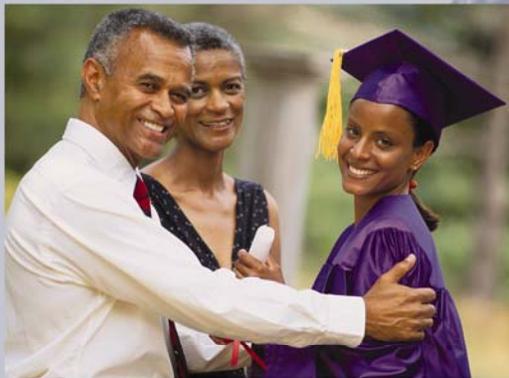# 2003–2007 Early College High School Initiative Evaluation

Emerging Patterns and Relationships

An Evaluation for the Bill & Melinda Gates Foundation

Prepared by:
American Institutes for Research

SRI International

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SRI International ®

2003–2007 Early College High School Initiative Evaluation

Emerging Patterns and Relationships

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About the Bill & Melinda Gates Foundation's Early College High School Initiative

The Early College High School Initiative (ECHSI) was launched in 2002 to serve students who are traditionally underrepresented in postsecondary education and offer them the opportunity to simultaneously pursue a high school diploma and earn college credit. Through the ECHSI, Early College Schools (ECSs) offer all enrolled students an opportunity to earn an Associate's degree or up to 2 years of college credit toward the baccalaureate while in high school. The ECHSI is based on the assumption that improved high school instruction and curriculum tied to the incentive of earning college credits will motivate students who are traditionally underrepresented in higher education, thereby increasing their interest in and access to additional postsecondary education. The initiative also encourages ECSs to emphasize the "new 3R's": rigorous instruction, relevant curriculum, and supportive relationships for all students.

The ECHSI is organized around 13 intermediary organizations that receive foundation funding to work with local partners, such as school districts, community organizations, high schools, community colleges, and universities, to open ECSs.[1] In fall 2006, there were 130 ECSs open across 21 states and Washington, D.C.

The foundation funded Jobs for the Future (JFF) as an overarching intermediary to provide technical assistance to all intermediaries and to the local ECS partners. To assist ECSs in attaining the goals of the initiative (such as improved rates of high school graduation, college attendance, and college completion), the foundation, in collaboration with JFF, developed a set of Core Principles (JFF, 2004). These principles outline the common goals underlying the implementation of ECSs.

Report Findings

This section provides a summary of the key findings presented in this fourth annual synthesis report for the ECHSI. Compared with previous years, the findings from 2006–07 are based on analyses of more types of qualitative and quantitative data. The availability of both multiple sources of data and more representative data has allowed an initial understanding of the correlations between variations in ECS implementation and desired outcomes for the schools and the initiative.

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[1] One intermediary covering a large jurisdiction delegates partnership development to four subintermediaries.

Early Outcomes for ECSs

Although preliminary, early outcomes look positive for ECSs overall. Key findings include:

■ Generally, the higher students rated their ECS on the 3R's (instructional rigor, relevance, and relationships), the higher their reported levels of engagement and academic self-concept.

■ In 2005–06, the average daily attendance rate in ECSs was 94 percent.[2]

■ In 2006–07, on average, 82 percent of ECS students achieved proficiency on their state's English language arts (ELA) assessment and 68 percent achieved proficiency on their state's mathematics assessment. On average, ECSs are doing better than other high schools in their surrounding districts.

■ In spring 2007, 52 percent of ECS students were enrolled in at least one college course. These students appeared to be doing well overall; students' average reported college GPA was 3.0.

■ Seventy-nine percent of students expect to graduate with at least 1 year's worth of college credits, and 45 percent expected to earn at least 2 years' worth.

■ On average, about 85 percent of students stay at their ECS and progress to the next grade each year. For eight of the most mature ECSs, the estimated on-time graduation rate was 70 percent, on average.

Relationship Between Structural Characteristics of ECSs and Outcomes for Students

With only the Core Principles uniting them, ECSs come in a variety of models. Early outcomes in 2006–07 indicated that some patterns are emerging with regard to school structural features that are associated with better student outcomes, specifically patterns related to the origin (startup versus existing sites), the maturity of the school (years in operation), the location of the ECS (whether the school is located on a college campus), and the institution of higher education (IHE) partnership type (2-year versus 4-year IHEs). Key findings include:

■ *Location* — One of the features that make ECSs unique is the integration of college courses through a partnership with a 2-year or 4-year IHE (or both). Early indications are that this integration relates to better student outcomes when the ECSs are located on a college campus. ECSs located on college campuses had higher attendance and assessment proficiency rates. Students at ECSs located on college campuses reported more academic engagement and self-confidence, less disruptive behaviors among their peers, and higher post-ECS educational aspirations than students at ECSs not located on a college campus. This structural feature related to more positive student outcomes than any other feature investigated, providing support for the idea of the "power of the site."

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[2] When these data were collected in winter 2006, 2005–06 was the most recent full academic year.

- *Origin* — Across the ECHSI, there are ECSs that developed at existing school sites, whether a breakdown of a larger school (conversion), the transformation of an entire school (adaptation), or the addition of a small program within the school (program). But these existing sites may have come with existing challenges. On several outcomes, ECSs developed as part of the ECHSI (startups) had better results. Startup ECSs had higher attendance and assessment proficiency rates, and students reported less disruptive behaviors among their peers and higher college GPAs.

- *Age* — Newer ECSs had higher average proficiency rates on state assessments in both ELA and mathematics. In addition, students reported higher academic engagement and self-confidence, as well as higher high school GPAs, at newer ECSs.

- *IHE partner type* — ECSs affiliated with a 4-year IHE had better outcomes on several variables than did ECSs affiliated with a 2-year partner. ECSs with 4-year IHE partners had higher attendance and assessment proficiency rates, and students reported more academic interest and higher postsecondary aspirations. However, 2-year IHEs had one higher outcome. Students at ECSs affiliated with a 4-year IHE reported more disruptive behavior in their peers than students at ECSs affiliated with a 2-year IHE.

It is important to remember that these findings are relationships. Therefore, although the evaluation has documented these differences in student outcomes based on ECS characteristics, the underlying cause for these differences is undetermined. For example, data have not been available to investigate one possible explanation — that the differences between groups of ECSs are due to the academic skill levels of entering students rather than the characteristics of the ECSs. The evaluation has not made any determination that certain ECS features *cause* better student outcomes.

Establishing the ECS Community

Understanding what defines an ECS and how it is distinct from a typical high school goes beyond an examination of structural features. The essential college-going culture and noninstructional attributes such as the target population, integration of college courses, and supports for students must be in place and are central to the vision of an ECS. Key findings in 2006–07 include:

- ECSs continued to enroll high percentages of minority students, low-income students, and students from diverse language backgrounds. Some newly available data from an ECS student survey suggest that some ECSs may enroll students whose parents are more likely to have college degrees than students nationally.

- As documented in previous reports, some tension can exist between serving the ECHSI target student population and providing students with the opportunity to earn college credit. Monitoring the admission standards and enrollment processes of ECSs to ensure that the target population continues to be served remains a priority for the evaluation.

- Universally, ECSs sought to create a college-going culture. Schools used both structured and informal mechanisms to build students' visions of themselves as college bound.

- Curriculum plans varied in terms of college credit accumulation goals. There was a relationship between location of the school and credit goals, with ECSs located on a college campus having more ambitious goals.

- ECSs have implemented a variety of academic and social supports to optimize students' ability to handle the rigorous academic demands. These supports were most commonly available through the ECS rather than the college.

Academic Experience of ECS Students in High School and College Classes

The analyses of a larger sample of observations of high school and college classrooms in 2006–07 built upon a framework for analyzing instruction used in previous evaluation reports (AIR & SRI, 2005b, 2006, 2007). These observations allowed for a more nuanced analysis of the 3R's and the instructor supports experienced by ECS students, although the observations were still snapshots. Key findings include:

- Although most of the observed lessons provided the opportunity for students to engage in rigorous instruction, most did not provide sufficient support for students to fully engage in those opportunities, regardless of subject area or course level.

- The pattern in the sampled ECSs appeared to be bimodal: About one-third of observed classes offered students opportunities to engage in rigorous activities and provided scaffolding from the instructor to help students understand the material, and about one-third offered neither rigorous activities nor sufficient instructor support to ensure understanding.

- High school classes were more likely than college classes to offer both rigorous instruction and significant levels of teacher supports to help students comprehend the material.

- Overall, the mathematics classes observed were rated to be considerably more rigorous than the ELA classes — 45 percent of mathematics classes were evaluated to be rigorous, versus 25 percent of ELA classes.

Sustainability of the ECHSI

Given that many ECSs are no longer funded by the foundation due to the maturity of the initiative, it is not surprising that more ECSs have turned their attention to sustainability concerns. The sustainability of the ECHSI depends on three primary factors: (a) sustainability of individual ECSs, (b) sustainability of the initiative that upholds certain Core Principles and relies on a variety of partners to fulfill certain roles, and (c) a supportive policy environment.

- Eighty-five percent of the visited ECSs had identified some or all of their continuation funding. Although more than half of those schools were confident that all of their costs would be covered, it was not clear how much of that funding had been secured.

■ At the midpoint of the ECHSI, intermediaries, JFF, and the foundation are clarifying the ECS model by revisiting some of the Core Principles, including the goals for college credit accumulation and the target student population. When completed, the resulting document is expected to define the ECHSI and ECSs for current and future participants and differentiate it from other secondary school reform efforts.

■ Supportive state funding policies have helped to alleviate some of the funding concerns and are integral to ECS sustainability. In several states, intermediaries have successfully worked to change policies to enable more high school students to enroll in college courses. Such policy changes included seat-time requirements, age or class standing restrictions, and enrollment caps.

Summing Up

As a new model for an educational institution, ECSs must identify and implement a combination of structural, instructional, and noninstructional features that need to work within the existing physical and policy environment and meet the needs and demands of providing both a high school and a college experience.

In 2006–07, data suggest that a typical (although hypothetical) ECS was a startup (new) small, urban public school serving grades 9 through 12 and located on the campus of a 2-year public IHE partner. Most enrolled ECS students participated in college courses taught by college faculty in classrooms that also included traditional college students.

Overall, while schools are enrolling the intended target population — which is essential to the mission of the ECHSI — they are still grappling with the uncertainty of whether these students will be able to be successful in earning college credit. This concern has led some schools to adjust their admissions criteria to include consideration of prior behavior and student motivation, as well as an increase in academic prerequisites. Careful monitoring of the level of alignment between the intended student population and actual student enrollment will be important, as preliminary evidence suggests that a few schools may be focusing on students who do not meet the target population criteria. One criterion schools might want to consider is parents' educational level. Student survey data indicate that the parents of some students enrolled in ECSs may have higher education attainment levels than might have been hypothesized.

The extent to which ECSs provided supports varied, but often was based on strong relationships between students and high school staff. Not surprisingly, providing these additional services can place a significant demand on the human capital of a school. It will be important for school leaders to monitor staff morale and develop strategies to adequately support staff on an ongoing basis.

Overall, in classrooms observed in 2006–07, most instructors provided opportunities for students to experience a rigorous lesson, but fewer supported students in that endeavor. The findings suggest that the initiative could benefit from further attention to this important aspect of instruction. Professional development that engages educators in explorations of what this rigorous and supportive instruction looks like and coaches them to interact to support students in taking full

advantage of opportunities to participate in rigorous activities would be one way schools might direct attention to enhancing the instructional components of the initiative.

The overall picture from these early results is quite promising. It shows that ECSs are simultaneously moving students through a high school curriculum and into college courses, and along the way developing their interest in and aspirations for education. The evaluation will continue to document the successes and challenges demonstrated by ECSs and the features that appear linked to the early outcomes.

About the Evaluation

Since 2002, the American Institutes for Research (AIR) and SRI International (SRI) have worked together to evaluate the ECHSI for the Bill & Melinda Gates Foundation. All the data collection activities are grounded in a conceptual framework (defined in Chapter I), which denotes the key features that are measured in the evaluation and the interrelationships that will be investigated during analyses. Rather than testing a causal model, this evaluation has been descriptive and has attempted to document and describe the key features and their interrelationships.

In 2006–07, the evaluation team collected and analyzed qualitative data (e.g., interviews, focus groups, and classroom observations) from a sample of 20 ECSs,[3] 13 intermediaries, four subintermediaries, JFF, and the foundation. These qualitative data focused mainly on structural and design elements, as well as successes and challenges experienced during implementation and in sustaining the ECSs. The team also analyzed quantitative data on the population of open ECSs from the online school survey administered by JFF (120 ECSs participated), which included items on such topics as student-selection criteria for admission, student course-taking opportunities, and support services, and from publicly available sources. Another source was the data collected through an online student survey administered to the site visit schools (1,396 students participated). This survey asked students about their academic engagement and self-confidence, their instructional experiences in both high school and college classes, the ECS climate, and their GPA and college credit accrual expectations, among other variables. Other sources included data from the ECHSI Student Information System (SIS) and publicly available data.

In the future, when more data are available, the evaluation will examine differences between students attending ECSs and students attending other high schools after controlling for student characteristics, including academic achievement prior to entering the schools.

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[3] This sample was representative of ECSs in at least their second year of operation, operating with grades (i.e., excluding Gateway to College ECSs that are ungraded), and enrolling high school grades.

Chapter I — Introduction

Overview of the Early College High School Initiative

In 2000, the Bill & Melinda Gates Foundation started funding several initiatives to improve America's high schools, particularly focusing on "increasing academic achievement, attainment, and ultimately, life outcomes for low-income and minority students." Since 2002, the foundation has been committed to the goal of "ensuring every student graduates from high school ready for college, work, and citizenship" (Bill & Melinda Gates Foundation, 2006, pp. 4, 5).

Through several major initiatives, the foundation has encouraged the creation of new high schools, the restructuring of existing high schools, and the development of new networks and partnerships for high school improvement. In addition, the foundation has funded efforts at state and national levels to advocate for conditions conducive to growing and sustaining high school improvement. The foundation projects that these efforts will result in "over 1,100 new schools and over 700 improved schools, serving over one million students" (Bill & Melinda Gates Foundation, 2006, p. 3).

One of these initiatives is the Early College High School Initiative (ECHSI). Launched in 2002, this initiative aims to serve students who are traditionally underrepresented in postsecondary education and offers them the opportunity to simultaneously pursue a high school diploma and earn college credit. Participation in college-level coursework during high school traditionally has been available only to academically advanced students. In fact, nationally, although 71 percent of public high schools offered college courses in 2002–03, only 5 percent of students participated in these programs (NCES, 2005). Through the ECHSI, Early College Schools (ECSs) offer all enrolled students an opportunity to earn an Associate's degree or up to 2 years of college credit toward the baccalaureate while in high school. The ECHSI is based on the assumption that improved high school instruction and curriculum tied to the incentive of earning college credits will motivate students who are traditionally underrepresented in higher education, thereby increasing their interest in and access to additional postsecondary education.

Operationally, the ECHSI is organized around 13 grantee organizations, or intermediaries (see Figure 1.1), that receive foundation funding to work with local partners — such as school districts, community organizations, tribes, high schools, community colleges, and universities — to open ECSs.[4] In fall 2006, there were 130 ECSs open across 21 states and Washington, D.C. The foundation also funded Jobs for the Future (JFF) as an overarching intermediary to provide technical assistance to all other intermediaries and to the local ECS partners.

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[4] One intermediary covering a large jurisdiction delegates ECS partnership development to four subintermediaries.

Figure 1.1. ECHSI Intermediaries and Number of ECSs Open in 2006–07

- **Center for Native Education (CNE).** Located at Antioch University in Seattle, CNE works with Native American community partners to open ECSs that target Native American students and include culturally relevant instruction and curricula. Strong family and community engagement, as well as personalized student support services, are key features of all CNE ECSs.
  Open ECSs: 8.

- **The City University of New York (CUNY).** CUNY, a large urban public university system, collaborates with New York City's Department of Education to improve high school students' academic achievement and ability to do college-level work. Its ECSs engage in extensive planning prior to opening, serve students in grades 6 through 12, and are located in close proximity to the partner college campus.
  Open ECSs: 6.

- **The Foundation for California Community Colleges (FCCC).** FCCC is a cooperative consortium of California community colleges and works through them to create ECSs. FCCC supports its ECSs by providing ongoing technical assistance, professional development, and state-level policy analysis and development. FCCC focuses on student literacy and college readiness.
  Open ECSs: 11.

- **Gateway to College (GtC).** GtC, based out of Portland Community College, serves youth aged 16–20 who are at risk of dropping out of high school or have already dropped out. It offers an alternative route for high school completion through college course participation and high expectations and supports.
  Open ECSs: 9.

- **KnowledgeWorks Foundation (KWF).** KWF is a philanthropic organization in Ohio dedicated to improving educational opportunities for all individuals by collaborating with public and private entities. Its ECSs are located in large, urban districts and partner with 2- and 4-year postsecondary institutions.
  Open ECSs: 6.

- **Middle College National Consortium (MCNC).** MCNC supports secondary and postsecondary public-sector educators in implementing educational reforms for traditionally underserved youth. MCNC's schools, known as Middle Colleges, receive ongoing technical assistance from MCNC. Middle Colleges are all situated on community college campuses; those that have the goal of providing opportunities for students to earn an Associate's degree or up to 60 college credits are considered ECSs.
  Open ECSs: 14.*

- **National Council of La Raza (NCLR).** NCLR is a national constituency-based Hispanic organization that includes education as one of its key priorities. Its ECSs are located in areas serving largely Latino communities. These ECSs intend to demonstrate the ability of every Latino student to master a college-preparatory curriculum and complete 2 years of college education by the time he or she graduates from high school.
  Open ECSs: 11.

- **North Carolina New Schools Project (NCNSP).** NCNSP was established to address the college aspirations of underserved students in North Carolina. Funded by the state (rather than by the Bill & Melinda Gates Foundation), its ECSs are part of the governor's Learn and Earn initiative. Each ECS is located on a 2-year or 4-year college campus and offers an academically rigorous, university-prep curriculum. All students participate in work-based learning experiences and work closely with a teacher-adviser.
  Open ECSs: 33.**

- **SECME, Inc. (SECME).** SECME, a nonprofit corporation that links engineering universities, school systems, and corporate and government investors, seeks to prepare underserved students to enter and complete postsecondary studies in science, technology, engineering, and mathematics. It provides technical assistance to school districts to develop or redesign ECSs.
  Open ECSs: 2.**

Figure 1.1. ECHSI Intermediaries and Number of ECSs Open in 2006–07 (continued)

- **Texas High School Project (THSP).** THSP is a public-private initiative involving the Texas Education Agency, the Communities Foundation of Texas (CFT), the Texas governor's office, and the Texas Higher Education Coordinating Board. THSP, rather than opening ECSs directly, funds four subintermediaries to open ECSs.
  Open ECSs: 11.***

  - **Texas A&M University System (TAMU System).** The TAMU System is contracted under THSP, and the ECHSI grant is facilitated by the College of Education at Texas A&M University at College Station. Its goal is to ensure that all ECS students are fully prepared to enter a 4-year college upon graduation. Its ECSs partner with a college within the TAMU System.
    Open ECSs: 2.

  - **Texas Community College Education Initiative (TCCEI).** TCCEI is a nonprofit subsidiary of the Texas Association of Community Colleges. One of TCCEI's aims is to increase access to community college for students across the state. Each of TCCEI's ECSs is the result of collaboration between a community college and a local school district.
    Open ECSs: 3.

  - **University of North Texas (UNT).** UNT's ECHSI work is an outgrowth of its participation on the regional P-16 Council, an association of regional educational organizations concerned with student success from preschool through college. UNT believes that universities should play a role in ensuring a seamless transition for all students who have college aspirations.
    Open ECSs: 2.

  - **University of Texas System (UT System).** The UT System works with institutions of higher education (IHEs) in its system to create and open ECSs in targeted regions. The Institute for Public School Initiatives manages the ECHSI for the UT System. The institute's goal is to increase the number of high school graduates who have the academic skills they need in college and to engage in partnerships to improve student performance.
    Open ECSs: 4.

- **University System of Georgia (USG).** The P-16 Office of the Board of Regents is a partnership between the Georgia Department of Education and USG. This partnership aims to increase college readiness and success of high school graduates traditionally underserved by USG. Each ECS is a partnership between a USG institution and one or more Georgia public school systems. USG's role is to provide guidance and support to schools so that every student can be successful and to examine the model to eventually move toward statewide replication.
  Open ECSs: 5.

- **The Utah Partnership for Education (UP).** UP aims to increase the number of students with the skills to enter a variety of higher paying jobs, to improve the quality of education in Utah through business–education partnerships, and to increase the research partnership efforts of business and university communities. UP ECSs emphasize science, technology, engineering, and mathematics.
  Open ECSs: 6.

- **Woodrow Wilson National Fellowship Foundation (WWNFF).** WWNFF is a nonprofit organization that promotes individual opportunities and institutional partnerships that lead to college access for first-generation college-goers. Its ECSs partner with 4-year public and private IHEs and emphasize rigor for students, ongoing professional development for teachers, and rich scholarly engagement for the college faculty involved.
  Open ECSs: 10.*

* One ECS is supported by both MCNC and WWNFF.

** One ECS is supported by both NCNSP and SECME.

*** Within the state of Texas, there are now other early colleges funded by TEA that are not part of the ECHSI and do not necessarily adhere to its principles.

Core Principles

To assist ECSs in attaining the goals of the initiative, including improved rates of high school graduation, college attendance, and college completion, the foundation, in collaboration with JFF and some of the first ECHSI intermediaries, developed a set of Core Principles (JFF, 2004). The Core Principles can be summarized as follows:

■ ECSs serve students from populations typically underrepresented in postsecondary institutions.

■ Students earn an Associate's degree or 2 years of college credit toward the baccalaureate while in high school.

■ The years to a postsecondary degree are compressed.

■ The middle grades are included or there is outreach to middle-grade students to promote academic preparation and awareness of the ECS.

■ The ECSs demonstrate the attributes of highly effective high schools.

These principles define the features of an ECS believed to be necessary for meeting the ECHSI goals.

The evaluation reports that have preceded this one (AIR & SRI, 2005b, 2006, 2007) have documented some of the ways in which the original Core Principles have been shaped by reality and by the exigencies of the process itself. One clear example of adaptation is the diffusion of the Core Principle requiring all ECS students to earn 2 years of transferable college credits or an Associate's degree. Other Core Principles have been modified or received scant attention. For example, the ECHSI generally has not placed much focus on the requirement for ECSs to include the middle grades either in the school or in outreach efforts. The general picture of the ECHSI suggested that, within the learning communities generated by the initiative, the Core Principles could be productively revisited, refined, and revised to provide a better and perhaps more explicit roadmap for future developers of ECSs. As such, intermediary representatives, JFF, and the foundation have had multiple conversations during 2007 and 2008 to revise and refine the Core Principles.[5]

National Evaluation of the ECHSI

Since fall 2002, the American Institutes for Research (AIR), in collaboration with SRI International (SRI), has been conducting a national evaluation of the ECHSI for the Bill & Melinda Gates Foundation. The evaluation of the ECHSI has been primarily descriptive, attempting to document and describe the interrelationships among key features in the implementation of ECSs, including the high school–college partnerships. The national evaluation is one of the ways in which the foundation will determine whether the ECHSI is meeting its goals and the intentions of the Core Principles. During this time, the size of the initiative has grown dramatically, and the evaluation design and

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[5] For the most up-to-date version of the Core Principles, see www.earlycolleges.org.

timeline have been refined several times to accommodate this growth. Although the evaluation will not determine causality, future work will isolate some of the student outcomes that result from attending ECSs, by including analyses that take into account students' achievement prior to attending the ECSs, and high school achievement compared with that of students not in ECSs.

Evaluation Research Questions

The national evaluation of the ECHSI thus far has been designed to answer three primary research questions. Each research question is answered by understanding a set of key constructs, detailed in the conceptual framework.

- What are the demographic, structural, organizational, and instructional characteristics of ECSs?

- What factors support or inhibit the planning and development of ECSs?

- What are the intermediate and long-term outcomes for students attending ECSs, especially for students traditionally underserved by the postsecondary system?

Conceptual Framework

All the qualitative and quantitative data collection activities that inform these research questions are grounded in the conceptual framework (see Figure 1.2). Originally developed during the first year of the evaluation in 2002–03 (AIR & SRI, 2005b), the conceptual framework denotes not only the key features that are measured in the evaluation but also the interrelationships that will be investigated. Over time, this conceptual framework has been amended to reflect (a) growth and change within the initiative as it matures and (b) the evaluation team's increased understanding of the initiative. We have, for example, increased the evaluation's emphasis on state and national advocacy by ECHSI partners because the data indicated that their efforts to influence policy might be an important and lasting impact of the ECHSI. Nevertheless, the current conceptual framework remains essentially the same representation of the components and constructs of the ECHSI (as the initiative has been defined by the foundation, JFF, and the intermediaries) that have guided the evaluation from its inception. To the extent that discussions among the ECHSI partners lead to changes in the Core Principles, components, or desired outcomes of the initiative, the conceptual framework will continue to be modified to reflect the new circumstances.

Figure 1.2. ECHSI Evaluation Conceptual Framework

National Context and State Context

Local Context

Outcomes

Early College High School (ECS)

Bill & Melinda Gates Foundation
- Initiative Vision
- Initiative Funding
- Progress Tracking
- Selection and Development of Intermediaries
- Initiative Advocacy
- Capacity

District Role
- Initiator
- Partner
- Funder
- Service Provider
- Context
- ECS Part of Portfolio
- School Board

Local Partnership
- Vision/Mission
- Partnering Agreements
- Advisory Boards
- Decision-Making Roles
- Accountability

Human & Material Capital
- Financing (Business Plan)
- Staff (HS & IHE)
- Facilities (Location)
- Materials
- Community/Parent Support

ECS Organization
- Collaborative Leadership (HS & IHE)
- Professional Community (HS & IHE)
- Assessment (HS, District, & IHE)
- Curriculum Plan (2 Years' College Credit)
- Academic and Social Support (HS & IHE)
- Data-Based Decision-Making (Student Information System)

Jobs for the Future (JFF)
- Fidelity of Vision
- Intermediary and ECS Capacity-Building
- Peer Learning Network
- National and State Advocacy
- Initiative Accountability
- Capacity

Potential Partners
- District
- High School
- Institutions of Higher Education (IHE)
- Community Based Org. (CBO)
- Charter School Management Org. (CMO)
- Education Management Org. (EMO)

Student Recruitment Strategy
- Recruitment
- Selection
- Enrollment
- Middle School Involvement

Climate Relationships
- Respectful
- Personalized
- Safe and Orderly

Rigor
- High Expectations for All
- College-Going Culture

Intermediaries
- Fidelity of Vision
- Design Specification
- Partnership Development
- ECS Management
- ECS Accountability
- ECS Assistance
- State and National Advocacy
- Capacity

Institution of Higher Education Role
- Initiator
- Partner
- Funder
- Context

High School Courses: Instructional Attributes
- Academic Rigor
- Relevant Instruction
- Supportive Relationships

College Courses: Instructional Attributes
- Academic Rigor
- Relevant Instruction
- Supportive Relationships

Blended Curriculum

Intermediate Student Outcomes
- Academic Engagement, Identity, and Achievement
- Attendance | Behavior | Progression
- Postsecondary Success

Student ECS
- HS Diploma
- AA Degree (2 Years' College Credit)
- College Acceptance
- College Credit Transfer

Student Post-ECS
- Postsecondary Attendance
- Postsecondary Achievement
- Workforce Participation
- Citizenship

ECS
- Continuation of ECS
- Preservation of ECHSI Core Principles
- Continuing Activity in Network

Intermediary
- Scalable, Sustainable Models
- Appropriate Specificity & Control

Federal and State Policy

Data and Methods

This report includes analyses of qualitative and quantitative evaluation data collected during the 2006–07 academic year and, for comparison purposes, integrates findings from prior evaluation reports. The evaluation team gathered qualitative data from site visits (e.g., interviews, focus groups, and classroom observations) at 20 ECSs and interviews with 13 intermediaries, four subintermediaries, JFF, and the foundation. For the first time since the evaluation began in 2002, the team has been able to use qualitative data from a large, representative sample of ECSs to make statements describing the initiative as a whole.[6] During 2006–07, qualitative data collection focused on structural, organizational, and academic elements of ECSs, as well as ongoing implementation and sustainability of the schools and the ECHSI.

