when limited quality control or common metrics exist to compare programs.	Conduct more rigorous research with national data sets. Identify similar students in similar programs in different states and compare their outcomes.
How do CCHS programs impact students over a longer period of time (i.e., academic major decisions)?	Current research mostly looks at high school graduation, college enrollment/graduation, and first- or second-year success. Longitudinal data should help us identify longer CCHS impacts such as major choices or whether CCHS programs impact student savings.	Determine if we can identify how/whether CCHS programs impact a student's major choices and how/whether CCHS programs impact student savings during and after their postsecondary education.

Table 2. College Credit in High School Research Limitations (continued)

What We Don't Know	Why It Matters	Recommendations
How does student motivation or self-selection in CCHS programs influence student outcomes (i.e., postsecondary enrollment; first-year GPA; persistence; graduation; and time to degree)?	Accounting for student motivation and other variables related to the choice to participate in a CCHS program would better isolate the impact of CCHS participation on college outcomes.	Encourage states/districts to conduct the most rigorous research possible to account for the strong self-selection issues that are at play when students decide to participate in a CCHS program. When experimental design is not possible, ramp up efforts to account for other variables, like student motivation, that are often not considered when attempting to isolate the impact of CCHS programs on student outcomes.

To advance the effectiveness of CCHS classes, the Working Group identified a group of core research questions that required further attention:

PROGRAM QUALITY AND ACCOUNTABILITY

- Does the delivery mode and location of CCHS programs make a difference to student outcomes? Research should compare outcomes for different program types, taking into account classes taught at high school versus college campuses, by high school teachers versus college faculty, and delivered online versus in person.
- Does the level of support provided to teachers demonstrably improve student outcomes?

VALUE FOR TIME AND DOLLARS INVESTED

- Can longitudinal data be used to track CCHS student outcomes (postsecondary and workforce) to measure the value gained for the dollars states spend on these programs?

EQUITY AND ACCESS

- What do we know about whether students and families receive clear and accurate information about different CCHS models and likely outcomes?

TRANSPARENCY AROUND CREDIT TRANSFER

- Can better data be gathered about intercollegiate transfer patterns of CCHS students to find the most efficient pathways to credentials?

Conclusion

Just how urgent is the need to create, maintain, and support more effective CCHS programs? Current programs are already popular and growing fast, and there is widespread agreement about the desirability of injecting more rigor into high school course offerings. But there is also significant concern about whether all students are receiving the high-quality instruction and outcomes that CCHS programs are supposed to deliver. This is why we must put a premium on rigorous research to catch and keep up with program growth that currently outpaces what we know. We need to identify what is required to ensure CCHS programs are academically sound, cost-effective, and likely to lead to the greatest gains in college enrollment and completion.

It is no accident that beyond identifying a core set of factors and guiding principles for effective CCHS programs, much of this report consists of questions for policymakers and researchers. To advance the national conversation about best practices across CCHS programs, policymakers, educators, researchers, and students must ask more questions about educational quality, costs, access, and credit portability. They should also insist on transparency about program outcomes and costs for students, families, and taxpayers. In the end, putting more and better information in the hands of those who create, fund, and use CCHS programs is the best way to ensure that the opportunities they promise are meaningful for the students they serve.

Appendix

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About the College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success—including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools.

For further information, visit **collegeboard.org**.

About the Working Group

The College Board Policy Center created the College Credit in High School Working Group in fall 2016, bringing together 18 experts with diverse perspectives and knowledge in relevant policy, research, and practice. Participants met twice in Washington, D.C., to discuss how policymakers can understand the most effective ways to implement and target CCHS programs, which questions policymakers should ask about the programs they fund and create, and what we know and don't know about the research evidence behind different programs.

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