Most of the quantitative data used in this report were collected through either an online student survey or an online school survey. The student survey was administered by AIR to 25 students per grade at the same 20 site visited schools. In total, 1,396 students completed the survey. This survey contributed to the evaluation team's assessment of intermediate outcomes, including academic identity, educational aspirations, academic engagement, plans for college, and self-reported academic achievement. The school survey was developed and administered by JFF to 120 ECSs and included topics such as student selection criteria, student demographics, opportunities for taking college courses, and support services.

Another source of quantitative data for this evaluation is the Student Information System (SIS), an online data collection system that includes data on students attending ECSs across the country, e.g., students' academic progress, background characteristics, attendance, and performance on assessments. JFF requests data of districts, schools, and institutions of higher education (IHEs), which are submitted to a data warehouse. JFF has experienced ongoing challenges populating the SIS. Therefore, these data are supplemented by school-level assessment and demographic data obtained from published sources (i.e., state and district Web sites).

Unless otherwise noted, quantitative findings are based on data with response rates of at least 80 percent. More details of the evaluation, including the qualitative and quantitative analysis methods, are available in the technical appendix.

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[6] Whereas in previous years of the evaluation, smaller samples were purposefully selected, this systematic sample is representative of all ECSs that were open since at least fall 2005 and enrolled high school grades. Not represented are ECSs that opened in fall 2006 or later, ECSs with only middle school grades, and Gateway to College ECSs (which are ungraded).

Summary of 2005–06 Findings

To put this evaluation report in the context of previous findings, a summary of the major findings from the 2005–06 evaluation report is provided (AIR & SRI, 2007):

- As of the fourth year of the initiative, overall implementation of the ECHSI was proceeding smoothly, with good progress in developing local partnerships with 2- and 4-year IHEs, school districts, and community organizations; opening a critical mass of ECSs; and growing multiple levels of professional learning communities that would help sustain the initiative into the future.

- Across the initiative, ECSs adhered to the Core Principle of serving students traditionally underrepresented in postsecondary institutions. The ECSs had proportionally higher enrollments of minority students and similar enrollments of students from low-income families, compared with the enrollments of other area schools.

- Preliminary evidence revealed promising student outcomes, including a reported average daily attendance rate of 94 percent. In addition, ECSs had a higher average percentage of students scoring proficient on their states' assessments in English language arts (ELA)/reading and mathematics than did other high schools in the districts in which they are located.

- Although most observed ECS classes showed evidence of the "new 3R's" (rigor, relevance, and relationships in the classroom), improvement was still needed to ensure that schools were offering rigorous instruction, particularly in mathematics.

- Among the most evident of the ECSs' successes were the positive climates they had established and the high expectations and supports provided. Some sites, however, were challenged to fully develop a college-going culture due to their physical distance from their partner's college campus.

- Typically, the high schools rather than the colleges took the lead in supporting students academically and socially, even for college-based classes.

- ECSs and their postsecondary partners helped bridge the divide between high school and college and ensured success through a common understanding of the goals and purposes, flexibility among partners (particularly in terms of policies and procedures), and active and engaged liaisons from colleges and/or universities.

- Future sustainability of the ECSs was becoming more of a concern, although many intermediaries required participating ECSs to develop concrete plans for a school's sustainability after foundation grants end.

Contents of This Report

This 2006–07 evaluation report allows the key stakeholders in the ECHSI to reflect on where the initiative has been, what it has learned, and where it can go in the future. Because many of the ECHSI grants from the foundation were coming to an end at the time of the 2006–07 data collection, this is also an opportune time to focus on the ECSs' sustainability plans and the ways they organize themselves for student success.

Chapter II provides an at-a-glance description of the population of ECSs and many features central to the ECS design.

Chapter III focuses on how ECS are continuing to largely serve the target population to meet the goal of earning college credit, and how the ECS community prepares students for postsecondary success, such as establishing a college-going culture, the course sequence offered, and academic and social supports for students.

Chapter IV focuses on the instructional attributes of ECSs to identify what aspects of rigor, relevance, and relationship are present or lacking in classrooms and examines aspects of instruction that appear to be unique to ECSs.

Chapter V discusses the intermediate student outcomes evident from the quantitative and qualitative data collected, such as academic engagement, behaviors, academic achievement and progress, and educational aspirations.

Chapter VI discusses the efforts by the foundation, JFF, the intermediaries, and ECSs to sustain ECSs and the overall ECHSI. In addition, this chapter examines state policies that either support or inhibit ECS implementation.

Finally, Chapter VII summarizes the major findings of the evaluation to date and where the ECHSI evaluation may go in future years.

This evaluation report also includes a technical appendix that includes information on quantitative and qualitative data collection and analysis methods.

Chapter II — A Snapshot of the Early College Schools

This chapter addresses a basic evaluation question: What are the structural characteristics of ECSs? With so many potentially different features, it can be hard to envision what an ECS is like. This chapter serves two purposes. First, it provides an overview of the schools in the ECHSI — their age, origin, intermediary, location, and much more. Second, it introduces the variables on which ECSs are compared in the rest of this report. Subsequent chapters discuss in greater detail how all of these characteristics come together to create learning environments for students and the early evidence of student outcomes that these environments produce.

Based on the overview provided in this chapter, a description of a typical (although hypothetical) ECS looks like this:

> The typical ECS is an urban, public school that opened in 2006. The goals of the ECHSI are met through a traditional high school organization of grades 9 through 12, with about 60 students per grade. This typical ECS is newly developed as part of this initiative (e.g., a startup) and is located on the campus of a 2-year public IHE partner. Students are exposed to a college experience through college courses that are taught by college faculty and include traditional college students as well as the ECS students.

Data in this chapter are based primarily on the school survey administered in 2006–07;[7] when other sources are used, they are noted. When available and informative, comparisons across time are provided to demonstrate how the initiative has evolved and to anticipate the direction in which it is moving.

School Openings

The ECHSI started in 2002 with four ECSs opened by the Middle College National Consortium (MCNC).[8] Since that time, the growth of the ECHSI has been exponential, with 130 schools open by fall 2006. Table 2.1 provides the number of schools opened between 2002 and 2006 for each intermediary. Some of the intermediaries originally funded are no longer opening new ECSs as part of the ECHSI (e.g., SECME); some of the remaining intermediaries are picking up speed in opening new schools. The largest intermediary in the ECHSI, though not funded directly by the foundation, is the North Carolina New Schools Project (NCNSP), which is moving quickly to open 75 ECSs.

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[7] Out of the 130 schools in the initiative open in 2006–07, 120 participated in the 2006–07 ECHSI school survey. Throughout this report, the total number of ECSs on which each analysis is based may vary because of the number providing responses to the relevant items in the school survey.

[8] One of these original MCNC ECSs remained part of the MCNC network, but is not an ECS.

Table 2.1. Number of ECSs in the ECHSI, by Year Schools Opened and Intermediary

Intermediary	Year Opened					Total
	2002	2003	2004	2005	2006	
Center for Native Education (CNE)	0	3	1	3	1	8
KnowledgeWorks Foundation (KWF)	0	1	2	3	0	6
Middle College National Consortium (MCNC)	3	5	4	1	1**	14
National Council of La Raza (NCLR)	0	2	5	0	4	11
SECME, Inc. (SECME)	0	0	1*	1	0	2*
The Utah Partnership for Education (UP)	0	1	2	2	1	6
Woodrow Wilson National Fellowship Foundation (WWNFF)	0	3	2	2	3**	10
The City University of New York (CUNY)	0	0	1	2	3	6
The Foundation for California Community Colleges (FCCC)	0	1	2	4	4	11
Gateway to College (GtC)	0	0	2	3	4	9
University System of Georgia, P-16 Office of the Board of Regents	0	0	0	1	4	5
North Carolina New Schools Project (NCNSP), Earn and Learn Initiative	0	0	2*	11	20	33
Texas High School Project (THSP)	0	0	3	0	8	11
Total	**3**	**16**	**26**	**33**	**52**	**130**

Source: 2006–07 ECHSI school survey and JFF

Note: The first intermediaries listed above (shaded) are the seven originally funded intermediaries.

* One ECS is supported by both SECME and NCNSP.

** One ECS is supported by both MCNC and WWNFF.

ECS Origins

As shown in Figure 2.1, the ECSs in the ECHSI are overwhelmingly brand new schools (called startup ECSs): 66 percent of the schools open in 2006–07 originated as part of this initiative. The remaining ECSs evolved out of an existing school (called adaptation ECSs; 20 percent), or the breakdown of a larger school (called conversion ECSs; 2 percent), or a program developed within an existing high school (called program ECSs, 13 percent). Although two-thirds of ECSs are startups, all 13 intermediaries worked with at least some existing schools to build their network of schools, and 10 worked with at least one existing school during their first 2 years in the ECHSI. The appeal of working with existing schools early in the initiative is not surprising. Intermediaries were able to start up several sites quickly by converting or adapting existing schools into ECSs while simultaneously working with new sites that would open thereafter.

Figure 2.1. Percentage Distribution of ECSs by Origin in 2006–07
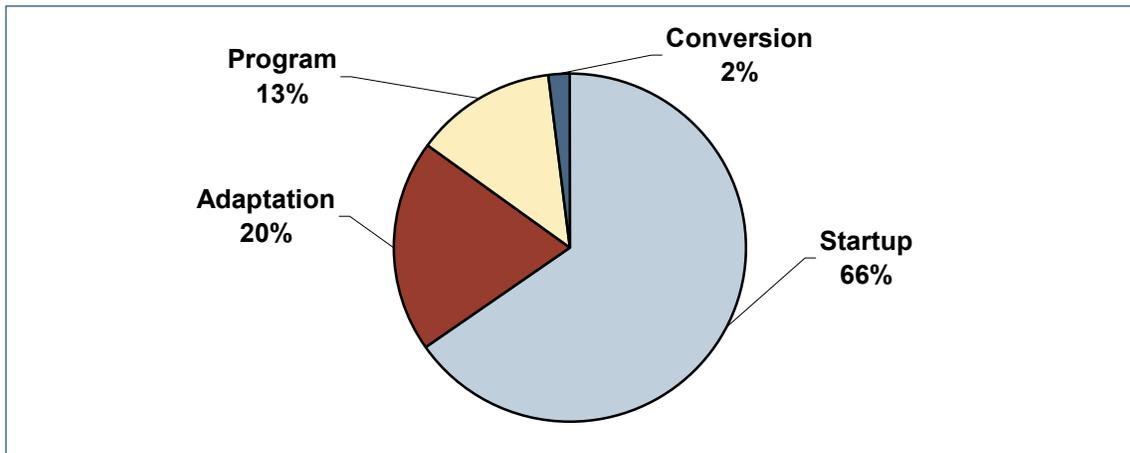
ECSs: *n* = 119

Source: 2006–07 ECHSI school survey

Note: Percentages sum higher than 100 percent due to rounding.

By fall 2007, most ECSs were district public schools located in urban areas. More than two-thirds of ECSs were district public schools (69 percent). Approximately one-quarter (26 percent) were public charter schools. More than one-half, 58 percent, of ECSs were located in cities. However, 18 percent of ECSs were in rural areas.

ECS Partnerships

All ECSs are required to partner with an IHE. In most cases, ECSs have partnered with public 2-year IHEs (64 percent; see Table 2.2). The extensive involvement of public 2-year IHEs has characterized this initiative almost from the beginning. Except for the first year of the ECHSI, when the few open ECSs were all MCNC schools partnered with 2-year IHEs, each year about three-quarters of the new schools have partnered with a 2-year IHE. Given community colleges' mission to serve their communities and their inclusive enrollment policies, these IHEs are natural choices as partners in serving a nontraditional college student (i.e., high school student) population.

Nonetheless, 36 percent of ECSs have a 4-year IHE partner, usually a public IHE. However, the prevalence of 4-year IHEs in this initiative is less than this percentage suggests. Only 27 percent of ECSs have no 2-year IHE partner. The schools with multiple partners include six ECSs with both public 2-year and 4-year IHE partners, four ECSs with both public 2-year and private 4-year IHE partners, and one ECS with all three IHE partner types.

Table 2.2. IHE Partner Types in 2006–07

Partner Type	Percentage
Public 2-year institutions only	64
Public 4-year institutions only	24
Private 4-year institutions only	3
Multiple partner types	9

ECSs: *n* = 120

Source: 2006–07 ECHSI school survey, JFF, and search of IHE Web sites

Beyond the IHEs, there are many different types of partners working with ECSs. Other partners include, most commonly, the local school district (or districts); others are community-based organizations (CBOs) and charter management organizations (CMOs).

Physical Location of ECSs

By definition, ECSs offer students some combination of high school and college classes. This often creates some ambiguity about where the heart and soul of these schools reside, and indeed, describing the location of ECSs is rather difficult. In 2006–07, not only did some ECSs have unique solutions for locating a small high school requiring access to college, but also many had multiple solutions. For example, one ECS had portable classrooms on the campus of its feeder middle school where high school classes were offered. The middle school campus was located near the partner IHE, and a bus took students to college classes on the campus. Another ECS offered high school classes on the campus of its 4-year IHE partner, but students took public transportation to the campus of a 2-year IHE partner for many college classes. (Of course, some of these solutions have led to facilities challenges, as described in the text box below.) On the school survey, ECSs identified where they offered the majority of high school classes and the majority of college courses. For the purposes of the remainder of this report, ECSs are considered to be "located" where they offer the majority of their high school classes.[9]

Facilities Challenges for ECSs

About one-quarter of the 20 schools in the site visit sample reported facilities challenges. Common complaints included lacking science labs that meet district criteria, windowless and cramped classrooms, and assignments to district-owned portables. Three of the ECSs noted significant facilities challenges associated with being on a college campus. For example, they did not have enough classroom space in the provided trailers, or they were dispersed throughout the IHE campus until a permanent building was located. Some of these challenges will be resolved when permanent facilities are secured for these ECSs. A principal at one ECS noted, "When we get down in the new location, and we are there all together, and it feels like a school, I think it will make a difference. Now we are so spread out, and we do not have a really solid school identity."

[9] GtC ECSs do not technically offer high school classes. All of these sites are "located" where they offer college classes, which is on a college campus.

In 2006–07, more than half of all ECSs (56 percent; see Table 2.3) were located on either a 2-year or a 4-year college campus. This percentage is up from 2005–06, when 48 percent of ECSs were located on a college campus. The difference can largely be attributed to NCNSP, which opened a large number of ECSs on college campuses in 2006–07.

Table 2.3. Location of ECSs* in 2006–07

Location	Percentage of All ECSs
In own school building	37
On a 2-year college campus	47
On a 4-year college campus	9
On another school's campus	4
In a nonschool building	3

ECSs: *n* = 117

Source: 2006–07 ECHSI school survey

* Based on the location of the majority of high school courses.

College Integration

ECSs largely rely on dual-credit policies, in which one class can provide both high school and college credits, to integrate college course-taking within the high school curriculum. Although all ECSs must eventually offer college courses, not all had implemented this curricular feature. By 2006–07, 87 percent of ECSs offered at least some college courses to high school students. However, the percentage of ECSs that offered college, or dual-credit, courses was quite high compared with other high schools. In academic year 2002–03, only 63 percent of high schools nationally with enrollments under 500 students offered dual-credit courses; for schools with high minority enrollments, such as ECSs, only 58 percent of high schools offered dual-credit courses (Waits, Setzer, & Lewis, 2005).[10]

Location of College Courses

ECSs make many decisions in developing a high school program with college courses. One of the most important decisions concerns the location of the college courses, as that decision has an impact on the available resources and instructors as well as the degree of integration of students within the college environment. In 2006–07, about three-quarters of ECSs (74 percent; see Figure 2.2) offered most of their college classes on a college campus (a feat made easier for many by their colocation on a college campus). Again, as most ECSs had partnerships with 2-year IHEs, ECSs were most likely to locate the majority of college courses on a 2-year college campus. Other locations included nonschool buildings and the use of distance education courses. Despite the availability of classes on college campuses, at least one-third of ECSs (33 percent) offered at least some college classes in a high school setting. ECSs also noted whether they offered college courses in multiple locations,

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[10] ECSs and the general population were responding to different questions, which should be noted when considering this comparison. ECSs noted whether they offered any college courses to high school students; the general high school sample reported whether they offered dual-credit non-AP college courses on a college campus.

which 44 percent of ECSs did. When all the locations are considered, 91 percent of ECSs offered at least some college courses on either a 2- or 4-year college campus. The frequency with which ECSs made college settings available to high school students taking college courses was quite high when compared with other high schools. In the 2002–03 academic year, only 76 percent of programs with high minority enrollments, such as ECSs, offered dual-credit courses on a college campus (Waits, et al., 2005).

Figure 2.2. Location of Majority of College Courses in 2006–07
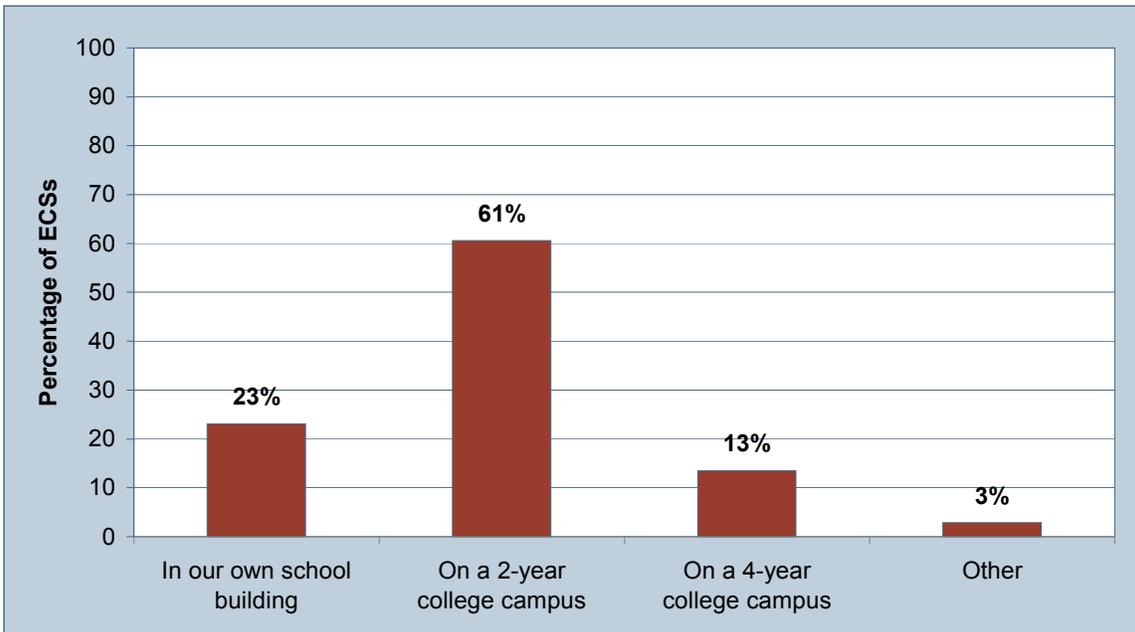
ECSs offering college courses: *n* = 104
Source: 2006–07 ECHSI school survey

College Course Student Composition

Even when located on a college campus, ECS college classes may not have been integrated with the larger college population. In the most common arrangement, small groups of ECS students took college courses with college students (72 percent of ECSs students reported taking courses in this manner). More than half (56 percent) of ECSs provided courses consisting exclusively of ECS students. However, more than half of the ECSs (57 percent) noted that ECS students attended otherwise typical college courses with college students. Clearly, many ECSs (56 percent) offered multiple methods by which students experienced college courses. The most popular combination was to provide some college courses in which groups of ECS students were integrated with college students together with some courses in which students took college classes alone or with a handful of other ECS students. This combination was implemented at 44 percent of the ECSs.

College Course Instructors

The availability of instructors for college courses depended to a large degree on where students were taking college courses. In 2006–07, ECS students reported largely experiencing college courses taught by college instructors (87 percent). This is a striking difference between ECSs and other dual-credit programs nationally. In academic year 2002–03, only 35 percent of academic college courses with high school students had a college instructor (Waits, et al., 2005). At 6 percent of the ECSs, most college classes were taught by high school instructors with college-level teaching credentials, and at 7 percent of ECSs, most college courses were cotaught by high school and college faculty members. Again, many ECSs used multiple approaches. In 2006–07, 17 percent of the ECSs used at least two types of instructors for different college courses.

Descriptions of the various strategies ECSs used to integrate high school and college coursework is discussed in detail in Chapter III.

ECS Grade Span

Grade span configuration varied among the ECSs. Despite being part of a "high school" initiative, some ECSs included middle school grades; in fact, 12 percent of ECSs enrolled grades below 9th grade. Some ECSs incorporated an extra year, grade 13, which is usually a time for students to focus on college credit accumulation. Other ECSs, including all Gateway to College (GtC) ECSs, were ungraded. GtC ECSs enroll students who have dropped out or are at risk for dropping out of high school and have earned relatively few credits toward high school graduation. GtC students enroll in college courses that count toward high school graduation requirements, and they stay affiliated with the GtC program until they have completed a high school diploma or turn 21.

Figure 2.3 displays the grades ECSs enrolled in 2006–07. However, many ECSs planned to offer more grades than they had enrolled in 2006–07. The distinction between enrolled and planned grades is important because this demonstrates a common implementation strategy for both new and existing schools — starting with one or two grades and adding a grade each year (usually, but not always, enrolling lower grades first), until the school includes all planned grades. In general, ECSs intend to offer students a 4- or 5-year program leading to both a high school diploma and some number of college credits. Some ECSs, however, target middle school grades. Whatever grade span was ultimately targeted, most schools offered only one or two grades when they began, building enrollment incrementally as students advanced through the program.

In 2006–07, only 43 percent of ECSs offered 12th grade.[11] This demonstrates the youthfulness of this initiative. Only 16 percent of ECSs had a class of students that had progressed through the entire ECS program in 2006–07.[12]

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[11] All of the ECSs that offered grade 13 also offered grade 12.

[12] These schools both offered 12th grade and had been ECSs for at least 4 years.

Figure 2.3. Percentage of ECSs Offering Each Grade Level in 2006–07
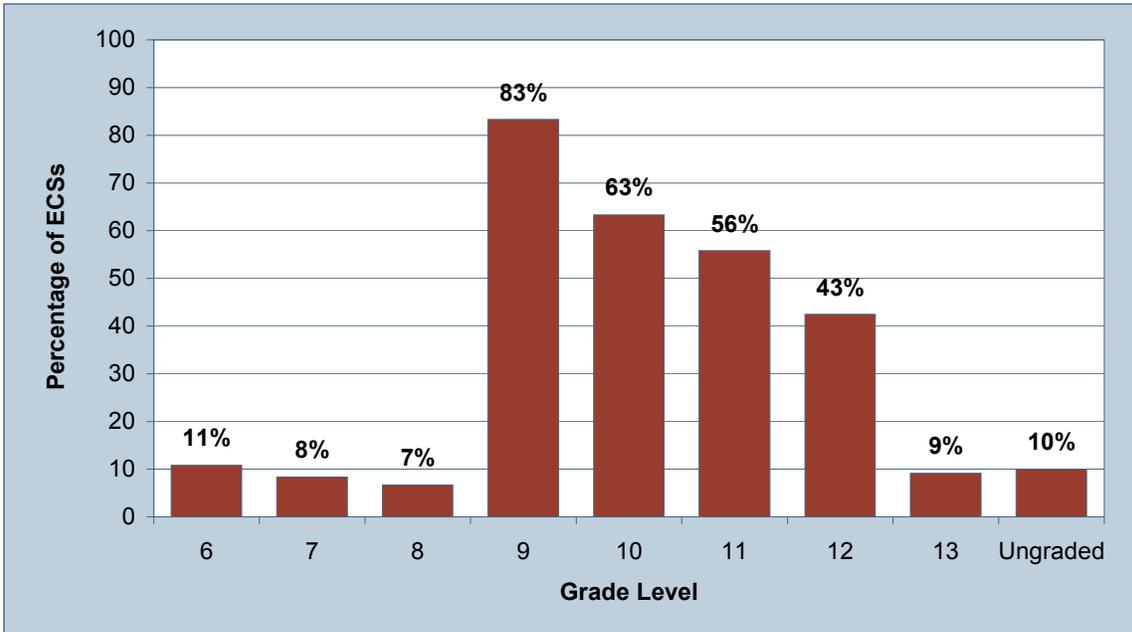
ECSs: *n* = 120
Source: 2006–07 ECHSI school survey

ECS Size

Small, personalized learning environments are one of the fundamental aspects of the ECHSI. In 2006–07, the average ECS enrolled 167 students total. Given that many ECSs did not yet enroll all the high school grades, the size of the schools can be better illustrated through the average size per grade. As displayed in Figure 2.4, the average grade size in ECSs was well below the commonly accepted definition for a small school (fewer than 100 students per grade). This does not mean, however, that no schools had large enrollments. In fact, 2 percent of ECSs had 9th-grade enrollments larger than 150 students. Some ECSs also had very small 9th-grade enrollments (20 or fewer students); most of these were programs within an existing high school or new ECSs that opened in 2006–07.

The smaller grade size in upper middle school and upper high school grades is likely due to the aforementioned implementation pattern. As ECSs add one grade at a time, the first enrolled cohorts are smaller, and subsequent cohorts become larger. Grade 13, however, will likely remain a relatively small grade: It is commonly an optional year used for students (usually students in MCNC schools) who want to complete the requirements for an Associate's degree.

Figure 2.4. Average Grade Size in 2006–07
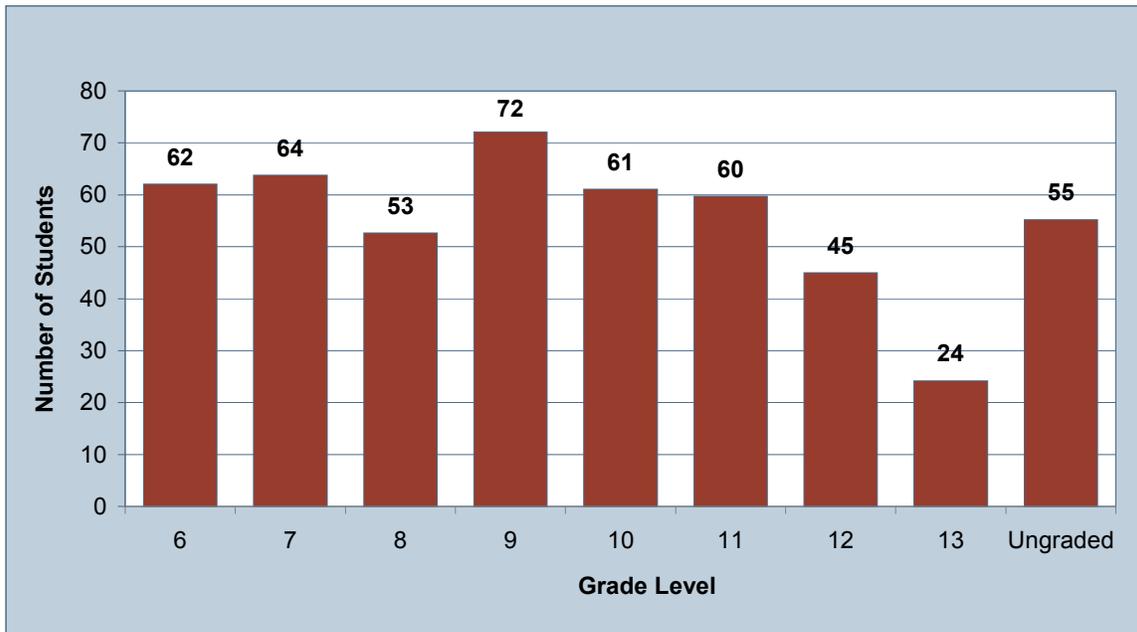
Number of ECSs offering: 6th grade: n = 11; 7th grade: n = 8; 8th grade: n = 6; 9th grade: n = 97; 10th grade: n = 71; 11th grade: n = 61; 12th grade: n = 45; grade 13: n = 6; ungraded: n = 9

Source: 2006–07 ECHSI school survey

Summary

This chapter has addressed a basic evaluation question: What are the structural characteristics of ECSs? As a new model for an educational institution, ECSs must identify and implement a combination of features that work within the existing physical and policy environments and meet the needs and demands of providing both a high school and college experience.

This chapter introduced features that will be used in analyses comparing ECSs in the remainder of the report. These features are:

- *Origin* — Startup versus existing sites

- *Age* — number of years open as an ECS

- *ECS location* — whether or not most high school classes are offered on a college campus

- *IHE partner type* — 2-year versus 4-year partners

Chapter III — Establishing the ECS Community

Chapter Findings

- In 2006–07, ECSs continued to enroll high percentages of minority students, low-income students, and students from diverse language backgrounds, as they are intended to do. Some newly available data from an ECS student survey suggest that some ECSs may enroll students whose parents are more likely to have college degrees than students nationally. The proportion of ECS students reporting that mothers and fathers held degrees was almost double the proportion reported by a nationally representative sample of students on another survey. Granted that national data are an imperfect comparison measure for a variety of reasons, this finding nevertheless suggest the need to further explore this issue.

- As documented in previous reports, some tension can exist between serving the ECHSI target student population and providing students with the opportunity to earn college credit. Monitoring the admission standards and enrollment processes of ECSs to ensure that the target population continues to be served remains a priority for the evaluation.

- Universally, ECSs sought to create a college-going culture. Schools used both structured and informal mechanisms to build students' visions of themselves as college bound.

- Curriculum plans varied in terms of college credit accumulation goals. A relationship existed between location of the school and credit goals — ECSs located on college campuses had higher credit goals.

- ECSs implemented a variety of academic and social supports to optimize students' ability to handle the rigorous academic demands. Overall, students reported that staff were available to provide assistance when requested, particularly regarding college and career preparation. These supports were most commonly available at the high school level versus the college level, and providing the necessary student supports placed significant demand on high school staff. The need for more teaching and support staff was reported nearly universally at visited schools.

Introduction

Understanding what defines an ECS goes beyond an examination of structural features. In combination, these features create an instructional environment that is quite distinct from a typical high school. In this chapter, we will focus on the essential college-going culture and other school attributes that also must be in place and that are central to the vision of an ECS.

This chapter begins by discussing whether ECSs are meeting their target population goals by enrolling students who are typically underrepresented in postsecondary education. The analysis includes a discussion about what, if any, challenges schools are facing in reaching the desired students.

An ongoing challenge for ECSs is ensuring that adequate structures are put in place and that students have a clear path to meet the ECSs' outcome goals. As discussed in a later section, a first step in this process for many ECSs is fostering a college-going culture that simultaneously establishes high expectations for students and provides both structured and informal opportunities for students to view themselves as college material.

Next, the Integration of College Courses section discusses the strategies schools use to integrate high school and college courses, including what, when, and how college courses are offered. It is important for schools to create a course sequence or curriculum plan that (a) enables students to earn up to an Associate's degree or 2 years of college credits while in high school, and (b) compresses the time to earn a postsecondary degree. ECSs have to bear in mind the state policies for high school and college requirements as they develop these curricula. Thus, as appropriate, this discussion references pertinent policy issues.

Finally, ECSs recognize the significant, inherent challenges that students face in meeting the ECSs' ambitious goals. Hence, the last section of this chapter discusses the academic and social–emotional supports in place to facilitate students meeting these goals, including specific supports for the postsecondary transition.

ECS Target Population

ECSs strive to enroll students who are typically underrepresented in postsecondary institutions. These students come from a variety of backgrounds, including students:

- Who are English language learners

- Who are the first in their families to attend college

- Who do not have access to the necessary academic preparation for postsecondary enrollment

- Who are from racial and ethnic minority groups

- Who do not have the financial means to attend college

Most ECSs focus on some of these characteristics when considering their target populations. To determine the degree to which ECSs are meeting this goal, the evaluation team compared ECS demographic data with district data obtained from state and district Web sites.

Meeting the Goal of Enrolling the Target Population

Most ECSs enrolled higher percentages of minority and low-income students than the geographic comparison districts (see Figure 3.1). On average, 67 percent of ECS students were minority students; higher than the 61 percent, on average, at the local school districts. Similarly, ECSs, on average, enrolled higher percentages of low-income students than the geographic districts (60 percent and 58 percent, respectively). Although the number of ECSs increased dramatically in 2006–07, the average percentage of enrolled minority and low-income students was similar to the 2005–06 ECS population (71 percent and 52 percent for minority and low-income students, respectively).

Figure 3.1. 2006–07 Average Percentage Enrollment of Minority and Low-Income Students in ECSs and Geographic Districts
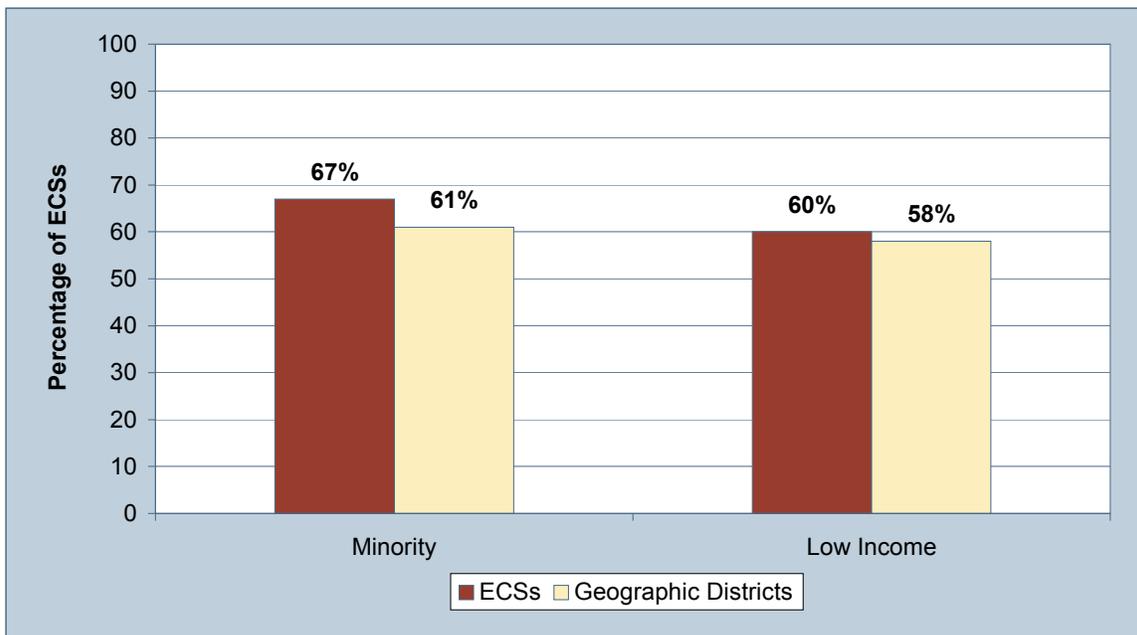
ECSs: *n* = 80

Source: Extant data from publicly available sources and the 2006–07 ECHSI school survey

Note: Low-income status was determined based on available district statistics, usually students' eligibility for the free- and reduced-price lunch program.

The target population of students for the ECHSI is much broader than just low-income or minority students and includes all students "underrepresented" in postsecondary education. For example, the target population includes students who have limited English proficiency (LEP) and students who are the first in their families to attend college. Although many districts report the percentage of students in each school designated as LEP, too few ECSs reported these data and thus an initiativewide estimate cannot be calculated. However, in the representative student survey sample, 25 percent of the students reported living in homes where English is not the primary spoken language. This percentage is higher than the 21 percent of high school students who reported that they spoke a language other than English at home in a nationally representative sample of 9th- through 12th-grade students in 2005 (KewalRamani, Gilbertson, Fox, & Provasnik, 2007). Although the district-level data would provide a better comparison, these data demonstrate that ECSs did enroll high percentages of students who have multilingual backgrounds. To the extent that these students are LEP, they are part of the ECHSI target population.

In terms of parents' educational level, 33 percent of students who attended ECSs reported that their mothers had graduated from college and 29 percent said that their fathers had graduated from college. Findings from a nationally representative survey of 10th-grade students indicated that 17 percent of their mothers had graduated from college and 17 percent of their fathers had as well (Ingels, Burns, Chen, Cataldi, & Charleston, 2005). The fact that ECSs had almost double the

reported national levels of parents with college degrees is a surprising finding. Several explanations warrant further investigation in future years of the evaluation. First, the national data could be a poor comparison. Again, districts would provide a better comparison, but these are data that districts commonly either do not collect or do not make publicly available. Second, students in ECSs may be more aware of college, and their family members' college histories, than high school students in general, and therefore may be more accurate in their reporting. Third, ECSs may appeal to parents with college degrees or to their children. Finally, admission requirements, if too stringent, may have the unintended consequence of weeding out students from families with less exposure to college. The latter two explanations in particular warrant careful attention. ECSs should be implementing admissions policies that prevent the student population from being overwhelmed by students from a higher socio-economic status (either from over-application or strict admissions standards). A discussion of the increasing stringency of ECS admission policies appears below.

In addition to the target population characteristics noted above, site visits to 20 ECSs revealed many subjective criteria ECSs use when recruiting and selecting students. For example, school staff described their target population by achievement levels, such as "most interested and successful" or "have unrealized potential." Nine ECSs sought out more challenging students, described as "disconnected" from the school system and "super at-risk." "Super at-risk" refers to students who have emotional and/or mental disorders or who have been involved in the juvenile justice system. One school primarily served students who were part of group homes or the foster care system.

Challenges With Enrolling the Target Population

As noted in the 2005–06 evaluation report (AIR & SRI, 2007), tension continues to exist between meeting the target population goals and providing students with an opportunity to earn college credit. Given the challenges of working with some of these students, seven of the 20 visited ECSs (35 percent) indicated that they made some adjustments in the ways that they were thinking about the target population, usually targeting students who were better prepared academically and who also demonstrated more mature behavior. For example, the local communities surrounding three ECSs viewed the schools as alternative schools and attempted to funnel students to the ECSs who were suspended or who could not be served at the comprehensive high school. To change the student composition, the ECSs screened for issues such as poor attendance and suspensions of potential students.

The tension between target population versus high expectations is not easy for ECSs to resolve. For example, one ECS has focused increasingly on college credit accrual. However, this adaptation school's target population traditionally has been students who were at especially high risk for failure, had emotional and mental health disorders, or had been in the juvenile justice system. The administrators at this school worried that, with the increased expectations, they would have to admit better prepared students — a strategy that would detract from the school's original mission.

One concern as ECSs start to modify their enrollment criteria is that they may end up "creaming" the best and brightest students in a community, an outcome which is certainly not the intent of the ECHSI. It is difficult to know whether creaming is in fact occurring without students' prior

achievement data, which are currently not available (but will be available when the SIS is fully populated). However, five visited schools (of 20) noted that they enrolled at least some students who did not meet the target population criteria of the ECHSI. For example, two schools reported that they targeted some students with strong academic skills (e.g., incoming students who are in the top 10–15 percent academically). Typically, these schools accepted these students because they were unable to recruit enough applicants who fit the target population or they wanted to include a handful of students to serve as role models.

Some districts, concerned about the potential for creaming at ECSs, initially set up policies to protect against this. For example, two of the sites visited could not actively recruit students because the community and district comprehensive high schools were concerned that the ECSs would enroll only the best students from the population and would create a "brain drain" on the other schools. Instead, these ECSs were required to enroll students using a lottery system or accept any student who applied to the school. The principal at one of these ECSs noted, "We're not skimming off of the top, for sure."

In summary, the qualitative and quantitative data suggest that ECSs are largely serving students who are traditionally underrepresented in postsecondary institutions. In fact, most institutions are admitting students who ordinarily would not be considered for academically advanced programs by largely targeting students who have academic, behavioral, and familial challenges and who meet the broad definition of the target population (e.g., minority students or low-income students). As one

> *A minority of ECSs are choosing to enroll some of the more academically and behaviorally mature students in communities.*

ECS leader said, the ECS wants to reach "the kids who were underachieving and underperforming [who] had capacity that had never been tapped into with the right support systems." A minority of ECSs, however, are choosing to enroll some of the more academically and behaviorally mature students in communities, as least as a small portion of their total student population. It will be important for partners and the evaluation team to closely monitor the prevalence of schools within the initiative that are becoming more selective in their admission decisions.

College-Going Culture

Because students in the target population might not see themselves as college material, it is important for ECSs to deliberately foster a college-going culture. A unique feature of the ECSs is that they create an environment in which college is a natural and articulated part of the vision for students' futures. As one instructor explained, "You have to remember who our student population is and how they were labeled: at-risk and potential dropouts. … It's a quantum leap from thinking, 'I probably won't even finish high school' to 'I want to go to college.'"

This section of the report introduces academic expectations as a foundation for a college-going culture. The section then focuses on the structures that ECSs put in place to help students see college as a possibility.

High Academic Expectations

High academic expectations are an important component of a college-going culture. Students who become accustomed to high expectations in high school are prepared for the demands of college. This eases the transition to college courses and makes the students confident that they are capable of engaging in challenging academic coursework.

At the 20 ECSs surveyed in 2006–07, students generally reported that instructors had high academic expectations. Eighty-seven percent of students surveyed agreed that their high school instructors made it clear that the work was meant to challenge them. Only 8 percent reported that high school instructors expected very little of them. High expectations also were communicated through curriculum plans. As discussed below, 70 percent of ECSs in the site visit sample had curriculum plans that required all students to earn at least some college credits.

Nonetheless, in 50 percent of the visited ECSs, at least one interviewed staff member at the ECS or its IHE partner believed that not all students could meet the goals of the ECHSI. Among the high school instructors who expressed doubts, a common view was that some students would not be "long-term college students." As one high school instructor explained, "There are some students [whose] skill levels aren't going to be high enough [for college]; that's just who they are." The student survey data indicate that some students perceived that high school instructors had differential expectations for students and treated students differently. Twenty-eight percent of students surveyed reported that high school instructors had given up on some students, and 18 percent believed that high school instructors only cared about the smart students. Previous research has shown that students' expectations for themselves mirror high school instructors' expectations for them (Rubie-Davies, 2006). This underscores the importance of creating a schoolwide culture of high expectations for all students.

Some IHE instructors' experiences with ECS students led them to question whether college was an appropriate goal for all. For example, one IHE instructor stated, "I don't think they necessarily need to all be filtered into the 2-year [Associate's degree] program. … I do know some of the kids I had in [my college course], they would really struggle in the [Associate's degree] program." It appears that these views are based on early experiences with students, rather than on expectations. Many of the ECSs at which these views were expressed enrolled students in the upper high school grades. Therefore, instructors in these schools had more students taking college classes and more opportunity to gauge how students would perform in college.

Mechanisms to Foster a College-Going Culture

In addition to high expectations, ECSs used a variety of strategies to promote students' academic identity as "college material." These strategies, many of which were described in a previous evaluation report (AIR & SRI, 2007), took the form of structured programs or activities that included college tours, participation in social or cultural events on IHE campuses, and the use of role models to talk about college. These strategies also took the form of informal or implicit mechanisms, such as communicating messages about college and treating ECS students as if they were college students.

Leaders and instructors at all of the ECSs in the site visit sample mentioned using some kind of strategy to build students' college-going expectations and visions of themselves as college material. Given the diversity of ECSs and the wide variety of programs and strategies available, no single approach was predominant across the ECSs.

At more than half (55 percent) of the ECSs in the 2006–07 site visit sample, instructors reported using messages about college as a deliberate strategy to build a college mindset. At the ECSs where this approach was mentioned, it was woven into the fabric of the school, meaning that college is, as one student noted, "all they talk about." A guidance counselor explained, "Starting from when I first meet them over the summer [before 9th grade], we talk about college there and it continues 9th, 10th, 11th, 12th, constantly talking about college."

Another relatively common strategy for helping ECS students see themselves as future college students was to treat them as if they were college students. At 65 percent of the ECSs in the site visit sample, at least one IHE instructor said they treat ECS students no differently than regular college students. Among these instructors, one summed up the prevailing view by saying that "part of their experience is learning what a college class is like, so I don't want to treat them differently from my other students." The higher standards required students to assume a greater degree of responsibility for their own learning. A student explained that in college, "you're even more responsible for your work, and if you don't get it done, then that's on you. It's like we went to a level of responsibility from medium [in high school], and then from the college we went to high."

Student focus groups revealed whether students recognized the schools' efforts to create a college-going culture. Students' responses to a variety of questions indicated that some of the less structured mechanisms might have had a greater influence as a whole. For example, students rarely mentioned the programs or formal activities that ECSs offered. In contrast, students at 55 percent of the visited ECSs discussed the fact that instructors talked about college and student success. As an example, when asked whether all high school instructors wanted them to succeed, a group of students talked about how often they heard these messages. They said that the ECS instructors "talk about college and succeeding maybe three times a day … like, five … well, at least four, one in every class."

> *ECSs' efforts to create a college-going culture seem effective. Students interviewed had unequivocal visions of themselves as college-bound. Many had well-articulated career plans that included college and graduate school.*

In terms of their impact on students, ECSs' efforts to create a college-going culture seem effective. Similar to findings in previous evaluation reports, students interviewed in focus groups during 2006–07 had unequivocal visions of themselves as college-bound. Many had well-articulated career plans that included college and graduate school. The findings from 2006–07 also suggest that students have an increasing level of sophistication about college credits. For example, students at some ECSs were aware of which college courses they could take for dual credit (college courses that count for both high school and college credit), and students mentioned the opportunity to earn college credits as a reason for attending the ECS. As one high school senior explained, "My friends at other high schools are bogged down in popularity and I'm 58 college credits ahead of them."

In addition to the mechanisms described in this section, the course sequence at ECSs is another important vehicle for creating a college-going culture. As described in the next section, ECSs use various strategies to structure college-course taking experiences in ways that build students' images of themselves as college material and enable them to earn college credit.

Integration of College Courses

Two of the ECHSI's primary goals center around students accumulating college credits: enabling students to earn up to an Associate's degree or 2 years of college credits toward a baccalaureate while in high school and compressing the years to a postsecondary degree. To meet these goals and serve the target student population, ECSs use multiple strategies to combine high school and college coursework. Some ECSs allow students to take college courses during 9th grade to build students' self-confidence and readiness; others choose to delay students' first college course until the upper grades, when students are more "mature" and better equipped academically for the rigor of college courses. Many ECSs have some type of scaffolding that guides when they offer college courses to students, how many courses they offer, and the types of courses they offer. In some cases, the strategies are deliberate attempts to allow students to slowly transition into college-level coursework; in other cases, structural factors (transportation, distance from college, schedule, etc.) dictate the ECSs' approach. In all cases, establishing curriculum plans requires ECSs to consider their unique contextual factors to maximize the likelihood that students will meet the goals of the ECHSI.

This section discusses issues that ECS partners must consider when developing curriculum plans, including:

- State policies, particularly state articulation agreements and the transferability of the college courses

- Goals for college credit accumulation

- How ECSs structure the college course-taking experience

State Policies

State policies can dictate or limit, to a certain extent, which high school and college courses ECSs can offer to their students. States typically have a list of courses that students must take and pass to graduate from high school. Restrictive state policies reduce the amount of college courses that can be included in the school's curriculum plan.

In some states, students must take high school courses to fulfill high school course requirements. In North Carolina, students cannot fulfill core academic high school course requirements with college courses; they can only apply college courses to cover high school elective credits.[13] In some cases, schools can obtain special approval for college courses to count toward high school requirements. For example, in California, students who wish to enroll at the University of California or California State University after graduation must fulfill the state's "a–g" subject area requirements; schools can get "a–g" certification from the University of California for college courses as long as those college courses are in the required subject areas and are transferable to the university. However, there appears to be confusion at some ECSs regarding the use of college courses to meet "a–g" requirements. One ECS leader said,

> *It is ironic, because the A through G [requirements] are supposed to say you are ready for college, but if you do college work, you cannot count it for A through G. There are all these policy problems that the state has not yet tackled. So there is all this work to tackle what needs to be done in the next couple years.*

Therefore, ECSs must make sure that they fully understand their state's policies on high school graduation requirements to ensure that students are able to take advantage of college courses in their curriculum plans.

State exams that students are required to pass to graduate from high school also can influence the types of courses offered in curriculum plans. Some ECS staff reported needing to focus more on courses that help prepare the students for those exit exams. In New York, for example, all students must pass the Regents exams. ECSs have been allowed to offer all of the exams by the end of 10th grade so that students can take colleges classes in 11th and 12th grades. However, ECSs are struggling to prepare students at such an early grade for both the Regents exams and the college courses. This tension has led one ECS to not offer many college courses to its students. In North Carolina, students must take 11 high school courses that have an associated end-of-course (EOC) exam. Feeling limited in the number of college courses it could offer, one ECS in North Carolina applied for and received a waiver from the state to allow students to take college courses in those

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[13] Despite this limitation, North Carolina has a waiver system in which ECSs can apply for exemptions to certain policies. Several ECSs have been able to receive a waiver that allows them to count college courses toward the core high school graduation requirements as long as the students successfully complete the course and pass the end-of-course exam associated with the required high school class. This exemption enables these schools to offer more levels of courses than their limited staff would be able to provide and expands the number of college courses students can take. Thus, although there is no guarantee that schools can get waivers, there is potential for them to be exempted from policies that limit their ability to implement the ECS model.

subject areas and take the EOC exam without having taken the high school course. The state waivers are precedent-setting, so that all ECSs in the state also can exercise this option.

Finally, ECSs must consider the transferability of college courses when setting curriculum plans. ECSs want students to have the flexibility to apply their college credits toward degrees at other public institutions in the state, as well as private or out-of-state institutions. However, the first priority for schools is to maximize the transferability within the state's public postsecondary system. Statewide articulation agreements stipulate which college course credits all public IHEs in the state must accept. These credits are typically general education courses such as mathematics, English, science, and history. Five of the 11 states with ECSs in our site visit sample have articulation agreements that require all public IHEs within their public system of universities to accept eligible college credits.

However, the presence of an articulation agreement does not alleviate all transfer challenges. In New York, it is easier for college credits earned at 2-year IHEs to transfer if a student has completed an Associate's degree. The City University of New York (CUNY) director noted that transferability of college credits "is very clear if the students complete their Associate's degree. It is less clear when they don't. And CUNY as a whole is working on that. Some courses are more universally accepted across the board than others. We are trying to make that known on both sides of the equation."

It has been more difficult for states and ECSs to develop articulation agreements with, or have credits transfer to, 4-year colleges and universities than 2-year IHEs. Four-year universities are often resistant to requirements that they accept credits earned at 2-year IHE campuses. As a community college leader noted, "I think you're always going to run into resistance with the idea of making education seamless. I don't think the community colleges will fight hard, but when you get to the 4-year colleges and universities and ask them to come up with articulation agreements, that becomes challenging."

> *It has been more difficult for states and ECSs to develop state articulation agreements with, or have credit transfer to, 4-year colleges and universities than 2-year colleges.*

For example, three major universities in one state will not accept credits earned through dual enrollment at community colleges. An ECS leader in that state said, "[For two of those universities], the practice of double-dipping cheats the student of the learning that should take place in two separate courses, while giving them credit for both." As a result, in the few early graduating classes, many ECS students are enrolling in out-of-state colleges that accept the dual-enrollment credits.

Even in states that have statewide articulation agreements, according to one intermediary the agreements are not always upheld or the 4-year IHE still enforces its own requirements regarding accepting credits toward a degree. In one state where the public 4-year universities have to accept the ECS students' courses if they earn a C or better, there are concerns about how the universities will perceive the ECS students. The flagship university in this state is an unwilling participant in the statewide agreement and would prefer that students take all courses toward a degree from the university on its campus.

In states without articulation agreements, the acceptance of credits is left to each IHE. The benefit is that partner IHEs have flexibility in what courses they can offer in their curriculum plans. The downside is that it creates more work for each partnership and more diversity across the state. It also can limit the transferability of ECS students' college credits to other IHEs. If colleges other than the partner IHE are not willing to accept the credits, it puts pressure on the students to stay at the partner IHE, thereby limiting their postsecondary choices.

College Credit Accumulation Goals

Another design decision for ECSs is how many college credits they will offer through their curriculum plans. Nineteen of the 20 ECSs visited in spring 2007 had curriculum plans in place in 2006–07.[14] Table 3.1 provides an overview of ECSs' college credit accumulation goals. Of the ECSs with defined curriculum plans, all set a goal of at least 24 college credits so that students are well on their way toward earning a college degree upon graduation. Some ECSs based their minimum credit accrual goal on the number of credits that are easily transferable within their states.

Table 3.1. ECSs' College Credit Accumulation Goals

College Credit Accumulation Goals	Year ECS Opened	Located on College Campus	Start-Up
24–30	2002	X	
24–30	2003	X	
24–30	2003		
24–30	2003		X
24–30	2003		
24–30	2005		
42	2004		
45–50	2004	X	X
60–AA*	2003	X	X
60–AA	2003	X	
60–AA	2004		
60–AA	2005	X	X
60–AA	2005	X	X
60–AA	2005	X	X
60–AA	2005	X	X
60–AA	2005		
Goals not defined	2003		
Goals not defined	2005		
Goals not defined	2005		X
No plan	2003		X

Source: Curriculum plans and interviews at 20 ECSs visited in 2006–07

* AA = Associate's degree

[14] The ECS that did not have a curriculum plan in place still offered college courses to its students. However, students took their college courses in a more informal manner. For example, students at this ECS appeared to make individual decisions about what classes to take based on their preferences, or they were allowed to select any course that met their graduation requirements.

Table 3.1 also illustrates several interesting findings. First, for the 16 ECSs that had clear curriculum plans, there is a relationship between the year each ECS opened and its credit accumulation goal. Of the ECSs that opened in 2002 or 2003 and had a defined plan, 5 of the 7 (71 percent) had credit accumulation goals in the 24 to 30 credit range. Nearly all of the ECSs that opened in 2005 and had defined plans (5 out of 6) had college credit accumulation goals of 60 credits or earning an Associate's degree (60–AA). This difference can be largely attributed to MCNC; most of its ECSs opened in the earlier years of the initiative, and MCNC ECSs made a policy decision to set 24–30 credits as the goal for success. Additionally, of the 7 startup ECSs that had defined plans, 5 (71 percent) had plans for students to earn 60 college credits or an Associate's degree. Of the other ECSs (i.e., adaption, conversion) with plans, only 33 percent (3 of 9) had established plans for 2 years of credit.[15] The fact that other ECSs have lower credit goals than start-up ECSs is not surprising given the need for these schools to accommodate students already enrolled as they transitioned to fully adopting the early college model.

Interview data from the sites with lower college credit goals revealed that the schools had made adjustments, rather than starting with these goals. Of the visited ECSs with college credit accumulation goals of less than 2 years, 5 of 7 reported that they found that their original goal of 60 credits was too high and subsequently lowered their goals. One school chose to focus on the 42 core credits that are transferable to any in-state institution. The school leader explained that to meet the lower goal of 42 credits, students still must begin college classes immediately in 9th grade, and they also must take classes over the summer. Other mature ECSs mentioned that they have reduced access to college classes based on early experiences with underprepared 9th- and 10th-grade students. For example, one district representative explained,

> *Our freshmen and sophomores often will need some intensive college prep work in terms of their writing, reading, and math skills to benefit from the college credits when they are juniors and seniors. In the past, they have open[ed] the [college] classes to all of the kids, and the 9th and 10th graders really struggled. … Our goal would be that … our kids graduate … with 24 to 32 college credits.*

As Table 3.1 illustrates, nearly all of the ECSs with higher goals (60 college credits or an Associate's degree) were newer schools. Based on the findings at more mature ECSs, newer sites may later adjust these expectations based on experience.

> **There is a relationship between school location and credit accumulation goals. ECSs located on college campuses were more likely to have higher college credit accumulation goals.**

Another interesting finding is that a relationship exists between school location and credit accumulation goals. Of the ECSs located on college campuses, 6 of 9 (67 percent) set college credit accumulation goals of 60 credits or an Associate's degree. In comparison, only 2 of the 7 ECSs not located on college campuses with defined goals (29 percent) had goals in the 60 credit to

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[15] The age of the ECSs could be a confounding factor in this analysis.

Associate's degree range. Hence, it appears that when an ECS is located on a college campus, the proximity makes higher goals more feasible.

The preceding discussion is based on the top credit accumulation goals at the ECSs. Despite schoolwide goals, the types of courses students can take and the subsequent number of college credits students can earn is often determined on an individual level. Most ECSs consider the appropriate courses for individual students based on a combination of age, GPA, placement or assessment scores, course prerequisites, course load, and difficulty level of the college courses. In addition, approximately half of the 20 visited ECSs had alternative plans to accommodate different majors, and one ECS hoped to do the same in the future.

Although in many cases schools had modified the course sequence or credit accumulation goals, all ECSs with clear plans still expected all students to experience college during high school. The next section further highlights some of the considerations ECSs must make when creating a curriculum plan, including when to offer courses, which courses to offer, and challenges involved in integrating college courses.

Structuring the College Course-Taking Experience

Sixteen of the visited ECSs provided written curriculum plans.[16] These documents provide a clear picture of the academic integration of college course offerings. More than half of the ECSs began offering some college courses during 9th grade. The remainder either allowed students to begin taking college courses in 10th or 11th grade. In either situation, ECSs slowly integrated students into the college courses.[17] For the schools that offered college courses to their 9th-grade students, the college courses were equally divided between college-level academic courses (such as humanities, foreign language, history, or science classes) and electives (such as health or physical education). Yet, nearly all schools sampled postponed students taking college-level algebra or ELA until the 11th or 12th grade.

> *More than half of the ECSs offered some college courses during the 9th grade. The remainder of the schools allowed students to start taking college courses in 10th or 11th grade.*

Student survey data provide an overall picture of the types of college classes that students reported taking. Not surprisingly, the percentage of students enrolled in college classes increases from 36 percent of 9th-grade students to 66 percent of 12th-grade students. As Figure 3.2 shows, students took more academic courses in upper grades. Eighteen percent of 9th-grade respondents noted that

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[16] Although 19 of the 20 ECSs visited had curriculum plans, we were only able to acquire 16 curriculum plans for in-depth analyses, including an ECS that has two sites with different curriculum plans. Therefore, our sample includes 16 curriculum plans from 15 schools.

[17] Although not included in the 2006–07 site visit sample, ECSs affiliated with GtC do not follow this pattern. All GtC sites first enroll students in three developmental college courses. After completing these courses, students can choose from a variety of regular academic courses. At no time are GtC students enrolled in "high school" classes.

their first college course of the week was an academic course, compared with 46 percent of 12th-grade students.

Figure 3.2. Percentage of ECS Students' College Course Subject Areas, by Grade
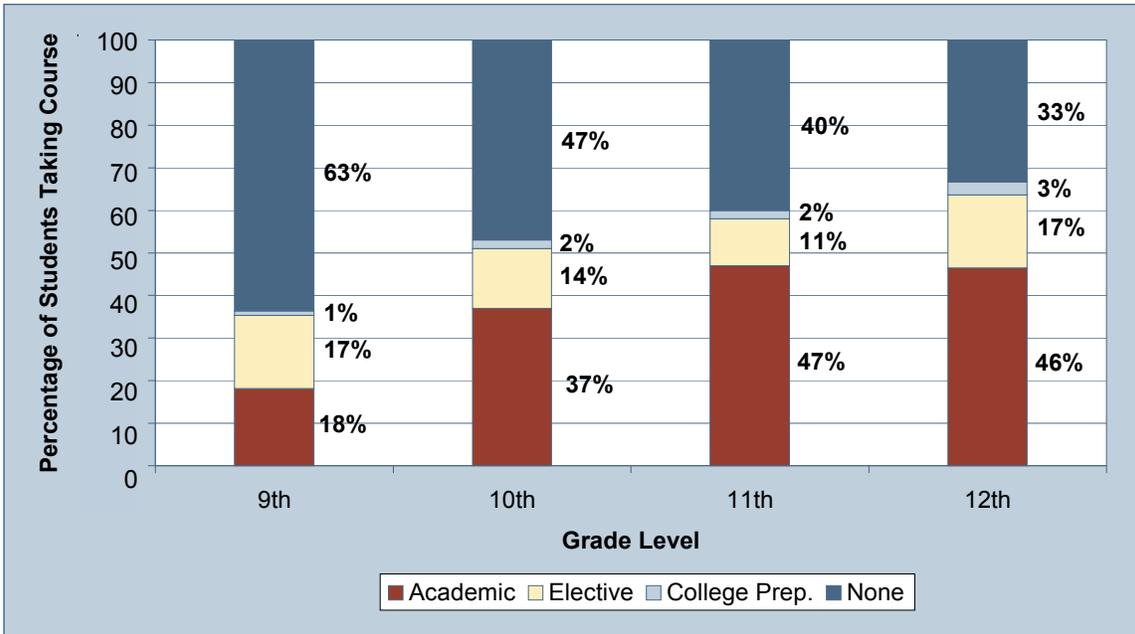
Total number of students in 9th grade, *n* = 1,217; 10th grade, *n* = 1,197; 11th grade, *n* = 973; 12th grade, *n* = 560

Source: 2006–07 ECSHI student survey

Note: The survey question used here specifically asked students about the first college class they took for the week to get a distribution of types of classes. College preparatory courses were write-in responses to this survey item; other subjects were forced responses.

Site visit data suggest that students were not *choosing* to take electives or college prep courses during their 9th-grade year. Rather, many ECSs purposefully offered such courses in lieu of college-level academic courses. In doing so, they were putting students into college courses designed to build students' confidence and motivation, provide them with essential study skills, and begin acculturating them to college culture and expectations.

At 16 of the 20 site-visited schools, students had to pass placement tests in English and mathematics to enroll in college classes or to determine what level of class they should take. A positive finding from the 2006–07 data collection efforts is that ECS staff less frequently reported that placement exams were a barrier for students seeking to enroll in college courses, as was the case in prior years. Nearly half of the schools did not cite the exams as a barrier at all, with one ECS lauding the tests as a good indicator of the success of the school's curriculum.

> *A positive finding from the 2006–07 data collection efforts is that passing placement exams was not reported to be a barrier for students seeking to enroll in college courses, as was the case in prior years.*

Rather, ECSs reported that although some students still have trouble passing the exams, ECSs have created other avenues to enroll students in college courses. For example, several schools enroll students in college courses that do not require them to pass the placement exams. This alternative limits the number of courses students can take, but it enables students to adjust to the college course-taking experience. One ECS can occasionally ask for a waiver to the exam, while one college offers alternative test options (a timed essay in English or a test composed of problems that the mathematics department developed) or allows students to meet with professors who can choose to add them in to their classes. Similarly, one ECS permits students who do not place into a college mathematics class to take high school mathematics and then petition the college department chair for entry into the college-level mathematics class. A few schools have increased the number of times students can take the placement exams.

In summary, this section has discussed how ECSs integrated high school and college coursework to meet the goals of the ECHSI. Of the ECSs with defined curriculum plans, all set a goal of at least 24 college credits so that students would be well on their way toward earning a college degree upon graduation from high school. The analysis of the curriculum plans indicates ECSs were slowly integrating students into college courses by either starting them with less rigorous courses or enrolling them in one or two courses. ECSs also were finding ways to work with the placement exams to make them less of a barrier for students. The next section continues this discussion by showing the necessity of offering a full range of academic and social supports as ECSs continue to balance the two, sometimes competing, goals of serving a target population of students who are often academically behind, while enabling those students to earn up to an Associate's degree or 2 years of college credits.

Supports for Students

As noted elsewhere in this report, expectations for ECS students are almost universally high. Not only are ECS students expected to perform well in their high school and college classes, but also they must exhibit great maturity when they take college courses on college campuses. These expectations, coupled with the fact that many ECSs enroll students who start high school academically behind, necessitate regular and targeted supports to ensure the success of ECS students.

Academic and Social–Emotional Supports

Previous evaluation reports (AIR & SRI, 2005b, 2006, 2007) have shown that ECSs recognize the importance of structured supports, and that the vast majority of ECSs provide formalized academic supports such as tutoring and advisory courses. The 2006–07 school survey data revealed that ECSs continue to provide these supports. As Figure 3.3 shows, in 2006–07, 86 percent of surveyed schools offered formal tutoring. In addition, 84 percent of surveyed schools offered some type of support class during the school day, such as AVID.

The 2006–07 data also revealed that ECSs recognize that tutoring or an academic support class is not enough to ensure students' success. To fully support the students, most ECSs — including 100 percent of ECSs in the 2006–07 site visit sample — offer some combination of academic and social–emotional supports that are designed to help students succeed academically, socially, and as they transition to postsecondary education or work. In addition to the formalized tutoring and seminar courses already mentioned, these supports can include informal counseling or peer mentoring, college tours, college preparation courses, and internships or other career awareness opportunities.

> *Of the visited ECSs, 100 percent offered some combination of academic and social–emotional supports designed to help students succeed academically, socially, and as they transition to postsecondary education or work.*

Figure 3.3. Prevalence of Supports Offered to ECS Students, by Support Type
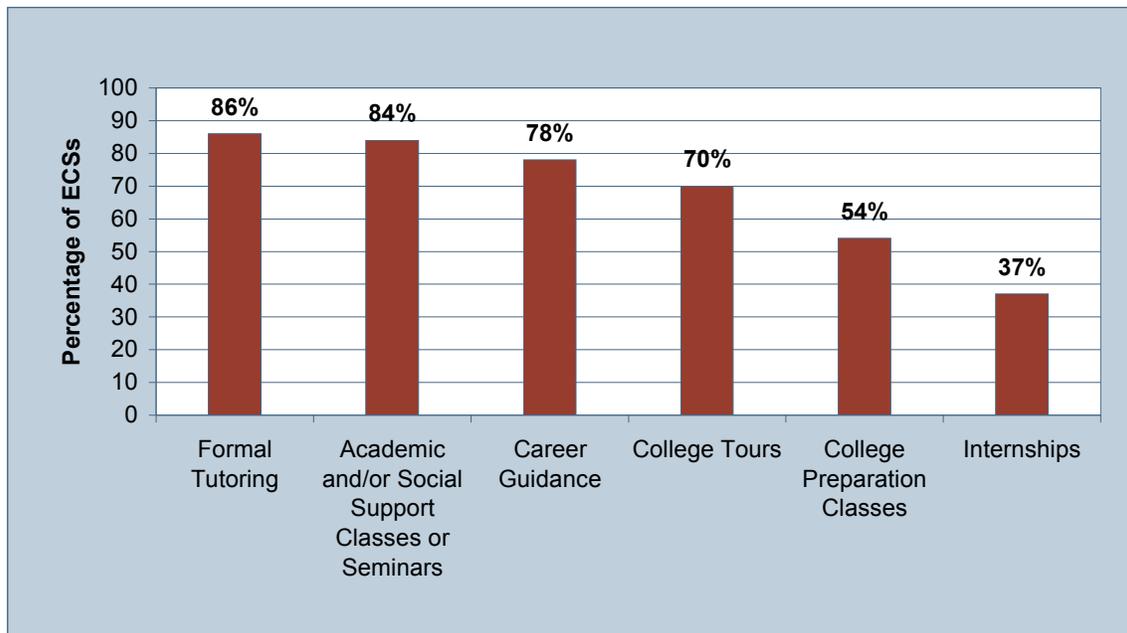
ECSs: *n* = 120

Source: 2006–07 ECHSI school survey

Among ECSs in the 2006–07 site visit sample, 35 percent offered a comprehensive set of academic and social–emotional supports that included formalized offerings and informal supports such as drop-in counseling. In those ECSs, students had a variety of options for receiving whatever type of support they needed from a number of adults and other students at the ECS. For example, some schools have started peer tutoring or mentoring programs. At these ECSs, there was a nearly universal recognition that the demands of the ECS necessitated a comprehensive set of supports for students. For example, one principal reported that the ECS staff tell prospective students, "We're going to expect a lot, but you can also expect a lot of us." Moreover, relationships at these ECSs appeared to be strong at all levels: high school instructors collaborated frequently, students comfortably interacted with their peers, and students reported very strong relationships with their

high school instructors, who made themselves available during and outside of school hours. It is important to note that most other ECSs in the site visit sample shared at least some of these characteristics, but not to the extent exhibited in this subset of about one-third of the schools visited (see Comprehensive Suite of Supports text box for an example of the supports available at one of these schools).

Consistent with a comprehensive system of supports, a new finding in 2006–07 was the increasing prevalence of early identification and intervention for students who are falling off track academically. In fact, 85 percent of the site-visited ECSs had some method for monitoring student progress on an ongoing basis. At one ECS, for instance, the staff members developed individualized plans for any student who had lower than a "C" average at the end of each grading period.

> *A new finding in 2006–07 was the increasing prevalence of early identification and intervention for students who are falling off track academically.*

In a similar vein, 45 percent of visited schools divided their student populations into small groups of students that met on a regular basis with a designated faculty member who served as a mentor or coordinator. Through these small classes and groups, ECS leaders and instructors hoped that students would feel more comfortable talking to instructors about academic or personal problems. At one ECS, students were divided up into "houses" that met with an instructor weekly. The instructor explained, "The kids feel because you're their house teacher [that] they can come to you to talk to you." Faculty at ECSs with these support sessions mentioned that the small size of the ECSs made this kind of close student monitoring much easier. The benefits instructors stated of their close relationship to students are similar to those found in other foundation-funded studies of small learning communities and small schools (AIR & SRI, 2004). As one instructor noted, "Because we're so small … I can stay in their face when their grades are dropping. I can say, 'I know what you made on your last tests, now come by [for extra help].'" Another ECS instructor noted that the smaller groups within ECSs give the counseling staff another avenue to identify students at risk, which potentially prevents them from slipping through the cracks.

Comprehensive Suite of Supports
At one ECS with a strong culture of support, the school staff understood the need to balance the demands of the ECS with the needs of the target population. In fact, the principal defined the target population as "the kid who, with extra support and time, could hopefully do well." When students apply for admission, they are required to develop their own learning plans. The principal explained, "We want to make sure in the first quarter that we address the deficit areas … in a sense, try not to let them drop behind out of the gate."
Once students begin at the ECS, they are required to obtain 80 percent mastery on weekly assessments administered in the classroom. If they achieve less than 80 percent mastery, they must attend Academic Assistance sessions that are offered 3 days a week. Academic Assistance is open to all students, but those who do not reach mastery are required to attend. During these sessions, the instructor reteaches the topic. Each day a different subject area is retaught — for example, mathematics on Wednesday and English on Thursday — and students are retested on Friday.
Additional academic assistance is available through a Smart Center, which is open to all students before and after school 4 days a week. At the Smart Center, students can do homework, read, complete written assignments, study, and use computers for research and projects. One student explained, "I come here twice a week from 8:20 to 9:30 just to get my [college] homework done. The school has hired ... our old biology teacher. She helps us with [college] physics. I'm glad they got that because I was going to have to go outside and get a tutor."
To provide more nonacademic support, the ECS has an advisory program. Every month, an adviser, who is a member of the ECS faculty, meets with their 10-12 advisees. According to the ECS' Web site, the advisory program provides an opportunity for students to develop a relationship with an adult who can support students during their transition between grades and on to college. Other social–emotional supports at this ECS include student-led counseling and conflict resolution groups and a freshman camping trip to facilitate class cohesiveness.

Most college classes did not provide the kind of formal early intervention processes described above. Only one-quarter of visited ECSs had formal systems for IHE and high school faculty to communicate about students in need of additional support in college courses. Those systems usually consisted of the ECS requesting grade reports. College instructors at only 10 percent (or, only two) of the ECSs visited in 2006–07 said they regularly spoke to the high school instructors about students who were struggling. However, college instructors at other ECSs expressed a desire to keep the high school faculty better updated on the students in their classes. The following example from a college instructor underscores the need for such a communications system:

> *Only one-quarter of visited ECSs had formal systems for IHE and high school faculty to communicate about students in need of additional support in college courses.*

> *I had a student [who] withdrew. I kept asking him, "I want to talk to your counselor." And I was just never able to get [in touch]. If [the ECS] got in touch with me earlier, then we could plan out and they could know what was going on.*

Despite the importance of monitoring students' progress in college courses, it is difficult to do so due to the lack of established mechanisms to acquire ongoing updates from college faculty and the anonymity of ECS students at some IHEs. Nonetheless, just as the supports within ECSs have evolved over the life of the ECHSI, such safety nets at IHEs could become more commonplace when a critical mass of ECS students is taking college courses.

Supports for Postsecondary Transitions

The ECHSI's goal is not merely to promote student success at ECSs. Indeed, the ECHSI emphasizes the importance of graduation from college and preparation for entry into high-skill careers. Thus, in addition to easing the transition from high school to college *within* ECSs, these schools also must concentrate on transitioning students for success *beyond* the ECS. The ECHSI's target student population often needs additional assistance negotiating this process (Hoffman, Vargas, Venezia, & Miller, 2007).

Overall, the student survey data indicate that ECS students were receiving support for college and career preparation. For instance, 85 percent of all students surveyed reported that two or more adults have helped them think about what they need to do to prepare for college or for a career, whereas only 6 percent said no adults helped them. In ECSs that served grades 9–12, the proportion of students receiving help from two or more adults grows from 78 percent for 9th-grade students to 90 percent for 12th-grade students. Given the ECHSI's goals, it would be ideal if

> *In ECSs that served grades 9–12, the proportion of students receiving help from two or more adults grows from 78 percent for 9th-grade students to 90 percent for 12th-grade students.*

all 12th-grade students received supports from several adults related to college and career, but these results are encouraging nonetheless. The data clearly show that the level and kind of supports increase as students reach graduation age. Indeed, at 40 percent of the visited ECSs, staff indicated that supports for college preparation (a) were not in place because the school does not serve upper grades, (b) were new developments, because the school is now serving upper grades, or (c) will need to be developed, because the school is beginning to serve upper grades.

Post-ECS College Applications

Academic work at the ECSs is designed to prepare students for the demands of college. However, ECSs also offer activities that explicitly prepare students for the transition to a technical, 2-year, or 4-year college. These activities include exposure to colleges and help with college preparation through support courses or other means.

The vast majority of ECSs offered college tours (70 percent of the 120 ECSs surveyed in 2006–07). Usually, these tours were of local colleges or universities, but they sometimes included visits to more distant locales. Leaders and instructors stressed the importance of visiting a variety of locations to

> *Leaders and instructors stressed the importance of visiting a variety of colleges to broaden their horizons.*

expose students to college and to broaden their horizons more generally. As a guidance counselor at an urban ECS explained, "We would really like to do more travel within the United States, and more college travel so that students would have a first-hand understanding of what college is like and see other environments besides [the inner city]." When the time comes for students to apply to college, ECSs offer several types of support. Among the high school seniors surveyed, for example, 55 percent reported that they had received help with college applications and 62 percent reported that they had received help with financial aid forms. Guidance counselors at 50 percent of the visited ECSs mentioned helping students and their parents with applications,

financial aid forms, and scholarships. According to students at one ECS, the guidance counselor has "a whole drawer of scholarships," and she posts scholarship opportunities on her door. Another guidance counselor explained, "I personally help seniors fill out applications. … As far as the [federal financial aid forms], I have told them how to do it, even showed some parents how to do it, how to get their [PINs]."

ECSs also built college preparation activities into courses. Indeed, in 59 percent of the ECSs surveyed, exposure to college or postcollege topics was a goal of support classes. Similarly, some ECSs in the site visit sample offered courses that either focused entirely on college applications, such as one called "Apply for College," or addressed college application procedures as part of the classes. When describing a course called "Student Strategies for Success," an instructor explained that, "Within the context of that class, we'll provide them a lot of help in filling out scholarship applications. One thing for sure we are going to do is have each student do a Pell Grant[18] application." Various college preparation activities also were a regularly scheduled part of advisory courses at 25 percent of ECSs in the site visit sample. As a 10th-grade adviser at one of those ECSs explained, "I just want them to have some familiarity with the process … so they are not intimidated by it."

A final type of postsecondary education support that ECSs provide is help preparing students for college entrance examinations. About half of ECSs surveyed (54 percent) provide entrance exam preparation, and students were using this support. For instance, 60 percent of 12th-grade students surveyed reported that they had received help with the PSAT, 63 percent had received help with the SAT, and 30 percent with the ACT.[19]

Career Awareness and Preparation

ECSs also offer opportunities that expose students to different career options and prepare them to begin various careers. In fact, 78 percent of surveyed ECSs reported providing career guidance.

A Formal Internship Program
One ECS provided a highly structured and supported internship program. Students who were doing internships had to concurrently enroll in a seminar that supported their internships through readings, movies, and discussion. As the guidance counselor explained, the seminar "talks about what's going on in their internship, how to deal with your boss, do you like your job, do you not like your job, what do you like about it, and all those kinds of things." ECS staff also visited internship sites and met with supervisors.

Internships that provided the opportunity for students to experience the real work world were the most common form of career support. About a third of schools surveyed (38 percent) reported providing internship opportunities to students. Internship programs varied across the visited ECSs. Some programs were well-defined and explicitly tied to the local economy or to students' goals and

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[18] The Federal Pell Grant Program provides need-based grants to low-income undergraduate and certain postbaccalaureate students to promote access to postsecondary education.

[19] Two-thirds (66 percent) of 12th-grade students surveyed had taken the PSAT, 68 percent had taken the SAT, and 32 percent had taken the ACT.

interests. Others were not as well-developed. For instance, at many of the ECSs that had internships, the opportunities to participate were uneven. As a student explained, participation "depends on your advisers, if they advise you to do [internships]." Internship opportunities at those ECSs also were not as well-publicized or widely used.

About 15 percent of ECSs in the site visit sample also used mentoring and job shadowing activities to increase students' career awareness. In some cases, ECS students were paired with mentors from churches or community organizations. They shadowed their mentors at work for a day. In other cases, ECSs arranged for job shadowing on an individual basis when a student expressed an interest in a particular career.

> ### Example of a Career-Based Project
>
> At one ECS, a project allows 9th- and 10th-grade students to provide instruction. Students develop and deliver health-related lessons to local elementary students. This exposure to the responsibilities of a profession in a real-world context influenced the future plans of at least one student, who explained, "When I first applied [to the ECS], I thought [it] was a good opportunity to go to college. I was not interested in being a teacher, but after completing the teacher project, I have changed my mind. They give you experience to let you see why you might want to become a teacher, or maybe why you might want to rethink that decision."

These career awareness activities had several benefits for students, including:

- *Connecting current education to future goals* — One ECS leader said that the biggest challenge they have with students is, "Why do we need to learn [this at] this moment?" According to that leader, internships help students see how their classroom knowledge and behavior applies to what they want to do in the future. Moreover, matching work-based learning opportunities to student interests helps make school relevant.

- *Exposure to careers of interest* — According to one student, "The whole internship allows you to test the waters of what you think you want to do." Some internships reinforced students' interest in certain types of careers. For other students, the internship taught them that they did not like a particular field.

- *First-hand knowledge of the steps necessary to achieve their career goals* — Through the internships and mentoring programs, careers became more than just abstract goals. One ECS leader described the impact of one student's experience with her mentor: "I am thinking about a girl who has a lot of support from her family, but not a lot of educational savvy. … She wanted to be a lawyer, but didn't really know what it takes to be a lawyer. Now she knows, 'What do I have to do to be accepted at [a flagship university] and continue with law school?' Whether she makes it or not, I have no idea, but now she has a lot of information, and she has more chances."

Demands on Human Capital

Given the small size of ECSs and the lack of resources for hiring sufficient staff, providing the intensive and varied supports described above usually involves multiple staff members. In the course of supporting students, ECS leaders and instructors serve in a variety of capacities that might include confidante, academic adviser, and tutor. Across the 20 visited schools, the need for more teaching and support staff was nearly universally reported. One high school instructor stated, "You see ECSs have a high turnover rate, and I tell you it's because [working at an ECS] is a lot of work. … All of a sudden, mainstream schools that follow a chartered scheme seem pretty good."

> *Across the 20 visited schools, the need for more teaching and support staff was nearly universally reported.*

Guidance counselors are an integral part of the support structure. Of the ECSs that provided information on the 2006–07 school survey, most reported having at least one counseling or guidance staff member. Similar to findings from previous evaluation reports, however, guidance counselors from 50 percent of the ECSs in the site visit sample reported that they lacked the time and resources to provide adequate support to all the students in their schools. Counselors often have a host of other noncounseling-related responsibilities, including acting as a liaison with the IHE partners, arranging the logistics for students taking college classes, and more. One guidance counselor lamented, "In a perfect world, there would be three me's." As a result, other members of the ECS staff — from the high school instructors to the principal — shouldered some of the burden of offering social and emotional support to students.

These challenges notwithstanding, the student survey and site visit data suggest that ECSs have been able to support their students well. For instance, 87 percent of surveyed students who went to a high school instructor for help reported that they usually found that high school instructor to be helpful. These data suggest the value of combining high expectations with a supportive environment.

Summary

ECSs have high academic expectations for the intended target student population. Many of these students would not have considered a future that included earning up to 60 credits or an Associate's degree, especially in the compressed timeframe that is a central characteristic of the ECSs. Acknowledging these ambitious goals, schools have sought to implement a college-going culture and provide students with an academic and social support system that will enable them to successfully attain the college credit accumulation goals that the schools have set.

It is clear that as the ECHSI has progressed and more students are enrolled in college classes, new issues have emerged for ECSs. Some of the key issues that have had an impact on schools in the 2006–07 school year are described below:

■ Overall, although schools are enrolling the intended target population, they are still grappling with the uncertainty of whether these students can successfully earn college credit. This concern has led some schools to adjust their admissions criteria to include consideration of prior behavior

and student motivation, as well as an increase in academic prerequisites. Given how essential the target population is to the mission of ECSs, it will be important to carefully monitor the level of alignment between the intended student population and actual student enrollment.

■ Despite ECSs' efforts to establish a college-going culture with high expectations for students and structured and informal programs that facilitate students' perceptions of themselves as college material, at approximately half of the ECSs visited, instructors were still concerned that some students were not academically prepared for the academic rigor of college.

■ The goals for credit accumulation outlined in ECSs' curriculum plans vary significantly. Schools located on college campuses had higher credit accumulation goals. When creating curriculum plans that integrate high school and college classes, ECSs must consider relevant state policies, including exit exams, high school graduation course requirements, dual-credit guidelines, and state articulation plans.

The percentage of students enrolled in college courses increased each academic year, with 66 percent of seniors enrolled in college courses during 2006–07. As more students are eligible for and take college courses, it is becoming necessary for ECSs to provide supports for postsecondary transitions. These supports include exposure to college through college tours, support applying to college, and information on financial aid, internships, and other career awareness opportunities. Few schools had formal mechanisms for communicating with college faculty about ECS student academic performance. The extent to which schools provided a combination or suite of supports varied, but often was based on strong relationships between students and staff and the dedication of the staff to provide these services on top of their regular duties. Not surprisingly, providing these additional services can place a significant demand on the human capital of a school. It will be important for school leaders to monitor staff morale and develop strategies to adequately support staff on an ongoing basis.

Chapter IV — The 3R's in ECS Classrooms

Overview

Using the 3R's — rigor, relevance, and relationships in the classroom — as a lens, this chapter describes instructional practices observed in high school and college classes and identifies patterns in classroom instruction across the ECHSI. The analyses reported here build upon a framework for analyzing instruction used in previous evaluation reports as well as studies that suggest connections between how people learn and the ways classrooms are organized (see, for example, Applebee, 1996; Moschkovich, 1999; National Research Council, 2005).

An updated analytic framework developed for the 2006–07 analysis provides a way to understand the levels of *rigor* and *relevance* in each of the observed high school and college lessons and to make comparisons across lessons. The analysis of instruction presented in this chapter was based on data collected from 74 classroom observations conducted in spring 2007 at the site-visited ECSs. These observations provided a snapshot of instruction occurring throughout the ECHSI. The observations were coded using the updated frameworks developed for rigor and relevance. In addition, an analysis of high school and IHE instructor interview data provided an understanding of the extent to which student–instructor *relationships* informed instruction. (For a more detailed discussion of the data collection and analysis methods for this chapter, see the technical appendix.) The resulting findings provide not only a more nuanced view of these aspects of instruction, but also a clearer picture of instructional patterns emerging in classrooms across the ECHSI and how these three aspects of instruction interact.

This chapter begins with a description of the framework used to describe the level of rigor observed in lessons in 2006–07, followed by a summary of findings for rigor across the ECHSI. The next section provides a description of the framework used to describe the level of relevance in observed lessons, including the extent to which relevance was visible in the observed lessons and the ways in which the constructs of rigor and relevance correlate. Next, the chapter examines relationships within the instructional context, in particular highlighting methods used by high school and college instructors to individualize instruction for their students. Finally, acknowledging the complex nature of instruction, the chapter explores the ways in which these three aspects of instruction, the 3R's, interact within an ECS lesson.

Rigor

In previous evaluation reports and the current report, the analysis of rigor did not aim to assess the level of rigor in the content of the lesson per se, but rather to look at the ways in which the content was delivered. Previous ECHSI evaluation reports have used the Bill & Melinda Gates Foundation's high school grants evaluation framework for looking at rigor. In that framework, observers looked for instruction that:

◼ Built on students' existing knowledge;

◼ Required students to demonstrate conceptual understanding;

◼ Required students to organize, interpret, evaluate, and synthesize information;

◼ Required students to communicate clearly; and

◼ Required students to revise work based on informative feedback.[20]

The coding used to categorize the 2006–07 classroom observations enhances that framework by adding a dimension that describes the ways in which high school and college instructors support student efforts to fully engage in rigorous lessons. Based on an initial analysis of the classroom observation data, it was clear that although some high school and college instructors appeared to provide opportunities for rigorous instruction, students did not always engage in those opportunities. The codes distinguish between activities that require students to organize, interpret, evaluate, and synthesize information and the kind of support that instructors provide to scaffold student efforts to engage in such types of analytic thinking.

Hence, the resulting codes describe:

◼ The extent to which lesson activities provided students with the *opportunity* to engage in rigorous instruction; and

◼ The extent to which the instructor *supported* this opportunity through instruction.

These two dimensions are explored on the following pages, first separately and then in terms of how they interact.

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[20] This work builds upon work conducted by members of the Consortium on Chicago School Research (see Bryke, Nagaota, & Newmann, 2000; and also Wenzel, Nagaoka, Morris, Billings, & Fendt, 2002).

Opportunity for Rigor

As Table 4.1 illustrates, more of the observed lessons were found to provide consistent opportunities for rigor than not.

Table 4.1. Opportunity for Rigor in Observed Lessons

Opportunity	Percentage
High opportunity	57%
Low opportunity	43%

ECSs: *n* = 20; Observed lessons, *n* = 74
Source: 2006–07 ECHSI site visits

High Opportunity Lessons

More than one-half of the observed lessons (57 percent) provided consistent opportunities for rigor (coded as "high opportunity"), exhibiting a number of common characteristics. In high opportunity lessons, students were called upon to think analytically. As defined above, rigorous lesson activities build on previous learning and require students to organize, interpret, evaluate, and synthesize information to solve problems and/or analyze text in new ways. Additionally, these activities build students' understanding of foundational concepts within a discipline and help students understand how new knowledge is generated. Thus, high opportunity activities may at times require students to recall basic facts or procedures, but do so in such a way as to generate new understanding of the subject matter.

> *High opportunity instruction, observed in 57 percent of the lessons, required students to think analytically, built student understanding of foundational concepts, and helped students understand how new knowledge is generated within a discipline.*

The following is an example of a lesson that provided a high opportunity for rigor:

> In one high school mathematics class, the instructor presented students with a series of word problems in preparation for a standardized test. At the beginning of the lesson, the instructor asked students to solve the problems using any way they knew. As the lesson progressed, the instructor encouraged students to express their solutions using algebraic structures. Throughout the lesson, the instructor encouraged students to talk through their solutions, noting, "I want you to continue to talk about the problems. Sometimes you get in the middle of a problem, talk about the math, and lose the sense of the problem." As students shared their ideas for solving the problems, the instructor insisted that they articulate the strategies and steps they used, asking them to talk through and write out their solutions in complete sentences. The instructor emphasized that there are multiple ways to solve each problem and that it was important for students to explain how they arrived at their answers. At the close of the lesson, the instructor asked each student to write a word problem of his or her own and solve it using what he or she had learned.

In this example, students were called upon to think analytically throughout the lesson, creating a consistent opportunity for them to engage in rigor. They were required to use their knowledge of algebraic structures to solve problems and then apply that knowledge to generate their own unique problems. Throughout the lesson, the instructor encouraged students to talk through their strategies using the language of mathematics in their descriptions of solutions. In lessons such as this one, the instructor emphasized both what the problems were asking and how to solve them, rather than simply applying procedures. By pointing out that there are multiple pathways for solving problems, the instructor engaged students in conceptual rather than procedural understanding.

Low Opportunity Lessons

Forty-three percent of the observed lessons provided a low opportunity for rigor. "Low opportunity" lessons tended to be limited in the ways in which lesson activities built students' understanding of key (or foundational) concepts within the discipline, relying primarily on report and recitation of recalled information or demonstration of mastery over procedures with little evidence of understanding of the concepts behind the procedures.

The following is an example of a lesson that provided a low opportunity for rigor:

> In one high school geometry lesson observed, the instructor demonstrated the procedures for drawing circles using a compass and measuring the arc while students followed along, drawing and measuring their own circles. The lesson opened with a review of vocabulary. Students called out prepared definitions during the review, but additional discussion of the terms did not happen. Students then copied figures from their textbooks and labeled them, showing diameter and radius on the diagrams. The instructor then demonstrated how to draw and label the parts of a circle, including major arc and how to calculate the arc's measurements, while students continued to follow along, calculating these measurements on their own drawings.

This lesson was coded as low opportunity because the focus of the lesson was on the procedural aspects of making the circles and measuring arcs rather than asking students to think about how or why the procedures work and how concepts related to arcs and angles built upon other geometric concepts they had previously learned. The high school instructor mostly asked the students to recall previously learned information about circles, requiring little interpretation or connection beyond what was being presented.

Support for Rigor

Even though a lesson may provide a consistent opportunity for rigor, with limited support, students may not be encouraged to take advantage of the opportunity. Instructor support has been found to benefit all students, including those who do not speak English as their first language (Applebee, Langer, Nystrand, & Gamoran, 2003; Cocking & Mestre, 1988; Gutiérrez, 2002; Kinsella & Feldman, 2003; Moschkovich, 1999). Providing support for student learning also is aligned with some efforts taking place within the ECHSI itself. For example, Bayerl (2007) describes how some ECSs are

enacting schoolwide literacy action plans, employing strategies such as interactive notebooks and Web-based writing tools, to support students in developing literacy across content areas.

As evidenced in Table 4.2, 64 percent of observed lessons provided a low level of support for rigor, suggesting that this dimension may be worthy of additional attention throughout the initiative.

Table 4.2. Instructor Support for Rigor in Observed Lessons

Low Instructor Support for Rigor	High Instructor Support for Rigor
64%	36%

ECSs, *n* = 20; Observed lessons, *n* = 74
Source: 2006–07 ECHSI site visits

High Support Lessons

Only 36 percent of observed lessons provided high levels of support for rigor. Lessons that provided consistent support for rigor (coded as "high support") exhibited a number of common characteristics. First, whether communicated implicitly or explicitly, high support lessons provided students with a clear sense of the purpose and rationale for lesson activities. Often the rationale was connected to some other concepts that students had learned or were going to learn, which provided coherence for students.

Second, high support lessons provided students with clear standards for achievement of lesson goals. In some cases, high school and college instructors communicated standards for achievement through rubrics on how written work would be graded or by explicitly stating expectations for class participation and holding students to it. Whether feedback was provided directly by the instructor or the instructor set up structures for students to provide feedback to their peers, the nature of the feedback in high support lessons was often related to clearly defined goals. In addition, feedback in high support lessons was informative about the ways in which students could improve, allowing them to increase their conceptual understanding of the content. Furthermore, in many instances, high support lessons provided students with opportunities to engage in elaborated communication about a given concept. In such lessons, the instructor tended to ask open-ended questions that encouraged extended discussion. Opportunities to engage in this sort of discussion allowed students to enter into the conversation of the discipline (Applebee, 1996) and see the dynamic nature of disciplinary content.

Finally, in high support lessons, the instructor modeled or encouraged the use of discipline-specific tools, frameworks, and/or academic language. Research suggests that this aspect of instruction is important for all students, but particularly for English language learners (Chamot & O'Malley, 1993; Cummins, 1986; Echevarria, Vogt, & Short, 2003; Freeman & Freeman, 2002; Moschkovich, 1999).

The following is an example of a lesson that provided high support for rigor:

> In one college ELA class, the instructor conducted individual conferences with students as they developed outlines and thesis statements for literature-based research papers; while one student met with the instructor, the rest of the students used library resources to continue their research. During the conferences, the instructor provided specific feedback on students' outlines and thesis statements and helped them clarify their thinking. One student who was tracing the theme of "prodigal son" commented that he had uncovered some similarities between Buddhism and Christianity that he found interesting. The college instructor replied: "Do you know of the Jungian archetypes? Go back to Campbell and get his take on archetype patterns." In another conference, the instructor noted, "This is much better, more descriptive; I understand what you are going to write about so much better now." In many conferences, the instructor encouraged students to use literary terms such as *foil, poetic image, theme,* and *hubris* in the context of discussing their research papers.

In this example, the instructor encouraged open dialogue during the student–instructor conferences, which provided opportunities for elaborated communication about students' thesis statements and supported deeper engagement with content. Through individual assistance, the instructor was able to help students deepen their analyses by pointing them to additional resources and by asking questions that might help students reframe their analyses. In addition, the feedback was explicit about the ways in which students could improve. Throughout the lesson, students appeared to be clear about the expectations for their papers, the expectations for the conferences, and the expectations for spending their time in the library when not meeting with the instructor. Furthermore, the instructor modeled the use of terminology typically employed in literary analysis, extending students' understanding of both the content and the academic language associated with the content.

Low Support Lessons

As noted, the remaining 64 percent of observed lessons provided low support for rigor. In these lessons, the high school and college instructors tended to use primarily yes/no, recall, or procedural questions to engage students in discussion, providing little opportunity for students to formulate elaborated responses. For example, in a college statistics class coded as low support, throughout a lecture on the goal of performing statistical analysis, the instructor interspersed questions about statistical concepts and steps in solving problems, such as "What does x bar stand for?" and "What kind of mean?" Although students' responses seemed to indicate that they were following along with the explanation, their one- and two-word answers provided little opportunity for elaborated communication on the concepts presented. The high percentage of these types of lessons among those observed suggests that instructors might benefit from professional development focusing on the types of support that allow students to fully engage in rigorous instruction and the ways in which instructors can employ such support, at both the high school and college levels.

Interaction of Opportunities and Support for Rigor

Thus far, the discussion has treated the two dimensions of rigor separately. However, as has been implied, neither aspect of rigor results in particularly strong instruction without the other. In this section, the two dimensions are presented together to show what instruction looks like when both dimensions of rigor are present and when they are not.

As shown in Table 4.3, most of the observed lessons fell either in the lowest category, with 39 percent of the lessons coded low opportunity/low support, or in the highest category, with 32 percent of the lessons coded high opportunity/high support.

Table 4.3. Opportunities and Support for Rigor in Observed Lessons

		Level of Support From the Instructor	
		Low	High
Opportunities for Rigor	**High**	24%	32%
	Low	39%	4%

ECSs, *n* = 20; Observed lessons, *n* = 74

Source: 2006–07 ECHSI site visits

Thirty-two percent of lessons showed consistent evidence of both dimensions of rigor — opportunity and support. In these lessons, activities provided an opportunity for rigor *and* the instructor provided sufficient support for students to take it on. For example, in a high school algebra class, the instructor began the lesson with a warm-up problem that was unfamiliar to

> *Thirty-two percent of lessons provided students with an opportunity for rigor and sufficient support to fully engage in the opportunity.*

students. He told students that they had not yet learned how to solve this type of equation, but he would like them to make attempts at solving it given what they already knew. As students made attempts to solve it, he invited them to reflect on their reasoning. The goal of the lesson was to teach students how to solve quadratic equations using a particular method. All of the activities in the lesson were designed to build upon one another, increasing the difficulty of the task as students proceeded. Students were not simply practicing one problem after another. Rather, problems built upon each other in ways that were made explicit to students, providing an opportunity for rigor. The high school instructor encouraged students to apply solutions to an unfamiliar problem and encouraged them to engage in mathematical processes and ways of working: "See if you can show me, rather than me just telling you how." In this way, he supported students' engagement with the rigorous lesson.

Thirty-nine percent of observed lessons lacked both the opportunity and the support for student engagement in rigorous activities. For example, in one high school ELA class, the instructor began the lesson by reviewing the definitions of some literary devices. Students spent the majority of the lesson reading scenes from *Julius Caesar* aloud. As students read, the instructor stopped students occasionally to comment on the text. However, the discussion focused primarily on the literal meaning of the text and the literary devices being used, thus providing little opportunity for analytical thinking. Furthermore, the instructor provided most of the commentary herself. The questions she

posed to students were primarily close-ended, such as "What kind of irony is that?" and "What is Decius saying he can do?" — limiting the opportunity for elaborated communication or deeper exploration of disciplinary concepts. Even questions that might have been considered analytical generated a single, very brief response from students, with no elaboration requested by the instructor.

Twenty-four percent of observed lessons were high opportunity/low support. In these types of lessons, the structure of the lesson provided opportunities to engage in meaningful ways, but students were not pressed or supported to do so. For example, in a college sociology class coded as high opportunity/low support, the instructor conducted a simulated "symposium" as a culminating activity, in which students were expected to use what they had learned about leadership in the course to participate in a panel discussion on effective leadership. However, some students were not sure of the expectations or goals of the activity and so did not know what to say when the instructor called on them to participate. Other students read directly from their notes. The instructor did not press students for additional thoughts on the topic. Students on the "panel" did not respond to one another — they simply took their turns. And students playing the role of "audience" did not participate aside from listening.

In this example, although the college instructor provided the opportunity for rigor by asking students to apply a framework they had learned about leadership to participate in a panel discussion, the instructor fell short in providing students with the necessary support to fully take advantage of the opportunity to demonstrate their learning through this simulation.

Finally, very few observed lessons, only 4 percent, were low opportunity/high support. For example, in one college sociology class, students spent a large portion of the lesson cutting and pasting materials for collages they were making, an activity that provided a low opportunity for rigorous instruction. However, the instructor provided a high level of support for the activity by presenting students with a detailed rubric describing how the collages would be evaluated and by circulating throughout the lesson to provide students with individual assistance.

The discussion thus far has focused on an analysis that cut across all lessons observed in 2006–07. The following section focuses on the level of rigor in specific kinds of classes.

Patterns Observed in the Analysis of Rigor

The analysis suggested some patterns with regard to the level of rigor observed in high school and college classes, and ELA and mathematics classes. Each is discussed below.

High School Versus College Classes

High school classes had slightly higher instructional rigor than college classes.[21] As illustrated in Table 4.4, 39 percent of observed lessons at the high school level were coded high opportunity/high support, compared with only 24 percent of college lessons. Overall, the differences between high school and college lessons were largely based on the level of support provided by the instructor. High school and college classes had similar percentages coded as providing high opportunities for rigorous instruction (59 percent of high school classes and 54 percent of college classes). The major difference occurred in support for rigor — with high school instructors supporting rigor at a higher rate than college instructors (41 percent of high school classes, versus 30 percent of college classes).

> *The differences between high school and college lessons were largely based on the level of support provided by the instructor. Although high school and college classes had similar percentages of classes that provided opportunities for rigorous instruction, high school instructors were more likely to support rigor than college instructors.*

Table 4.4. Level of Rigor in High School Versus College Classes

		High School		College	
		Level of Support		Level of Support	
		Low	High	Low	High
Opportunity for Rigor	**High**	20%	39%	30%	24%
	Low	39%	2%	39%	6%

ECSs, *n* = 20; Observed lessons: high schools, *n* = 41; college, *n* = 33
Source: 2006–07 ECHSI site visits

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[21] Again, it should be pointed out that the analysis of rigor did not aim to assess the level of rigor in the content of the lesson per se, but rather to look at the ways in which the content was delivered.

Mathematics Versus English Language Arts Classes

In a comparison of observed lessons in mathematics and ELA,[22] mathematics lessons tended to exhibit more rigor than ELA, with 45 percent of mathematics lessons coded as high opportunity/high support, compared with only 25 percent of ELA classes (see Table 4.5). In contrast, the findings from the 2005–06 classroom observations (AIR & SRI, 2007) indicated that ELA classes, on the whole, provided more examples of rigorous instructional strategies than mathematics lessons. However, those findings were based on a very different sample of classroom observations and used a different framework for analysis.

Table 4.5. Level of Rigor in Mathematics Versus English Language Arts Classes

		Mathematics		ELA	
		Level of Support		**Level of Support**	
		Low	**High**	**Low**	**High**
Opportunity for Rigor	**High**	26%	45%	17%	25%
	Low	29%	0%	53%	4%

ECSs, *n* = 20; Observed lessons: mathematics, *n* = 31; ELA, *n* = 28
Source: 2006–07 ECHSI site visits

In 2006–07, with the distinction made between *opportunities* and *support*, the findings suggest that ELA classes tended to provide less rigorous instruction than mathematics classes on both dimensions. However, it is worth noting that although 71 percent of the mathematics lessons observed were coded as providing a high opportunity for students to engage in rigorous instruction, nearly one-third of those lessons provided low support for students to take up those opportunities, suggesting that instructors in both subject areas could do more to support the opportunity for rigor provided in their lessons.

Overall, in classrooms visited in 2006–07, most instructors provided opportunities for students to experience a rigorous lesson, but fewer supported students in that endeavor. The most rigorous overall instruction occurred in high school classes and in mathematics classes. The next section explores relevance in observed lessons.

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[22] The sample of classroom observations contained too few classes in other subject areas to report those separately.

Relevance

One way that instructors can improve the likelihood that students will engage with a rigorous lesson is to make the lesson relevant to them. The framework used to describe relevance in past evaluation reports looked at the way learning was connected to students' futures. That framework included four components and the extent to which activities required students to:

■ Address questions or problems with real-world applications;

■ Make choices about what they will study or how they study it;

■ Take on plausible writing roles and submit work to authentic audiences; and

■ Build upon and transfer skills and knowledge in other settings.

The updated framework used to describe the 2006–07 classroom observations built upon the previous framework and added the following dimensions:

■ The extent to which lesson activities built on students' life experiences and/or incorporated real-world problems or applications;

■ The extent to which those connections were central to the objective(s) of the lesson; and

■ The extent to which the instructor made those connections explicit for students.

"High relevance" lessons exhibited strong evidence of each of those dimensions. Most often, the two elements of relevance that separated high relevance lessons from moderate relevance lessons were the extent to which real-world examples were connected to the concepts being examined and the extent to which instructors explicitly helped students see the connections between the real world and those conceptual understandings. "Moderate relevance" lessons incorporated some connections into the instruction, but frequently they were not central to the lesson or were not made clear for students. For example, merely providing real-world contexts for a series of word problems was coded as moderately relevant if the focus on the lesson was procedural rather than helping students see the connections between those real-world contexts and the conceptual understandings that the problems address. "Low relevance" lessons exhibited little or no evidence of relevant connections. (See the technical appendix for a more detailed description of the codes.)

High Relevance

Only 12 percent of observed classes were classified as demonstrating high relevance. In high relevance lessons, instructors were able to help students learn how the concepts in the discipline related to the real world. Ways in which highly relevant lessons made real-world connections included:

> *Only 12 percent of observed classes demonstrated high relevance. In such lessons, instructors were able to help students learn how the concepts in the discipline related to the real world.*

- Alternating between the abstract theories and everyday phenomena that can be explained using those theories.

- Topics for discussion that centered on issues that were immediately relevant to students' lives and daily experiences, such as racism/stereotypes, current events, legal rights and responsibilities, and beliefs.

- Lessons in which students were asked to draw on what they already know about a particular topic.

- Content that centered on the history or literature of a group represented by the ethnic makeup of the class, such as Native American, African American, or Latino.

- Content that had direct relevance for students' career goals, such as a software application for engineering.

For example, in a college physics lesson, the instructor introduced the concept of wave theory by demonstrating with a Slinky and drawing upon the students' knowledge of what happens when they swim in the ocean. During the lesson, the instructor used these concrete examples to demonstrate transference and make comparisons between wave theories and particle theories, noting that for a long time, Newton believed that light was a particle. The instructor used musical instruments and voice as examples to demonstrate what happens with sound waves. In this way, he was able to demonstrate how abstract theories operate in the real world. By engaging students in these kinds of activities, he drew upon students' observations from their everyday experiences and demonstrated the ways in which physics can be applied to explain what they see and do every day.

Moderate Relevance

In the 32 percent of lessons that exhibited moderate relevance, instructors made some connections to students' lives, although those connections may have been tangential or contrived. For example, one high school instructor asked students to make a list of things that couples fight about. Although the lists certainly drew upon students' experiences, the lists were only tangentially connected to the objective of the lesson, which was about logical appeals in arguments. Moderately relevant lessons sometimes also demonstrated why students needed certain skills for the next class or for college, but not how these skills or concepts have real-world applications. In addition, some lessons that were coded moderately relevant were those in which there was variation in the level of relevance across

lesson activities, with some considered to be low in relevance and others high. For example, a high school ELA lesson included a series of activities related to the study of novellas. The lesson opened with the instructor reviewing background information on an author, a low relevance activity. Then, the instructor asked students to identify the story's setting, character traits, conflict, climax, resolution and, finally, theme, another low relevance activity. For the remaining portion of the class, students worked on creating a "simulation" in which they invented a character, plot, and setting, a potentially high relevance activity because of its clear connection to students' life experiences. Had the instructor made the connections to the real world more explicit throughout the lesson, the level of relevance would have been higher.

Low Relevance

Finally, 55 percent of the observed lessons were coded as "low relevance." In these lessons, instructors included little or no relevant activities. For example, in one high school lesson, students practiced reading poetry aloud. Students were asked to read the poems silently, paraphrase what the poems were about, and then read them aloud in a way that reflected the poet's intent. There was little relevance observed in any of these activities: For example, students were not asked to connect the messages of the poem to their own experiences. In another example of a low relevance lesson, a college instructor delivered a lecture demonstrating problems on moles and introducing the concept of stoichiometry. The instructor emphasized to students that these were foundational concepts that would be useful throughout their study of chemistry, but missed a number of opportunities to provide real-world problems and applications related to those concepts. Similarly, in a high school geometry class, the instructor commented, "You can't go to Home Depot and order anything in terms of *pi,* but in terms of Algebra 3, trig, calc, you'll need this." Although the instructor told students that they would need an understanding of *pi* for more advanced mathematics, he did not demonstrate how these concepts might apply to those courses or how these mathematical concepts might have real-world applications.

Patterns Observed in the Analysis of Relevance

Analysis of the data suggested patterns with regard to relevance observed in high school and college classes as well as relevance across ELA and mathematics lessons.

High School Versus College Classes

Findings suggested that in the observed classes, instructors of college courses were more likely to provide relevant instruction than instructors of high school courses. As shown in Table 4.6, 21 percent of college classes were coded as high relevance, whereas only 5 percent of high school classes were coded as high relevance.

Table 4.6. Level of Relevance in High School Versus College Classes

Level of Relevance	High School	College
High relevance	5%	21%
Moderate relevance	34%	30%
Low relevance	61%	48%

ECSs, *n* = 20; Observed lessons: high school classes, *n* = 41; college classes, *n* = 33
Source: 2006–07 ECHSI site visits
Note: Column percentages may not sum to 100 percent due to rounding.

Although both high school and college classes had many more low relevance lessons than high relevance lessons, it is worth noting that only two high school classes were coded as high relevance. This finding is even more striking because one of those two classes was actually cotaught with a college instructor. In short, of the 41 observed high school classes, only one that was taught exclusively by a high school instructor exhibited highly relevant instruction.

Mathematics Versus English Language Arts Classes

In a comparison of observed lessons in mathematics and ELA classes,[23] the findings suggest that ELA instructors were slightly more successful at integrating relevance within their day-to-day instruction than mathematics instructors. However, the majority of lessons in both subject areas exhibited a low level of relevance, indicating a need for improvement across both (see Table 4.7).

Table 4.7. Level of Relevance in High School and College Classes, by Subject Area

Level of Relevance	ELA	Mathematics
High relevance	11%	6%
Moderate relevance	32%	26%
Low relevance	57%	68%

ECSs, *n* = 20; Observed lessons: ELA classes, *n* = 28; mathematics classes, *n* = 31
Source: 2006–07 ECHSI site visits

Only 6 percent of the observed mathematics lessons exhibited high relevance, suggesting that mathematics lessons present a particular challenge with regard to relevance. In fact, many of the observed mathematics lessons missed opportunities to provide students with the context and connections needed to make the lesson content relevant for students. Although some mathematics lessons incorporated real-world context for problems, the focus in many of those lessons was on using procedures to get the correct answer rather than demonstrating the ways in which mathematical concepts are connected to real-world phenomena — or even to other mathematical

> *Many of the observed mathematics lessons missed opportunities to provide students with the context and connections needed to make the lesson content relevant for students.*

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[23] The number of observed lessons in other subject areas was too small for comparison.

concepts. For example, one college mathematics lesson included problems about the cost of CDs, baseball gloves, and how much a television might cost with a 15 percent discount. These types of problems provide some context by placing numbers and mathematical operations in familiar settings and thus have some real-world relevance. However, the activities focused on students calling out their answers, not on the ways in which the concepts fit together with other mathematical concepts they had studied or the ways in which this mathematical thinking applied to different real-world situations. Lessons that included these sorts of problems were clearly more relevant than lessons with simple number problems, but were coded as moderate relevance, not high relevance, because there was little explicit connection between the mathematical concepts being explored and the context provided.

The fact that only 12 percent of all observed lessons demonstrated high relevance suggests that more work may be needed across the initiative to assist instructors in framing content in more relevant ways for students. Of the few classes that displayed a high level of relevance, more were college classes or ELA classes than high school classes or mathematics classes.

Correlation of Relevance to Rigor

In addition to looking at the ways in which relevance is achieved in classroom instruction, the analysis also examined how the levels of relevance and rigor correlate with one another. Generally, there was not a strong correlation between this dimension and rigor. Observed relevance did not correlate with the level of observed rigor. For instance, relevant lessons were almost as likely to occur in high support lessons as in low support lessons. Following are two examples of how relevance can be integrated into lessons with varying levels of rigor. The first is an example from a high opportunity/low support for rigor lesson. In a high school social studies class, students listened to and interacted with a panel of experts discussing students' questions about due process, which was coded as high relevance because of the strong connection to students' life experiences. Although the high school instructor provided students with an *opportunity* to build on what they had learned about the constitutional amendments by presenting a panel discussion on due process, he did not structure the activity in such a way to *support* the opportunity that was there. The standards for achievement for students were not clear, other than to listen quietly. Most students were not adequately prepared with questions for the panel, and the same few students participated throughout the lesson. Further, the panelists spoke mostly about their opinions (rather than building directly on what students had learned about the Constitution) and did not wait for students to respond or check that students understood what was being discussed.

> *The findings did not indicate a strong correlation between levels of rigor and levels of relevance.*

The next example is a description of a class that was high in opportunities for rigor, support for rigor, and relevance. In this college physics lesson (cited above in the discussion of high relevance), the instructor, in addition to demonstrating with a slinky, discussed different properties of waves comparing a spring with a pendulum with waves in the ocean, thus providing high relevance for students. Furthermore, the instructor built on students' observations of how these different objects operate to develop their conceptual understanding of the physics behind their observations and

supported that understanding through the use of visuals, real objects, and follow-up questions. As the lesson proceeded, students were asked to solve real-world problems. Doing so demonstrated to students how disciplinary concepts live in the world. Overall, this college class offered high opportunity/high support for rigor and high relevance.

As can be noted from the example above, the ways in which rigor and relevance interact in a lesson are key elements in providing instruction that is meaningful for students and are worth exploring in future reports. An equally important element is the third "R," relationships, which is explored in the next section.

Relationships

Previous evaluation reports have documented evidence of strong relationships as an important component of the ECS experience. As discussed in Chapter III, ECSs have adopted a number of strategies that allow adults to know students well. For example, more than one school reported conducting home visits for all incoming 9th-grade students and including advisories as part of their efforts to support strong relationships. These sorts of activities provide ECS staff with a holistic view of incoming students' experiences, an important ingredient in developing caring relationships (Noddings, 1992, 1999). As one high school instructor commented, "I say with sincere and tremendous pride that I know every kid in my school … and that is a huge part of what we're about: a real, intimate community of learners." Other instructors reported more informal strategies for getting to know students, such as spending time outside of class in activities of interest to students and making themselves available to talk during lunch as well as before and after school. Both instructors and students reported that they knew each other well.

Most ECSs strive to translate close interpersonal relationships into academic achievement based on the premise that caring relationships increase students' level of effort and motivation to succeed. Anecdotally, it appeared that this premise was accurate. Students sometimes described their instructors as "more like a family" or like "friends" who were supportive and pushed them to succeed academically. One college instructor said that she tells students: "'You always have one person in your corner, and one person who is proud of you.' I think they know that and that's why they do so

> *Most ECSs strive to translate close interpersonal relationships into academic achievement in a variety of ways, particularly to motivate students and make instruction relevant. Students sometimes described their instructors as "more like a family" or like "friends" who were supportive and pushed them to succeed academically.*

well — because they are trying hard to make me proud of them — and I am." One student said he thinks "it makes learning more fun and easier to learn when you have that connection with teachers."

In interviews, high school and college instructors reported using these connections and their knowledge of students' abilities in a variety of ways to inform their instruction. Fifteen of the 56 instructors interviewed indicated that they provided different assignments based on students' interests and instructional needs. Other instructors reported intentionally selecting reading assignments, problems to solve, or topics for discussion based on these needs. In one example, a

high school English instructor selected a particular text with the objective of connecting the themes of racism in the text to students' experiences of racism. She shared, "My students talk a lot about racism, but I don't know if they really understand it, and I don't understand what they face on a daily basis, so I want to open it up as that kind of conversation." Having this personal knowledge of students' concerns and perspectives helped inform the curricular choices this high school instructor made, allowing her to make the resulting conversation relevant to students' lives. Strong relationships also can provide instructors with the knowledge they need to anticipate students' misconceptions or to challenge preconceived ideas about a topic. In this way, disciplinary knowledge is combined with what instructors know about their students and transformed into powerful moments of teaching and learning.

These relationships also inform the ways in which ECS instructors individualize their instruction. One high school instructor noted, "We know probably more than we should know, and more than we want to know at times, but it helps us to meet the needs of our kids. … That's where we do our individualizing, when we know where they're at emotionally and what's going on in their family." Half of the instructors said this individualization is accomplished by working one-on-one with students during class. Many of the lessons observed included evidence of instructors working one-on-one with students. For instance, instructors circulated around the room assisting individual students or meeting one-on-one with students who were in various stages of drafting essays or working on problems.

To conclude, ECSs seem to place an emphasis on building strong relationships, creating a "family" feeling that was acknowledged and appreciated by many of the interviewed students. Instructors used their relationships with students to inform their instruction in a variety of ways, particularly in making instruction relevant and individualized.

3R's in Action

Examining rigor, relevance, and relationships separately provides insight into the kind of instruction that characterizes high school and college classes throughout the ECHSI. However, the complexities of instruction are lost by the separation, given that these aspects of instruction are woven together through day-to-day instructional decision-making. How do the 3R's come together in the classroom? Two lessons illustrate ways in which rigor, relevance, and relationships interact. In particular, these examples demonstrate the ways in which relevance and relationships can support rigor.

> **Example #1: A college ELA class**
> *The class discussion centered on an analysis of well-known cases of police violence.*

In preparation for an assigned essay on the topic, the instructor led the discussion by asking open-ended questions that invited students to draw upon materials they read about each case and to make comparisons across cases. The instructor asked questions such as, "How does [this victim of police violence] compare with King, Diallo, and de Menezes?"; "Why is [the ethnicity of the victim] important?"; and "Why was that pause [between gun shots] important?" to stimulate discussion. Students engaged in an elaborated dialogue, taking turns to speak and often building upon one

another's contributions. They used the facts they gleaned from reading about each case to draw conclusions and make comparisons. During the interview with the instructor, she noted, "The whole point of the discussion is they often have really strong opinions but can't shape them into the structure the essay requires. So by discussing it out loud and sometimes having people argue against the point, it strengthens their arguments when they sit down and write the essay."

First, underlying the lesson is a focus on maintaining students' interest through a relevant topic area. The instructor of this lesson indicated that she developed this ELA course centered on police and community relations "because it's something people naturally have an opinion about." She noted, "When I'm looking at designing my courses, I'm always concerned with maintaining student interest." As a result, the instructor was able to create a lesson that provided a high degree of relevance for students.

By engaging the students in an analysis of cases of police violence with which they were familiar and in which they had a strong interest, the instructor provided students with a high opportunity for rigor. During the lesson, students were called upon to think analytically. They built on what they had read to interpret, evaluate, and synthesize information about each case — an analysis that would eventually lead to the development of arguments for their written essays. Furthermore, the instructor provided students with a high degree of support for this opportunity by engaging them in elaborated communication about the cases. By asking open-ended questions, she was able to encourage deeper analysis of the cases, stimulate students to think about the cases in new ways, and invite extended discussion about them.

In addition, students knew what was expected of them and that those expectations were rigorous. The expectations for class discussions were clearly articulated in the course syllabus that students received — although not explicitly stated during the lesson itself. Throughout the lesson, students seemed to follow those expectations by taking turns when they spoke. Similarly, the instructor provided students with clear expectations for the written essay. In her interview, the instructor reported that she provided students with a rubric that included standards for aspects of the essay, such as thesis statement, introduction, the support, textual evidence, and conclusion. She indicated that she typically gave students the rubric at the beginning of an assignment so that students clearly understood from the beginning what would be expected.

Furthermore, in the interview the instructor indicated that she requires mandatory independent sessions with each student so they can get "face time" with her and have an opportunity to ask questions. The instructor noted, "I make it my business to know them and know their names. I know them and can quote from their papers." In fact, during the observed period, the instructor made arrangements to meet with students individually outside of class to discuss their results on the midterm exam, providing yet another opportunity for informative feedback. In addition, the instructor said that she planned and adjusted her instruction based on "gauging where the class is." She noted, "I have to work along the way so that students don't get left behind and other students don't get bored. I do have to tweak things." She indicated that she had recently adjusted the outline for the research paper to make it more concise based on her observation that students were not going through the steps in the writing process. This attention to building strong relationships allowed

the instructor to develop a lesson that was relevant and based on students' individual needs, both important supports for rigorous instruction.

Example 2: A college mathematics class taught by a high school instructor
The class discussion centered on the concept of parabolas.

The instructor began with a short presentation of some applications of parabolas. She presented a problem to the class, solicited students' input on how to solve it, and followed with an explanation of "how this applies to the real world." During the discussion, the instructor noted, "Parabolas work a lot in our world. Have you seen the inside of a light bulb? That is a parabola. When you turn on the light, you want it to be a shiny object. When it shines, it bounces light. If you notice inside the light, if you have a wider lens, it's flatter." The instructor followed in a similar vein with one example involving a telescope and another showing how engineers use parabolas in their calculations for the building of a suspension bridge. Next, students worked on similar types of problems individually and in pairs while the instructor circulated to provide assistance. Several students engaged in discussion with each other about how to solve the problems. Others chose to work independently. The instructor provided individual feedback to students who called her over, showing students where they got off track in solving the problems and providing gentle reminders, such as, "Remember, the bulb plays the role of the focus. The bulb is one inch away from the vertex." Students revised their work in response to feedback from the instructor and from each other.

In the above example, the instructor provided students with high opportunity for rigor by requiring students to think analytically to solve problems involving parabolas. In the interview with the instructor, she said she felt that students learn by actually doing the problems themselves and by seeing how they are applied. Furthermore, she provided students with a high degree of support by modeling examples at the beginning of the lesson and providing informative feedback as students worked on the problems.

The instructor also indicated that the type of one-on-one assistance she provided to students during the observed lesson was typical. She reported that she assesses students individually, noting, "If I walk past a kid's paper and [he or she is] still on number one, I know [he or she is] having a problem getting started. Even when a kid hasn't called me, I will walk around." She indicated that she makes some adjustments according to students' abilities, commenting, "We have one student who excels and I give her a little individual [assignment], but she likes to use her time for tutoring and helping other kids." This type of individualized instruction based on the instructor's knowledge of students provides the basis for strong relationships, which in turn supports the level of rigor in the lesson.

The instructor further noted that she has a strong rapport with her students in general. "I know a lot about them. I actually try not to get too much into their personal life, but after 3 years, you can't help it. They know a lot about me too. We do a lot of things, activities, together." Although not immediately observable in the lesson, this rapport can inform the moment-by-moment decision-making that supports rigorous instruction.

The level of rigor was also supported in the lesson by the high degree of relevance. Throughout the discussion, the instructor talked about parabolas in the context of examples that students might

encounter every day, such as light bulbs, telescopes, and suspension bridges. These types of connections were central to the core objectives of the lesson, built on students' life experiences, and explicit about the ways in which the concepts and skills could be employed to solve real-world problems. Thus, students were motivated to engage in rigorous analysis of the problems presented to them.

As the lesson progressed, students continued to discuss problems with the instructor. She described the way that being able to solve the "telescope problem" could apply to other situations. Not only did the instructor demonstrate how the concepts of trigonometry can illuminate problems that students might encounter day-to-day, but also she made connections to concepts that they worked on earlier in the course, giving students the opportunity to build on prior learning to generate new understandings. Building on prior learning in these ways supports the development of a coherent sense of the discipline as more than a collection of discrete skills.

The above examples illustrate that, although it is useful to consider the levels of rigor, relevance, and relationship separately, it is the interaction of the three that really allows students to get the most out of a lesson. The support that high school and college instructors provide by making lessons relevant for students and the instructional decisions they make based on their relationships with students provide an important foundation for supporting rigorous instruction.

> *The support that instructors provide by making lessons relevant for students and the instructional decisions they make based on their relationships with students provide an important foundation for supporting rigorous instruction.*

Professional Development That Supports the 3R's

Although ECS staff reported in interviews that they generally valued their opportunities to participate in professional development, the analysis makes clear that professional development opportunities might strengthen the 3R's in instruction. Whereas most schools had considerable variation across observed lessons with regard to the levels of rigor and relevance, some schools stood out as clustering at the lower or the higher end of the rigor framework. Three schools had a disproportionate number of observed lessons that were coded as low opportunity/low support, whereas two schools had a disproportionate number of observed lessons that were coded as high opportunity/high support. These data raise the question of whether schools that displayed a high level of rigor implement practices (or sets of practices) that are distinct from those of other schools — which might include professional development that reaches into the classroom.

The 2006–07 site visits did not include any specific observations of professional development activities, nor did interviews with instructors include direct inquiries about the ways in which professional development activities related to the 3R's. Analysis of interview data revealed that ECS principals and instructors typically value the professional development in which they participate. As in past years, professional development activities included offerings sponsored by many of the intermediaries as well as offerings by districts. Principals and instructors reported engaging in a

variety of activities, including conferences, literacy workshops, onsite coaching, and Critical Friends[24] training. The data also reveal that principals and instructors value the networking opportunities offered by professional development and the sense that they are participating in an initiative that is larger than their school or district. One high school instructor commented, "I think everybody teaching for ECS should go to one of these conferences for the networking reasons and the big-picture reasons. I never … talk to the college professors who teach here. That was really helpful just to talk to them and find out what they're doing."

However, from reports by ECS staff, it appears that there is a smorgasbord of activities from which to choose as part of the initiative. And given the wide range of possibilities for supporting rigor, that smorgasbord may be contributing to the variation in instructors' abilities to implement the 3R's. Although principals and instructors praised the networking opportunities afforded by professional development, reports on the impact that professional development might have on teaching varied. Whereas some instructors specifically praised the professional support, others had a difficult time explaining to site visitors how professional development has affected their classroom instruction. In addition, most of the professional development was geared toward high school staff. Several college and high school faculty commented that there was a need for more ECS-specific professional development that targeted college-level instructors.

Some of the professional development activities in which instructors reported participating certainly have the potential to affect the 3R's in classroom instruction. However, without systematically observing some of those activities and specifically looking to see how professional development makes its way into classrooms, the evaluation team is not yet able to investigate what impact those opportunities have for the implementation of the 3R's in instruction. If the ECHSI aims to focus on the 3R's and what they look like in practice, the initiative might benefit from a coherent set of professional development activities designed to impact classroom practice — in particular the opportunities and support for rigor in daily instruction.

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[24] Critical Friends is a professional learning community of 8 to 12 educators who meet regularly to reflect on and improve their practices.

Summary

The analysis of the 3R's in this chapter points to the importance for educators across the ECHSI — at both high school and college levels — to focus attention on the support provided for students during instruction that allows them to take advantage of opportunities to engage in rigorous activities. The findings presented in this chapter reveal that while most of the observed lessons provided the *opportunity* for students to engage in rigorous instruction, most did not provide sufficient *support* for students to fully engage in those opportunities, regardless of subject area or course level.

As noted in the preceding section, the levels of relevance and relationships present in a lesson can provide important support for rigor. In observed lessons that were strong in each of the 3R's — rigor, relevance, and relationships — instructors were able to use what they knew about students and about the ways in which disciplinary knowledge and skills apply to real-world contexts to provide the instructional support needed for students to engage in rigorous instruction. When instructors had strong relationships with students, they were able to demonstrate the ways disciplinary concepts and skills were relevant to students' lives and to engage students in ways that were meaningful. Furthermore, the feedback that instructors provided was enhanced by the relationships they had with students and their understanding of students' individual needs and abilities, as well as the depth of the instructors' own disciplinary knowledge. In highly rigorous lessons, the feedback offered was not merely corrective, but allowed students to engage more deeply with the ideas and concepts of a discipline. Feedback that was informative in this way was based on clearly defined expectations and was explicit about the ways in which students could improve.

In sum, considerable evidence exists to suggest that instructors across the ECHSI are providing opportunities for students that allow them to engage in rigorous instruction. At the same time, the findings presented in this chapter suggest that the initiative could benefit from further attention to this important aspect of instruction. Professional development that engages ECS educators in explorations of what these aspects of instruction look like and how they interact to support students in taking full advantage of opportunities to participate in rigorous activities would be one way schools might direct attention to enhancing the instructional components of the initiative. Although it seems logical to assume that rigorous, relevant instruction provided in a setting where adults know students well can impact learning outcomes for students, this evaluation does not provide a direct link between those observed elements of instruction and student outcomes. However, readers can refer to pages 71–72 for findings related to student measures of rigor and relevance.

Chapter V — Student Outcomes

Chapter Findings
■ In 2006–07, students at newer ECSs and ECSs located on a college campus reported higher academic interest, persistence, and self-confidence than did student at more established ECSs and ECSs located on a high school campus.
■ The highest assessment proficiency rates were at mature ECSs, startup ECSs, ECSs located on a college campus, and ECSs with a 4-year IHE partner. However, these results do not account for students' academic skill levels upon ECS enrollment.
■ On average, about 5 of 6 students stayed at their ECS and progressed to the next grade, and about 10 percent transferred to other schools.
■ Students were more likely to aspire to receive a bachelor's degree or higher if they attended an ECS located on a college campus or an ECS with a 4-year IHE partner, compared with students at ECSs without either of these attributes.
■ Seventy-nine percent of students expected to graduate with at least 1 year's college credits; and 46 percent expected to earn at least 2 years of college credits.

Introduction

Evidence of positive student outcomes in school reform efforts are highly anticipated, yet slow to develop. In 2006–07, the small number of ECSs that have been open since 2002 or 2003 graduated students from their 4-year or 5-year programs. Also, the size of the initiative reached a critical mass, allowing for comparisons among subgroups of schools based, importantly, on different design characteristics.

This chapter presents student outcomes organized roughly in the order in which they are hypothesized to be affected by ECS enrollment. These outcomes include:

■   Academic engagement and self-concept

■   Attendance

■   Behavior

■   Academic performance

■   Academic progress

■   Postsecondary expectations and aspirations

■   Postsecondary acceptance

Student outcomes are examined for their relationship to student-level characteristics, such as grade level or whether a student has taken any courses (either high school or college) on a college campus. To make these results more interpretable, the standardized coefficients are reported for significant findings. Technical details for these analyses, including unstandardized coefficients and standard errors, are reported in the technical appendix.

In addition, when possible, student outcomes are examined for their relationship to school-level characteristics. When the outcomes are based on school-level data, the comparisons are simply descriptions of the differences between the groups (with population data, significance testing is not needed). School characteristics of interest included age, ECS location, location of college courses, IHE partner type, and ECS origin (e.g., startup or adaptation). When the outcomes are based on student survey data, the comparisons are done using hierarchical linear modeling (HLM). The primary benefit of HLM is that it explicitly takes into account the nested data structure (i.e., students nested within ECSs) and therefore produces less biased standard errors of estimates compared with conventional student-level regressions. The independent variables in each HLM equation included ECS age, IHE partner type, ECS location, and ECS origin (e.g., startup or other). The control variables included students' grade level and whether a student was from a minority group, first generation college-going, female, or low income. The means reported in the text are adjusted to control for all the other variables in the equation. Because this is the first year with these analyses, the results are considered exploratory, and any differences that occur with a significance level of less than 0.1 are reported. We also report important analyses that were not significant. Themes identified through these analyses will be re-examined in future years. More details are available in the technical appendix.

All relationships in this chapter are strictly correlations. The findings in this chapter do not support the assertion that ECSs with certain attributes "cause" changes in student outcomes, because in the absence of randomization of students assigned to schools, we cannot rule out alternative explanations for observed differences in student outcomes. As this evaluation continues, we plan to explore many potential explanations to hone in on those that are most likely to be occurring.

Intermediate Outcomes

Intermediate outcomes are hypothesized to mediate the relationship between the attributes of the ECS and student outcomes. Research (Akey, 2006; Bransford, Brown, & Cocking, 2000; Newmann, 1992) suggests that the two intermediate outcomes of academic engagement and academic self-concept have a positive relationship with students' academic outcomes.[25]

Academic Engagement

Academic engagement — that is, students' psychological investment in and effort put toward their education — has both behavioral dimensions (such as attendance and time spent on task) and

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[25] The intermediate outcomes are hypothesized to serve as mediators between the ECS attributes and student behavior and outcomes. This report examines the relationships between the intermediate outcomes and ECS attributes. Future reports will investigate whether these variables truly serve a mediating role.

psychological dimensions (such as interest and enthusiasm) (Newmann, Wehlage, & Lamborn, 1992). The psychological dimensions are explored here, although a behavioral dimension (attendance) is discussed in a later section.

The measure of academic engagement used in this evaluation has two dimensions — interest and persistence.[26] The survey scale that measures interest includes students' reported level of participation in classes (during and outside of classroom time) as well as the degree to which they talk about school with family and friends. Persistence includes students' reported determination to accomplish challenging tasks and their interest in doing well on schoolwork.[27] In 2006–07, the average ECS student's interest level was 3.3 on a 5-point scale, with 1 representing low interest and 5 representing high interest. The average persistence level was 3.7 (again on a 5-point scale). Students' level of interest did not differ significantly across grade levels, but the level of persistence was higher in upper grade levels. One possible explanation is that students who choose to attend ECSs do so because of their already high levels of academic interest (or openness to finding more interesting academic settings), and then, as they attend the ECS, students learn how to be more persistent at their work. Another explanation is that persistence is related more to students' maturity than interest.

Both academic engagement measures had a significant relationship to the age of the ECS. Surprisingly, students' levels of interest and persistence were lower at more mature ECSs (see Figure 5.1). It may be that the excitement of a new school or program is palpable to students and diminishes over time. Other researchers have noted that schools sometimes take steps backward before they get better. Shear et al. (2005) noted a "sophomore slump" in newly reforming schools, and Borman (2005) found that initially strong effects of reforms drop in the second year and do not rebound to original levels until about the fifth year of reform. We will monitor this finding in future years to see whether the stronger engagement in newer schools persists or whether it dips for them, too, as they age.

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[26] Frequently, the term "persistence" is used in reference to students staying at a school from year to year. In this report, this concept is called "grade-to-grade progression." "Persistence" instead refers to students' dedication to and effort in their academic work.

[27] The technical appendix provides the complete list of items in all reported scales.

Figure 5.1. Adjusted Means for 2006–07 Student Academic Interest and Persistence, by the Age of the ECS
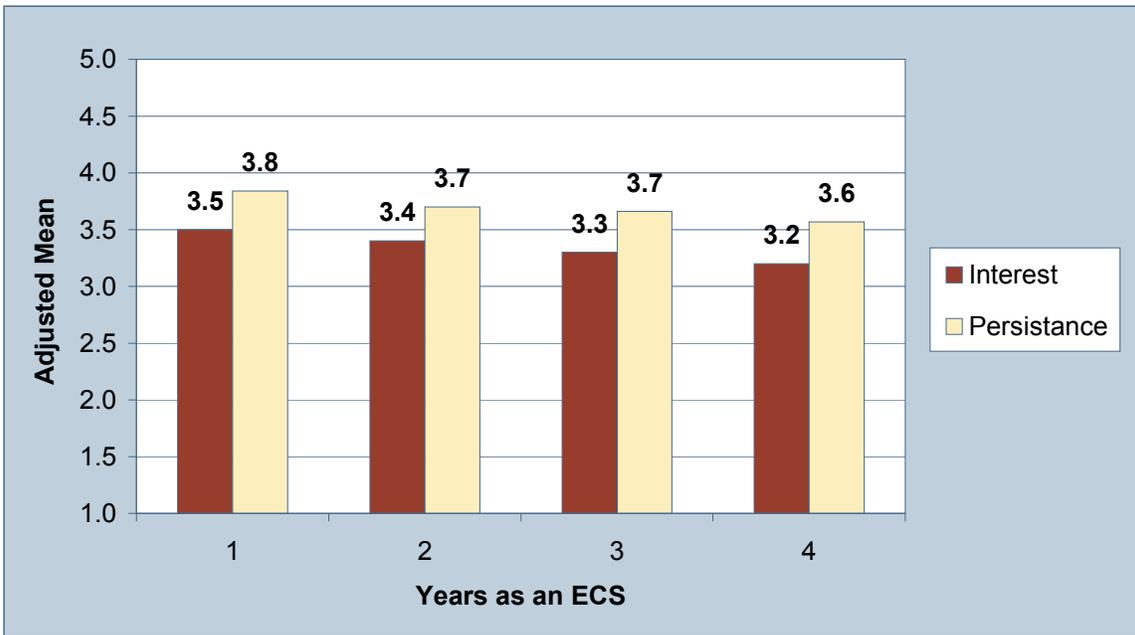
ECSs: *n* = 20; Students: interest, *n* = 1,203; persistence, *n* = 1,201
Source: 2006–07 ECHSI student survey

Although we found no research to support the superiority of attending one IHE type over another for high school students, we compared ECSs with 2-year versus 4-year IHE partners and found they differed in terms of student interest but not persistence. Students at ECSs with a 4-year IHE partner had higher interest levels than those who attended ECSs without a 4-year IHE partner (adjusted means of 3.5 and 3.3, respectively).[28]

A key hypothesis regarding the impact of ECSs on student outcomes is that exposure to a college environment will increase students' academic engagement. This hypothesis was supported by the data for both interest and persistence. Academic interest and persistence levels were higher for students who attended an ECS located on a college campus (adjusted means of 3.5 and 3.8, respectively) than for those who attended an ECS located on a high school campus (adjusted means of 3.3 and 3.6, respectively). One student who attended an ECS located at a high school but took classes on a college campus observed the importance of the environment:

> *Students reported higher interest and persistence levels at newer ECSs and at ECSs located on a college campus. Also, students at ECSs with 4-year IHE partners reported higher interest levels.*

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[28] Because some ECSs had both a 2-year and a 4-year partner, schools with 4-year partners do not exclude all schools with 2-year partners. However, only 9 percent of ECSs had both types of partners.

> *Students act more mature at the college. It doesn't make a difference if the college professors come here [to the high school] — because then it just feels like high school. We socialize with the people who are around. At college, we pay more attention.*

Although the ECHSI does not specify the ideal location for ECSs, some research suggests that the "power of the site" has a strong impact on student success (Cavalluzzo, Corallo, & Jordan, 2002; Middle College National Consortium, 2007). One student articulated this belief explicitly: "Being here prepares you more for college than a traditional high school, because this is an actual college campus." Convinced of the causal relationship between location and student success, three intermediaries require that all their affiliated ECSs open on a college campus.

These measures of engagement are hypothesized to be strongly related to the instructional environment. The student survey included several scales that measure aspects of the 3R's.[29] These scales are instructional rigor,[30] instructional relevance,[31] instructor relationship,[32] and student respect and responsibility.[33] Three of these scales (except for instructional relevance) positively related to

> *The higher the students rated their ECS on the 3R's, the higher their reported levels of academic engagement.*

student persistence (see Table 5.1). And all of the scales except for student respect and responsibility had a positive relationship with student interest.[34] In focus groups, students noted the importance of the 3R's in their attitudes about learning. Students commented frequently that their level of engagement in classes (both high school and college) depended on three factors: the content, the instructor, and the instructional format. Most often, students noted that lectures were boring. When students commented about a high level of engagement, they noted either that the content of the class really interested them or that the instructor displayed a special talent, through enthusiasm or style of delivery, that engaged them.

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[29] Chapter IV discusses the level of rigor and relevance observed in ECS classrooms. Although these classroom observations are likely a strong representation of the instruction in ECSs, the sample at each school was not representative enough to create a valid school-level "score" on these two features. For this reason, these constructs are analyzed using student survey responses instead.

[30] The instructional rigor scale includes items about tasks students have performed and been asked to perform in their classes at the ECS. These include processes (such as using a notebook to keep notes and records), course requirements (such as writing a paper of more than 5 pages), and instructors' expectations (such as encouraging students to find multiple solutions to a problem). Note that this operationalization differs from that used to evaluate instructional rigor in classroom observation data.

[31] The instructional relevance scale addresses connections in course material and students' control over their courses of study. It includes items about connections instructors have made among classes and between classes and real life, as well as items about students' freedom to select the topics and methods of study in their classes.

[32] The instructor relationship scale includes items about how much students care about their instructors and what their instructors think of them.

[33] The respect and responsibility scale includes items about how well students get along with each other and how well they treat the school.

[34] The respect and responsibility scale actually had a negative relationship with the interest scale. There is no obvious explanation for this negative relationship; rather, it is likely that no relationship exists. We will monitor this finding in future years to see whether it is replicated.

Table 5.1. Relationships Between the 3R's and Students' Persistence, Interest, and Academic Self-Concept in 2006–07: Regression Coefficients

Scale	Persistence β	Interest β	Academic Self-Concept β
Instructional rigor	0.16**	0.31**	0.19**
Instructional relevance	−0.01	0.08**	0.09**
Instructor relationship	0.22**	0.10**	0.14**
Student respect and responsibility	0.11**	−0.02	0.03

ECSs: n = 20; Students: interest, n = 1,223; persistence, n = 1,223; academic self-concept, n = 1,223

Table reads: The instructional rigor scale had a significant positive relationship with the persistence, interest, and academic self-concept scales.

Source: 2006–07 ECHSI student survey

Note: Standardized regression coefficients are reported here. See the technical appendix for descriptions of the full regression models.

* p < 0.1, ** p < 0.01

Academic Self-Concept

Academic self-concept refers to students' beliefs about how good they are at the skills required to achieve in school (e.g., reading, asking for help, participating in class). Academic self-concept is a major goal of the ECHSI and is one component of students' overall academic identity.[35] ECSs want students to develop a strong academic self-concept and to see themselves as successful learners.

Overall, students reported an academic self-concept level of 3.1 (on a 4-point scale) on average. Academic self-concept was significantly related to the age and location of students' ECSs. First, students who attended ECSs located on a college campus had higher academic self-concept levels than those who attended ECSs on high school campuses (adjusted means of 3.2 and 3.0, respectively). Second, students at newer ECSs had slightly higher academic self-concept levels than those at more mature ECSs (adjusted means of 3.2 for ECSs open for 1 year, compared with 3.0 for ECSs open for 4 years). No other significant differences emerged with regard to the school and student variables of interest. Perhaps students' self-concepts are more challenging to affect than students' engagement in relation to their academic work. In fact, it is likely that changes in students' behaviors (such as those related to engagement) precede changes in their academic self-concept.

In addition to the examined school attributes that related to students' academic self-concept, all of the 3R's scales except for respect and responsibility were positively related to academic self-concept (see Table 5.1). The more students felt the instruction was rigorous, felt the content was relevant, and cared about the instructors, the higher their academic self-concept. One student in a focus group noted the importance of feeling successful in a rigorous instructional environment:

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[35] The other major component, as operationalized for this evaluation, is educational aspirations.

> *When I first came [to] this program, I didn't think I could do this work, the workload that he gave us, or the materials that he was teaching us. But that was because I was telling myself that I couldn't. Then, as the year progressed, I became the cream of the crop.*

Relationships with instructors were also commonly mentioned by students as important, particularly when instructors pushed them and encouraged them. One student noted,

> *[Encouragement] just makes your self-esteem go up and [you] know that [you] could do something. … It just motivates you, I guess, to build confidence.*

Therefore, students' experience of the 3R's was related to their disposition and confidence in their abilities to succeed in their ECSs.

Attendance

Before students can demonstrate improvements in learning, they must be present in the classroom. This seemingly minor feat is not taken for granted by ECSs. Many students attending ECSs have life situations or personal histories that make regular attendance challenging. In fact, some ECSs seek to enroll students with histories of low attendance (e.g., GtC ECSs). As a result, ECSs' attendance rates are an important early outcome.

The attendance rates for the population of ECSs were remarkably high. The mean average daily attendance (ADA) rate in 2005–06 reported on the school survey was 94 percent, up from 91 percent in 2003–04 (AIR & SRI, 2006).[36] This average compares favorably with the 2003–04 national ADA rates for elementary and secondary education — 93 percent (NCES, 2006a). Overall, ECSs are succeeding at keeping students in the classroom, an accomplishment that can be expected to relate to better educational achievement.

> **The mean average daily attendance (ADA) rate in 2005–06 reported on the school survey was 94 percent, up from 91 percent in 2003–04.**

Although the reported ADA rates were generally quite high, some slight differences occurred among ECSs with different structural features (see Table 5.2). The mean ADA rate for startup ECSs was about 2 percent higher than that of ECSs that adapted from or developed within existing high schools. Some structural features unique to ECSs also related to the reported ADAs. Those schools located on a college campus, for example, averaged almost 2 percent higher ADA rates than those located elsewhere.[37] Similarly, for ECSs offering most college courses on a college campus, the mean ADA was 94 percent, versus 92 percent for ECSs that offered most college courses elsewhere. ECSs partnered with a 4-year IHE had a mean ADA more than 2 percent higher than those with only 2-year IHE partners.

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[36] At the time of the survey, spring 2007, attendance data for the full academic year (2006–07) were not yet available. Also, attendance data for 2004–05 were unavailable.

[37] As noted in Chapter II, ECSs are considered to be "located" on a college campus if that is where the majority of high school courses are offered (or high school credits are earned).

Table 5.2. Mean Average Daily Attendance in 2005–06, by ECS Structural Features

Origin	Startup	95%
	Adaptation, program, or conversion	93%
School location	College campus	95%
	Elsewhere	93%
Location of majority of college courses	College campus	94%
	Elsewhere	92%
IHE partner type	4-year	95%
	2-year	93%

ECSs: *n* = 63. School location: college, *n* = 34; elsewhere: *n* = 29. Majority of college courses location: college, *n* = 48; elsewhere, *n* = 15. IHE partner type: 4-year, *n* = 26; 2-year, *n* = 38

Source: 2006–07 ECHSI school survey

Note: The total number of ECSs in the 4-year and 2-year partner categories sums to 64, because one ECS had both partner types.

Despite the overall high ADA rates in the initiative, 6 of the 20 visited ECSs noted that they were struggling to improve their attendance rates.[38] Additionally, two of the visited ECSs, each with ADA rates at or above 90 percent, noted that attendance was a particular challenge for students in college classes. Some of these schools noted that attendance was an issue due to students' lack of motivation, while others stated that it was due to the challenging circumstances of the student population (e.g., foster care). To address the instructional deficits that accompany frequent absences, one ECS offered credit-recovery classes for students who had frequent absences.

In summary, as predicted by the high levels of academic engagement and self-concept, students in ECSs had strong attendance rates overall. Despite some variations based on different ECS features, the overall high rates bode well for students' academic performance in years to come.

Behavior

As ECSs produce students who take an interest in and are engaged with their instruction, the ECSs can expect the students to exhibit better behavior. Many ECSs enroll students who attended disorderly school environments prior to enrolling in the ECS, and some of these students may bring these behaviors with them to the ECSs. In measuring student behavior, rather than asking students whether they ever break school rules, the student survey asked them about their observations of other students. Students reported about the general ECS environment and in some cases

> *Students reported that their peers seldom engaged in disruptive behaviors. These behaviors were even less likely at ECSs located on college campuses and at startup ECSs.*

about high school and college locations specifically. Although the overall frequency of problem behavior can be considered part of the instructional environment, it is treated here as a student outcome.

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[38] Four of these ECSs had ADA lower than 90 percent. A fifth ECS was missing data, and the sixth noted struggles, despite having an ADA higher than 90 percent.

ECS students reported that the behavior of their peers was quite good, an average of 4.0 on a 5-point scale.[39] In answering the general question of whether students "get away with a lot" at the ECS, 74 percent of students disagreed. When asked why they chose to attend the ECS, students in focus groups often mentioned that they were trying to get away from more chaotic high school environments. Students noted that they were afraid in other schools or had been in fights. They came to the ECS, as one counselor observed, to "get away from the large high schools."

Another difference appeared between startup ECSs and ECSs with other origins. Students attending startup ECSs noted more orderly behavior in their peers (adjusted mean = 4.2) than students attending other ECSs (i.e., programs, conversions, and adaptations; adjusted mean = 3.9). One possible contributing factor to this difference is the size of the ECSs. Startup ECSs were smaller (an average of 142 students in 2006–07) compared with the other ECSs (an average 212 students), meaning that there were fewer students to engage in disruptive behavior.

Although students in focus groups reported that ECSs were safer and more orderly than other, larger high schools, the student survey data suggest that students at ECSs on high school campuses experienced a less orderly climate (adjusted mean = 3.8) than students at ECSs on college campuses (adjusted mean = 4.2). This finding again supports the "power of the site." ECS students on college campuses reported that their peers exhibited more mature behavior than ECS students on high school campuses. (See the text box for a discussion of college student behavior.)

Traditional College Student Treatment of ECS Students

One of the tenets of the "power of site" theory is that traditional college students serve as role models for the ECS students. On the student survey, ECS students reported their impressions of how college students perceived them. Students were asked whether college students respected and "got along" with ECS students. Most ECS students with experiences on college campuses felt that college students respected them (81 percent) and got along with them (77 percent). These perceptions of college students by ECS students did not vary by ECS characteristics. However, in part due to fears regarding differential treatment of high school students by college students and faculty, some ECSs set up programs so that their students are not identified as such in college classes.

Interestingly, students at ECSs partnered with a 2-year IHE reported more orderly environments (adjusted mean = 4.1) than those at ECSs partnered with a 4-year IHE (adjusted mean = 3.8). This finding is likely an artifact of the location of the ECSs. ECSs partnered with 2-year IHEs are more likely to be located on the college campus, and thus more likely to have students report an orderly environment. However, this interaction (IHE partner type by ECS location) was not tested directly.

ECSs are particularly concerned about the behavior of ECS students in college courses. As noted in Chapter III, ECSs strive to create a college-going culture where students learn the appropriate behaviors for college. At the 14 sites visited where students took college courses on a college campus, there were few, if any, complaints about student behavior. A few schools noted minor infractions, such as leaving the campus, being too loud, and having large gatherings in hallways. One

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[39] On this scale, students noted the frequency of various disruptive behaviors, including fighting, destroying property, bullying, cheating, and theft.

school reported that a college professor had to remind the ECS students to pay attention in class. Overall, however, these ECSs generally reported positive behavior by students in college courses, likely related to the deliberate work done by many ECSs to prepare students for the college environment. An additional factor is the screening done by some schools to take maturity and behavior into account before sending students to college courses with college faculty or traditional college students. Therefore, ECS students in these schools likely have exhibited already the behavior appropriate for a college atmosphere.

Academic Performance

Several sources provide data for students' academic performance. These sources include students' progress through mathematics courses, which predicts later persistence in postsecondary education; grades and GPAs in high school courses; performance on state standardized assessments; and college course grades and college GPA. Together, these outcomes demonstrate that ECS students are doing well, at least when compared with others locally or nationally.

Mathematics Attainment

Academic attainment, measured by course completion, at the high school level has been found to relate strongly and positively to students' rates of enrollment in, persistence in, and completion of college (Adelman, 2004, 2006; NCES, 1997). In particular, higher mathematics achievement in high school is quite strongly related to higher rates of college enrollment and higher rates of completion of a 4-year postsecondary degree. Addressing mathematics specifically in *The Toolbox Revisited,* Adelman (2006) states, "[T]he highest level of mathematics reached in high school continues to be a key marker in precollegiate momentum, with the tipping point of momentum toward a bachelor's degree now firmly above Algebra 2" (p. 33).

This section includes an examination of ECS students' progression in mathematics courses, but some caveats are required. Mathematics is a branch of study that normally requires a consecutive progression through the first several years of course offerings. In 2006–07, the SIS, a student-level database, did not contain a consecutive 4 years of transcript data for any ECS, thus precluding the type of intensive profile examination that should be possible in subsequent years. However, even with only one semester or a few years of data, it is at least possible to look at the mathematics courses students are taking in any given grade as an indication of where the students stand in their mathematics progression at that point in their high school careers. Also, the small number of schools in these analyses should be clearly noted: Only nine ECSs had 9th-grade transcript data in the SIS, and only two schools had 12th-grade transcript data. Thus, the data presented below are not representative of all the schools in the ECHSI, but the data provide an illustrative glimpse into what mathematics courses students are taking at a small number of sites.

Table 5.3 shows the percentage of 9th-grade students in these nine ECSs enrolled in each type of mathematics course and compares these statistics with results from the nationally representative 2005 High School Transcript Study (HSTS) conducted by the National Assessment of Educational Progress (NCES, 2007b). The cumulative columns represent the percentage of students at each

course level who have taken at least that course. For the national sample, 57 percent of the students took Algebra I in their 9th-grade year, but 84 percent took Algebra I or higher. By comparison, in the nine ECS schools, from 2003–04 to 2006–07, 96 percent of 9th-grade students were enrolled in Algebra I or higher. Therefore, 9th-grade students in these nine ECSs were more likely to take higher level mathematics classes than the average U.S. high school student.

Table 5.3. Percentage of 9th-Grade Students Enrolled in Mathematics Classes, by Course and Sample

Mathematics Course	National Sample (HSTS) 2001–02		ECS Sample 2003–04 to 2006–07	
	Percentage	Cumulative	Percentage	Cumulative
Advanced Mathematics[a]	1%	1%	0%	0%
Algebra II	6%	7%	8%	8%
Geometry	20%	27%	38%	46%
Algebra I	57%	84%	50%	96%
None/below[b]	16%	100%	4%	100%

ECSs: *n* = 9. Students, *n* = 1,791

Sources: ECHSI SIS and High School Transcript Study (NCES, 2007b)

[a] The Advanced Mathematics category includes any mathematics class higher than Algebra II; the great majority of classes in that category were Trigonometry or Precalculus, with a very small number of Statistics and Calculus classes.

[b] The category labeled None/below indicates students who either took no mathematics class in that grade or, in a few cases, took a mathematics class not considered college preparatory (Consumer Math, for example).

Ultimately, as Adelman (2006) argues, the goal is for students to achieve Advanced Mathematics status to maximize the odds for college attendance. Table 5.4 displays the percentage of graduates for each level of mathematics in the national sample. Nationally, 79 percent of the graduates completed Algebra II or better, followed by a drop to 45 percent who completed Advanced Mathematics or better.

Table 5.4. Percentage of 2005 High School Transcript Study Graduates, by Highest Mathematics Class Attained

Mathematics Course	Percentage	Cumulative Percentage
Calculus	16%	16%
Advanced Mathematics	29%	45%
Algebra II	34%	79%
Geometry	14%	93%
Algebra I or below	7%	100%

Source: High School Transcript Study (NCES, 2007b)

How do the HSTS data compare to the ECS sample? We cannot make that comparison faithfully with the data on hand. First, the numbers in ECS are too small at the 12th-grade level. Second,

49 percent of 12th-grade students in the ECS sample fell into the None/below category. Therefore, the one semester of data available did not include the students' highest mathematics class. Instead of a direct comparison with the HSTS data, Table 5.5 displays students' mathematics enrollment in earlier grades and shows the percentages of ECS students in the sample who achieved on-time mathematics status in 9th, 10th, and 11th grades. "On-time" means that a student enrolled in Algebra I in 9th grade, Geometry in 10th grade, and Algebra II in 11th grade, thus giving that student the opportunity in the 12th grade to move into Advanced Mathematics, passing that important college predictor threshold. The right side of the table also includes the percentage of students who were 1 year or more ahead of the on-time mathematics progression (that is, at least Geometry in 9th grade, Algebra II in 10th grade, and Advanced Mathematics in 11th grade).

Table 5.5. Percentage of ECS Students in ECSs Who Were On Time or Ahead in Mathematics Enrollment, by Grade

Grade	Course Sequence-On Time	% On Time or Ahead	Course Sequence-Ahead	% Ahead
9th grade	Algebra I	96%	Geometry	46%
10th grade	Geometry	84%	Algebra II	49%
11th grade	Algebra II	69%	Advanced Mathematics	21%

ECSs: *n* = 9. Students: 9th grade: *n* = 1,791; 10th grade: *n* = 1,240; 11th grade: *n* = 620
Source: ECHSI SIS academic years 2003–04 to 2006–07

By these measures, the majority of students (69 percent) in the five ECSs where 11th-grade data were available will be in a position to move into Advanced Mathematics in 12th grade, possibly even exceeding the 45 percent enrollment rate for 12th-grade students shown by the HSTS graduates. By scaling this mathematics progression ladder, the students may find themselves by 12th grade enrolled in Advanced Mathematics, resulting in a higher probability for postsecondary enrollment and success — *but only if they continue in mathematics*. The high percentage of students at two ECSs who were not taking mathematics in 12th grade raises a warning. The benefits of "momentum" may be lost with a gap in mathematics courses, even for students who take advanced mathematics at an earlier grade. The evaluation team will continue to monitor mathematics enrollment and progression for ECS students in future years as data are available for more ECSs.

> *In a study of transcripts from a few ECSs, the majority of students will be in a position to move into Advanced Mathematics in grade 12. However, students need to take a mathematics course in grade 12 to maintain momentum.*

Grades in High School Courses

Almost one-half of ECS students (44 percent) reported that their grades in high school were mostly A's and B's (see Table 5.6). This rate is a little lower than the grades reported on another nationally

administered survey, the High School Survey of Student Engagement (HSSSE, 2006). In that sample, 56 percent of students reported earning B's or higher.

Table 5.6. Students' Reported High School Grades

Reported Grades	Percentage of Students
Mostly A's	12%
Mixed A's and B's	32%
Mostly B's and C's	35%
Mostly C's and D's	13%
Mostly D's and below	2%
I don't know, grades not used, not taking high school courses	5%

ECSs: n = 20; Students: n = 1,395

Source: 2006–07 ECHSI student survey

ECS students also reported the grade they expected to receive in the first high school class that they take in the week (e.g., first class Monday morning). In all academic subject areas, the average was at about a B (or 3.0). Grades reported for ELA and history/social sciences were slightly higher than a B (3.2 for each), while those for mathematics and science were just below or at a B (2.9 and 3.0, respectively).

The estimated average high school GPA varied significantly based on a school's age. As with students' interest, persistence, and academic self-concept, the students at newer ECSs reported higher grades in high school courses than did those at more established ECSs (adjusted means of 3.1 for ECSs open 1 year, versus 2.7 for those open 4 years).

However, students who had the opportunity to take at least one class (high school or college level) on a college campus reported higher GPAs than students who had not taken a class on a college campus.[40]

> *Students who had the opportunity to take at least one class (high school or college level) on a college campus reported higher GPAs than students who had not taken a class on a college campus.*

Proficiency on State Assessments

Because they are enrolled in public high schools, ECS students must take, and in some states must pass, the same exams as their non-ECS counterparts. In 2006–07, on average, 82 percent of ECS students achieved proficiency on their state's ELA assessment; 68 percent achieved proficiency on their state's mathematics assessment.

Although the goal for all schools is to have 100 percent of their students scoring proficient or above on these assessments, at a minimum, ECSs should be performing at least as well as, if not better than, other schools in their local area. Figure 5.2 compares the average ECS performance with the average

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[40] β = 0.18, p <0.01

district performance.[41] On average, ECSs are doing better than other high schools in their surrounding district.[42] In fact, the average proficiency rates are almost identical to those observed in 2005–06 (81 percent for ELA and 66 percent for mathematics; see Figure 5.3). Another way to examine these data is to consider the percentage of ECSs that had average student proficiency rates at least as high as those of their district. For 2006–07, 76 percent of ECSs had ELA proficiency rates the same or higher when compared with the district, and 66 percent were at least as high on mathematics.

Figure 5.2. Average Percentage of ECS and Geographic District High School Students Scoring Proficient or Above on Their State's 2006–07 ELA/Reading and Mathematics Assessments
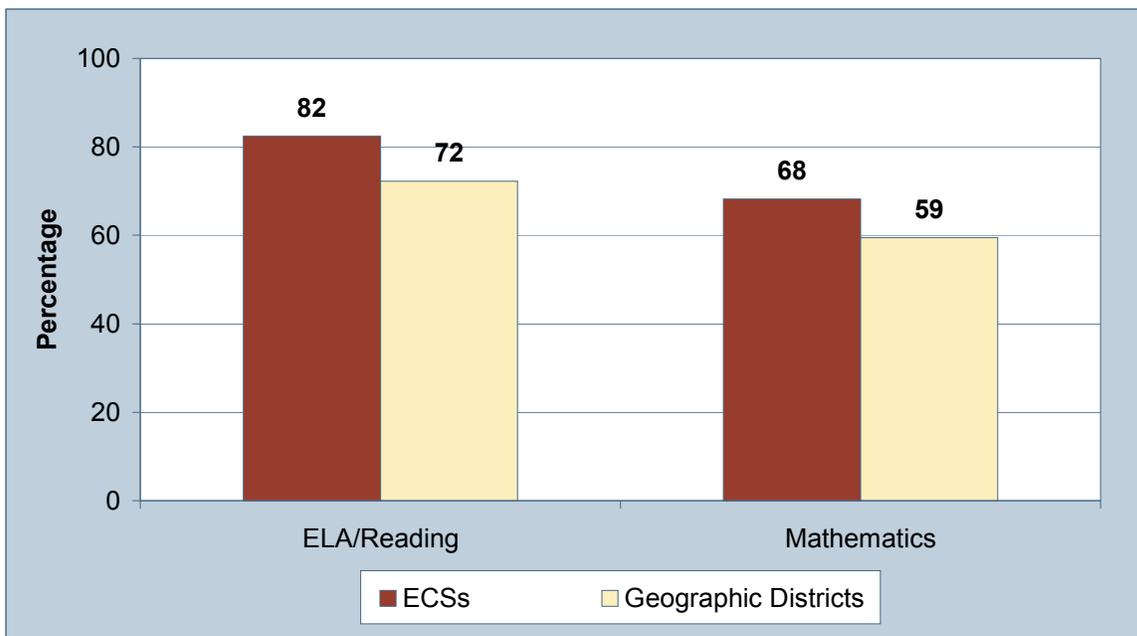
ECSs: *n* = 80

Source: Extant data from publicly available sources

Note: These 80 ECSs represent 84 percent of the 95 ECSs that should have assessment data. ECSs were included in this population if they had grades (this excludes GtC ECSs), enrolled high school grades, and enrolled a large enough student population for assessment data to be reported. Geographic districts are those districts where the ECS is physically located (based on mailing addresses). ECSs may draw students from more districts than just the geographic district.

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[41] These analyses may either overestimate or underestimate ECS success, because they do not account for the skills that students acquired before entering the ECS. If the students in an ECS are some of the least prepared in the district before enrolling, the ECS proficiency rates may be lower than the district average, even though the ECS may have greatly improved individual student performance. Conversely, if ECSs enrolled students who were already better performing relative to others in the district, a strong ECS performance would not necessarily reflect the quality of the ECS. A more rigorous analysis requires individual students' middle school and high school assessment scores; these data are not yet available to the evaluation team.

[42] ECSs are compared to the district in which they are physically located.

Figure 5.3. Average Percentage of ECS Students Scoring Proficient or Above on Their State's ELA/Reading and Mathematics Assessments, in 2005–06 and 2006–07
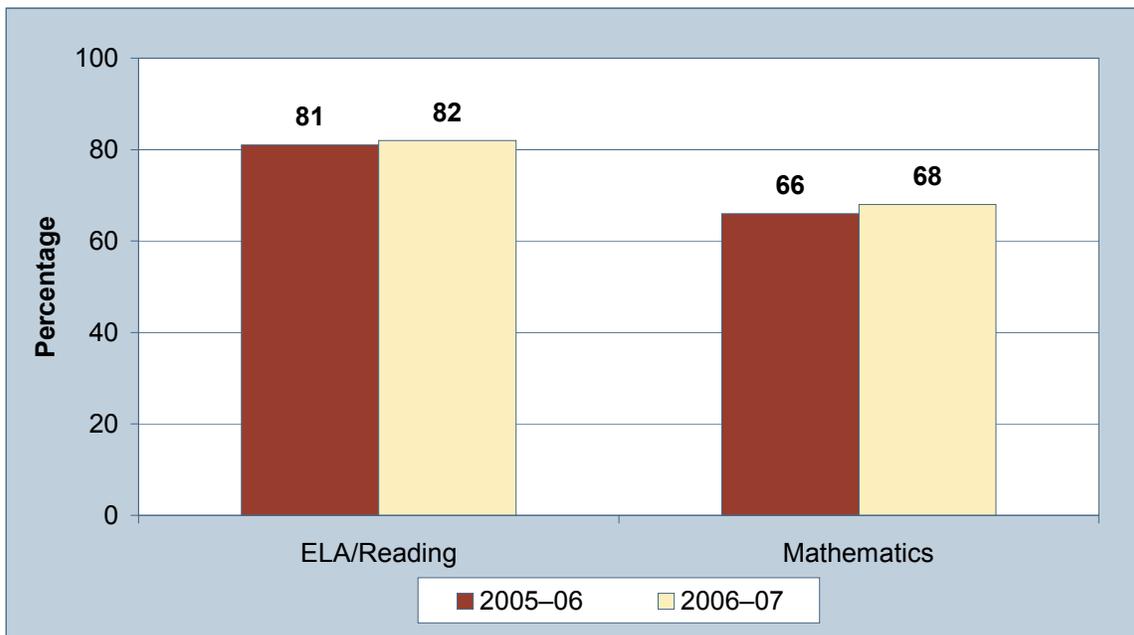
Sources: 2006–07: See Figure 5.2; 2005–06: AIR & SRI, 2007

As demonstrated in Table 5.7, five ECS attributes were associated with higher average proficiency rates on state assessments:

- ECSs partnered with 4-year IHEs had proficiency rates 3 percent higher on ELA and 7 percent higher on mathematics than ECSs partnered with 2-year IHEs.

- Proficiency rates were higher in more mature schools. ECSs that opened in 2004 or earlier had proficiency rates 6 percent higher on ELA and mathematics than ECSs that opened after 2004.

- An even more dramatic difference appears between startup ECSs and ECSs with other origins (i.e., adaptation, conversion, or program). Startup ECSs had higher average proficiency rates than other ECSs — 22 percent higher on ELA and 21 percent on mathematics.

- Finally, location of classes mattered. ECSs that offered most of the high school or college classes at college locations had higher average proficiency rates on both ELA (18 percent and 11 percent higher, respectively) and mathematics (13 percent and 10 percent higher, respectively) than ECSs located in high-school-only settings.

These findings offer food for thought as the ECHSI continues to develop. Overall, these analyses suggest that the highest assessment proficiency rates were at mature ECSs, startup ECSs, ECSs located on a college campus, and ECSs with a 4-year IHE partner. We have to

Overall, these analyses suggest that the highest assessment proficiency rates were at mature ECSs, startup ECSs, ECSs located on a college campus, and ECSs with a 4-year IHE partner.

take into consideration that an ECS that has a lower proficiency rate is not necessarily performing poorly. It may be helping poorly performing students to make tremendous gains from where they started. These gains, however, may not translate into higher proficiency rates compared with those of other schools.

Table 5.7. Average Percentage of ECS Students Scoring Proficient on Their State's ELA/Reading and Mathematics Assessments, 2006–07

Assessments	IHE Partner Type		Year Open		Origin		ECS Location (Location of the Majority of High School Classes)		Location of Majority of College Classes	
	4-Year	2-Year	2004 or Earlier	2005 or Later	Startup	Non-startup	College Campus	High School	College Campus	High School
ELA/Reading	**85**	82	**87**	81	**90**	68	**91**	73	**88**	77
Mathematics	**73**	66	**72**	66	**75**	54	**75**	62	**73**	63

ECSs: 4-year, *n* = 24; 2-year, *n* = 56; 2004 or earlier, *n* = 26; 2005 or later, *n* = 54; startup, *n* = 53; non-startup, *n* = 27; high school classes on college campus, *n* = 43; high school classes on high school campus, *n* = 36; college classes on college campus, *n* = 55; college classes on high school campus, *n* = 19

Sources: 2006–07 ECHSI school survey and extant data from publicly available sources

College Course Participation

In spring 2007, 52 percent of ECS students were enrolled in at least one college course at the time the student survey was administered. As expected, exposure to college courses gradually increases

In spring 2007, 52 percent of ECS students were enrolled in at least one college course.

over the years at the ECS (see Figure 3.2). Eventually, ECSs should have close to 100 percent of their 12th-grade students in college classes. However, in 2006–07, that was not the case. Most of the ECSs with fewer than 75 percent of the 12th-grade students in college courses were newer adaptation ECSs (i.e., existing schools that recently started the transformation into ECSs), where the changes had not fully integrated the upper grades.

Grades in College Courses

The estimated overall GPA in college classes, based on students' survey responses, was a B, or 3.0, in 2006–07 (very close to the estimated GPA for high school classes — 2.9). As noted earlier, ECSs work very hard to prepare students for college courses and frequently

Students' reported college GPAs were 3.0 on average, with students expecting higher grades in electives and lower grades in core academic courses.

screen students before allowing them to take college courses. Therefore, it appears that ECSs are doing a good job preparing students for or screening them prior to entry in college courses.

One school-level variable, school type, had a significant positive relationship to students' reported college GPA. The students at startup ECSs reported higher grades in college courses (adjusted mean = 3.1) than students attending other ECSs (i.e., programs, conversions, and adaptations; adjusted mean = 2.9). Several possible explanations for this finding (e.g., maybe startup ECSs have students who have more or less experience with college classes) did not show the expected relationships. We will continue to examine this relationship to see whether it persists, and, if so, what the explanation for this difference might be.

Surveyed students also reported the grade that they expected to get in their first college class of the week. Figure 5.4 provides students' reports of these expected grades. Although there was some variability in grades based on the subject area, most averages were around a B. Physical education classes had the highest average (3.7), followed by technology and fine arts (both 3.4). Students participating in college mathematics classes reported the lowest expected grades on average (2.6).

Figure 5.4. 2006–07 Students' Expected Grades in College Courses, by Subject Area
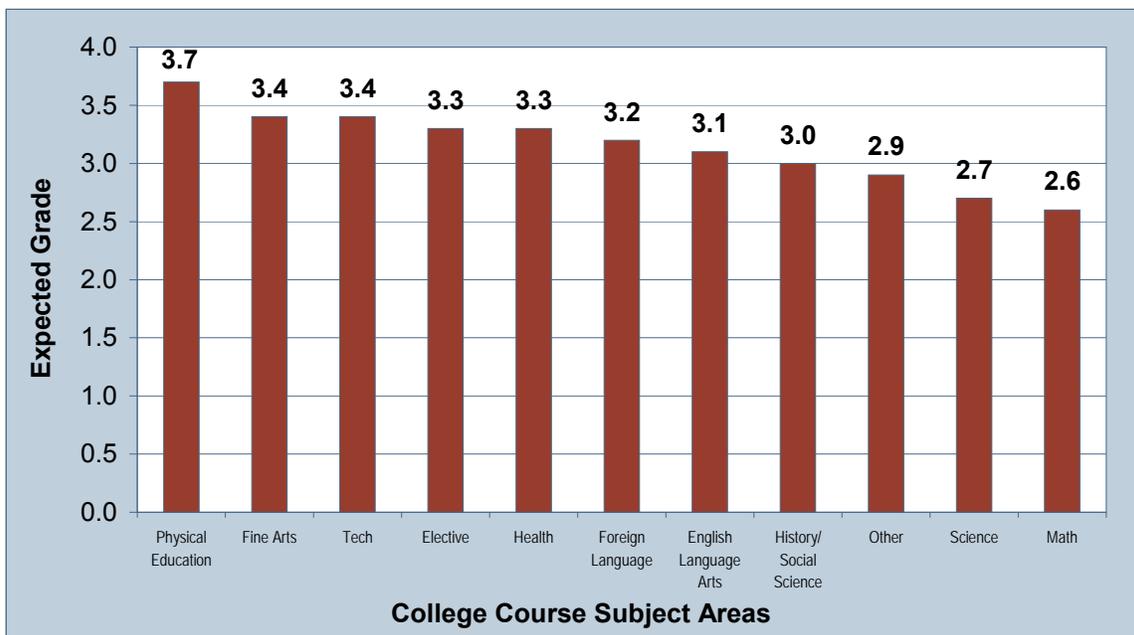
Students: elective: n = 108; ELA: n = 232; fine arts: n = 83; foreign language: n = 185; health: n = 110; history/social science: n = 468; mathematics: n = 165; other: n = 75; physical education: n = 59; science: 356; technology: n = 72

Source: 2006–07 ECHSI student survey

Notes: The survey question used here specifically asked students about the first college class they took for the week to get a distribution of types of classes. "Other" includes areas such as business, college orientation, and public speaking.

While Figure 5.4 shows students' *expected* grades, Figure 5.5 displays students' *actual* grades in college courses for the seven ECSs with these data in the SIS. In these seven schools, the average grade in college courses was 2.9, and students received an A or B in 68 percent of college courses. Students received the lowest grades in mathematics and science classes, paralleling the students' self-reports of expected grades. Of all the college courses taken, students failed only 3 percent of the college courses.

Figure 5.5. Average Grades Earned for College Courses in Academic Years 2003–04 to 2006–07
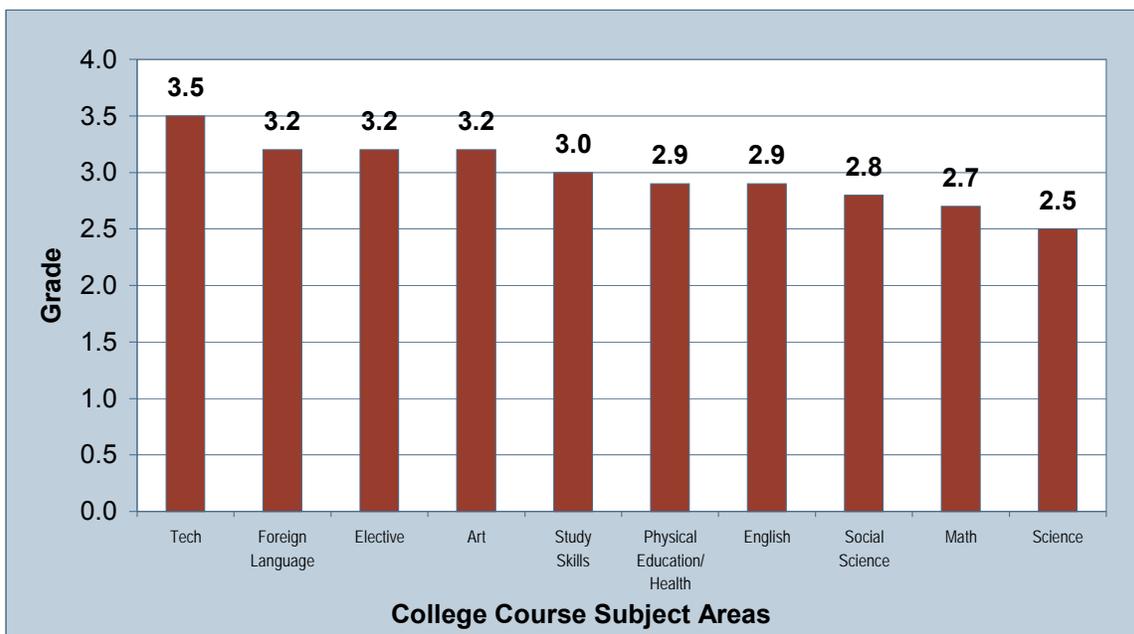
ECS, *n* = 7; students, *n* = 936
Source: ECHSI SIS academic years 2003–04 to 2006–07

Although primarily based on self-reported data on the student survey, ECS students' reported GPAs were quite high (and these numbers were validated to some degree by transcript data from a few ECSs). Most surprising were the high GPAs for college courses. The one-half of the ECS student population taking college classes appear to have been well prepared and well supported by the ECSs. The proficiency rates, while not meeting the ideal of all students being proficient, provide evidence that most ECS students are learning the content required by the state. These performance indicators suggest that most students are doing well enough to make solid progress through the ECS. The following section explores whether that is, in fact, the case.

Academic Progress

The outcomes in this section provide an indication of how successfully students are progressing through ECSs. Progression rates provide snapshots of students' progression through ECSs at one point in time by showing the percentage of students who progress from one grade to the next. Two

important measures are reported in this chapter. The first section provides grade-to-grade progression rates (e.g., 9th grade to 10th grade); the following section provides on-time graduation rates for a small number of mature ECSs.

Grade-to-Grade Progression Rates

The grade-to-grade progression rates are simply the percentage of students from one grade who progress to the next grade. The grade-to-grade progression rates were calculated in two ways; one way excluded students who transferred out of the ECS from the total enrollment numbers (the denominators) and the other included transfer students. The results of both methods are reported here.[43]

On average, about 85 percent of students stayed at their ECSs and progressed from 9th grade to 10th grade in 2006–07 (see Table 5.8). The rates at individual schools ranged from 50 percent to 100 percent. At the schools with rates around 50 percent, a high number of students transferred or were held back a grade. The 10th-to-11th grade and 11th-to-12th grade average rates were about the same as the 9th-to-10th grade average rate.

On average, about 5 of 6 students stay at their ECSs and progress to the next grade each year. Schools report that across the grade levels, about 10 percent of their students transfer to other schools.

Table 5.8. Average ECS Grade-to-Grade Progression Rates Between 2005–06 and 2006–07

Progression From:	Mean (All Students)	Mean (Excluding Transfer Students)	Number of ECSs
9th to 10th grade	85%	94%	52*
10th to 11th grade	85%	95%	35
11th to 12th grade	82%	89%	17

Source: 2006–07 ECHSI school survey

Note: Although these sample sizes seem small, they represent at least 90 percent of the ECSs expected to have these data (e.g., the school is not ungraded and enrolled the two grades in 2005–06 and 2006–07).

* One ECS was excluded as an outlier. It had a 9th-to-10th grade progression rate of 29 percent. At this school, one-third of the students were held back, and one-third transferred. No other ECSs had rates below 50 percent.

The most surprising finding related to these progression rates is the large difference in the rates when students who transferred out of the ECSs are excluded: the means rise between 7 percent and 10 percent when transfer students are not included in the calculations.[44] These differences suggest considerable attrition from the ECSs. Of the 52 ECSs with 9th-to-10th grade progression rates, three had more than 30 percent of the 9th-grade students transferring out. At the 20 visited sites, the ECSs that noted attrition problems cited students leaving because the program was too hard and required too much of the students.

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[43] These data are based on enrollment numbers provided by ECSs in the school survey.

[44] Students who drop out, or whose whereabouts are unknown, are included in both calculations of progression rates.

One question that this finding raises is: Are these students choosing to leave, or have they been counseled out either subtly or directly? There is evidence that both situations occur, although there is no evidence of the frequency. At the site visit schools, students left for reasons unrelated to the school (for example, moving or pregnancy). Other students left of their own accord. Most commonly, remaining students reported that these students left because they were overwhelmed by the academic expectations (either could not or did not want to handle the workload). Schools also noted that they asked students to leave because their grades were too low, they had behavior problems, or they did not want to do the required work. As more ECSs start to enroll all of the high school grades, ECHSI participants will need to have candid discussions about the degree to which ECSs should be held responsible for their transfer rates.

On-Time Graduation Rates

The previous section shows the degree to which students are moving successfully through a large number of ECSs. Few ECSs are old enough to have a full cohort of graduates, but the results from those few provide an interesting first glimpse into this important student outcome. These on-time graduation rates are merely estimates of the ECSs' actual graduation rates. The calculation is the number of graduating students divided by the number of entering students 4 or 5 years earlier (see the technical appendix for a full description). Only 15 ECSs had been open long enough to have a graduate cohort that had been through the entire program (either 4 or 5 years) by spring 2007. Of these, eight provided enough data to calculate an on-time graduation rate (53 percent). Therefore, these data are presented as an early first glimpse into student progress and success in half of the most mature ECSs.

In these eight established ECSs, the average estimated on-time graduation rate in 2006–07 was 70 percent. For the two 5-year ECSs, the average on-time graduation rate was 89 percent, and for the six 4-year ECSs, it was 64 percent. The rates ranged from a low of 22 percent (in a school with a large number of students retained and high transfer rates) to a high of 103 percent (a possibility with this estimate if more students transfer into the school than transfer or drop out or are retained). In 2003–04, the year with the most recent national data available, the average estimated on-time graduation rate for the states where these eight schools are located was 68 percent (NCES, 2007a).[45] Additionally, most ECSs are located in districts where schools usually have student outcomes that are lower than the state's average. In fact, the estimated average on-time graduation rate for the school districts of these eight ECSs was 58 percent in 2003–04 (EPE Research Center, n.d.).[46] Therefore, in both of these comparisons (to the state and district averages), most of these eight schools were off to a strong start with their first class of graduates.

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[45] This NCES indicator uses an average entering class size (rather than a single entering class) as the calculation denominator. Therefore, depending on the number of retentions and transfers in and out of the school, the on-time graduation rate estimated here may be higher or lower than an estimate based on the NCES indicator.

[46] The indicator used by the EPE Research Center is based on the grade-to-grade enrollment change between 2002–03 and 2003–04 multiplied together. Again, because of the different calculation method, the district estimates based on this calculation may be higher or lower than if the same calculation as the ECS estimates was used.

Postsecondary Expectations and Aspirations

Although graduation data are available for very few ECSs so far and postsecondary data for none, some information about the likelihood of students graduating and continuing on to college can be gleaned from students' stated expectations and aspirations. It is unlikely that a student will continue to college without first aspiring to it. Therefore, these beliefs are necessary predecessors to eventual postsecondary attainment. Furthermore, students' stated expectations can provide a window into the results the ECS might profess to help them attain (and even their success in doing so).

Expected College Credit Accumulation

Research has demonstrated that early and extensive exposure to college courses makes continuation in college more likely. Adelman (2006) states:

> *Less than 20 credits by the end of the first calendar year of [college] enrollment … is a serious drag on [college] degree completion. … It is all the more reason to begin the transition process in high school with expanded dual enrollment programs offering true postsecondary course work so that students enter higher education with a minimum of six additive credits to help them cross that 20-credit line. Six is good, nine is better, and 12 is a guarantee of momentum (p. xx).*

On average, in 2006–07, ECS students expected to graduate with about a year and a half of college credits completed.[47] Seventy-nine percent of students expected to graduate with at least 1 year of college credits (30 credits in most IHEs), and 46 percent expected to earn at least 2 years of college credits (60 credits in most IHEs). If correct, these students will leave high school with far more than the 12 college credits noted by Adelman to be "a guarantee of momentum." The evidence is that the schools and their students largely have the same goals, based on a comparison of students' average expectations at each school with the school's established curriculum plans (for 16 of the 20 ECSs, based on Table 3.1 in Chapter III). At 13 of these 16 schools, most students had expectations in line with established curriculum plans. For example, at schools with 2 years of college credits planned, students more frequently responded that they expected to get at least 2 years of college credit. Therefore, it appears that, on average, students are aware of the college credit-earning potential at their schools and have aligned their expectations to that potential.

> *Seventy-nine percent of students expected to graduate with at least 1 year of college credits, and 46 percent expected to earn at least 2 years of college credits.*

If realized, this number of accumulated college credits would put ECS students far ahead of their peers. However, since the start of the ECHSI, the goal for the schools has been to help students achieve 2 years of college credits. Despite a softening of the language, the ECHSI documentation still lists "up to" 2 years of college credit as the goal. Therefore, it may be that ECHSI participants should look with concern at the expectations of half of their students to earn only 1 year of college credits. It

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[47] Although students' expectations are interesting, a more reliable outcome is their actual credit accrual rates. However, the seven schools that submitted some transcript data for college courses did not provide the data that would be required to track students' credit accumulation (i.e., all semesters of data for each student).

also may be that the developing ECSs are working their way up to the eventual goal of 2 years of college credits, and these students are reflecting the current, but not eventual, status of the initiative.

Although college credit accumulation expectations did not differ by ECS characteristics, Figure 5.6 indicates that the closer students are to graduation, the fewer college credits they believe that they will accumulate. There are two likely explanations for this. First, students who are in the last semester of their 12th-grade year can probably make a much more accurate prediction of the total number of credits they will receive by the end of the semester than does a first-year 9th-grade student who may not have even taken a college class yet. Second, students who were in 12th grade in 2006–07 either started at one of the first ECSs in the initiative (many of which did not have clear plans for college course integration when they opened) or started at a newer ECS later in their high school career, leaving them less time to prepare for and accumulate college credits. In this situation, 9th-grade students might be correct about earning more college credits, as they will have more years to do so.

Figure 5.6. 2006–07 Students' Expected Total College Credit Accumulation Upon ECS Graduation, by Grade Level
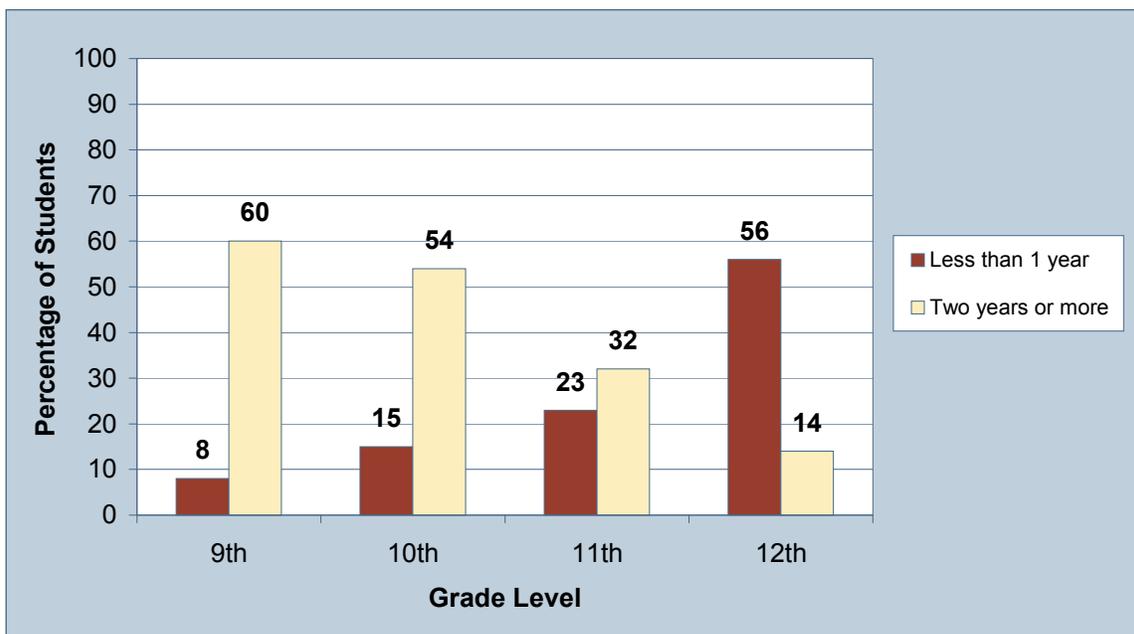
ECS, *n* = 20; students: 9th grade, *n* = 398; 10th grade, *n* = 421; 11th grade, *n* = 336; 12th grade, *n* = 223
Source: 2006–07 ECHSI student survey

Very few ECSs have produced graduates yet, but some did provide the percentage of their students who graduated with an Associate's degree. Of the 11 schools that provided these data and were at least 4 years old (meaning that graduates were in the school long enough to experience most, if not all, of the program), seven had at least one graduate obtain an Associate's degree. At the seven ECSs with Associate's degree recipients, 20 percent of the high school graduates in 2005–06 also earned Associate's degrees. At one ECS, 64 percent of the graduates earned the dual degrees. As noted earlier, however, Associate's degree attainment is not necessarily a goal of the ECHSI.

Postsecondary Aspirations

The most explicit goal within the ECHSI is for students to earn as many college credits as possible while in high school. An implicit goal, however, is that students will continue their education after graduation from an ECS. Therefore, students' aspirations for college after the ECS are presented here as well.

Similar to findings in previous evaluation reports (AIR & SRI, 2006, 2007), students interviewed during 2006–07 had unequivocal visions of themselves as college bound, and many had well-articulated career plans that included college. Most students (93 percent) reported that they are interested in careers that require a college degree. In fact, many students in focus groups expressed an interest in careers that required more than an undergraduate degree, such as law or medical school. Students stated college aspirations to support those goals. Table 5.9 shows students' aspirations overall and by grade. Three-quarters of all students expected to complete at least a bachelor's degree. These aspirations are similar to national statistics. Of the students taking the High School Survey of Student Engagement (HSSSE, 2005), 39 percent expected to complete a bachelor's degree, and 35 percent expected to obtain a master's degree or higher.[48] In 2003–04, 34 percent of the 12th-grade students in an NCES sample expected to complete a bachelor's degree, and 35 percent expected to complete a graduate degree. Therefore, despite serving students who are from populations underrepresented in postsecondary institutions, ECSs have students who are just as interested as other high school students in furthering their education.

> *Despite serving students who are from populations underrepresented in postsecondary institutions, ECSs are fostering a college-going culture such that ECS students are just as interested as other high school students in furthering their education.*

Table 5.9. 2006–07 Students' College Aspirations, Overall and by Grade

Aspirations	Grade				
	9th	10th	11th	12th & 13th	Overall
Leave high school before graduation	1%	0%	1%	1%	1%
Graduate from high school	10%	12%	10%	9%	10%
Get some college or other training	4%	5%	5%	3%	4%
Complete job-training program	2%	2%	2%	3%	2%
Graduate from a 2-year community college	7%	4%	7%	12%	7%
Graduate from a 4-year college	38%	41%	37%	39%	39%
Graduate from college and take further training	37%	36%	38%	33%	36%

Number of students, *n* = 1,390; 9th grade, *n* = 401; 10th grade, *n* = 421; 11th grade, *n* = 337; 12th grade and 13th grade, *n* = 231

Source: 2006–07 ECHSI student survey

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[48] This is a large (*n* = 80,904) but nonrandom sample of high school students.

Two explanations are possible for the high aspirations of ECS students: First, students who aspire to attend college are more likely to enroll in ECSs. Second, ECSs increase students' interest in attending college. The student survey data demonstrate that students believed that the ECS was affecting their aspirations. Eighty-six percent of students agreed that they had a better sense of what college was like since attending the ECS, and 87 percent felt better about their ability to be successful in college.

Based on data from site visits to 20 ECSs, it appears that both explanations are true — ECSs attract students wanting college and ECSs inspire college aspirations in students. For example, one student noted her pre-existing college goals, saying, "I want to be a nurse so [attending the ECS] could save me 2 years [of college] already." Other students with less specific aspirations noted that they liked the ECS allowing them to "get a jump" on college. Focus group students who attended ECSs for other reasons (parents pushed them, they wanted a smaller school, or they were looking for a safer environment) saw the ECS as getting them interested in college. One student noted, "I wasn't planning on going to college, and when I came here, I thought, 'Now I can go to college.'" Another student noted how doggedly the ECS encouraged college aspirations:

> *Well, before I came to this school, I didn't want to go to college. And as soon as I got here, they just kept talking to me about it, and all. I never thought that I was going to end up saying that I was going to go to college. I just saw myself graduating high school. But it's the school. When I got here, it encouraged me to go further than that.*

Therefore, these data suggest that both explanations are likely true: ECSs attract students who are interested in college and pique the interest of others.

Two interesting differences emerged in students' expectations related to characteristics of their ECS. First, students who attended an ECS that was not located on a college campus were less likely to aspire to complete at least a 4-year degree than students at an ECS located on a college campus (probability of aspiring to at least a 4-year degree was 0.85 for students at an ECS on a college campus, versus 0.69 for others).[49] Second, students at an ECS affiliated with a 4-year IHE were more likely to aspire to finish a 4-year degree or higher than students at ECSs not affiliated with a 4-year

> *Students are more likely to aspire to receive a bachelor's degree or higher if they attend an ECS located on a college campus or an ECS with a 4-year partner.*

IHE (probability of 0.88 versus 0.75, respectively). Both of these findings make sense, considering the exposure that students had to college at all in the first instance and to a 4-year institution in the second instance. Also, traditional community college students may not be modeling aspirations for additional college to ECS students. In 2007, only 51 percent of community college students aspired to transfer to a 4-year institution, and 58 percent said that their primary goal was to obtain an Associate's degree (Community College Survey of Student Engagement, 2007).

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[49] In addition, students who had taken at least one course on a college campus were more likely to aspire to complete a 4-year degree or higher than those who had not taken any courses on a college campus ($ß = 0.48$ and $p < 0.01$).

Postsecondary Acceptance

In 2005–06, 31 ECSs graduated students, and 25 of these ECSs provided at least some data on the students' postsecondary acceptance.[50] On average, 46 percent of the graduates were accepted to at least one 4-year IHE. However, acceptance rates for each ECS ranged from 0 percent to 100 percent. The three ECSs with no graduates accepted to 4-year IHEs were all very small and had only one or two graduates. Five ECSs had acceptance rates higher than 75 percent. Two schools had 100 percent of their graduates accepted to a 4-year IHE; these schools graduated between 3 and 79 students. These data suggest that although this initiative does not focus on 4-year degree attainment, some ECSs support that focus.

Summary

Although preliminary, early outcomes look positive for ECSs.

- Students reported high levels of academic engagement.

- The higher students rated their ECS on the 3R's, the higher their reported levels of academic engagement and academic self-concept.

- In 2005–06, the average daily attendance rate in ECSs was 94 percent.

- Students reported that their peers seldom engaged in disruptive behaviors.

- In a study of transcripts from seven ECSs, the majority of students will be in a position to move into Advanced Mathematics in 12th grade.

- ECS students' average high school GPA was very close to the national average.

- ECSs had 82 percent of their students achieve proficiency on their state's ELA assessment, and 68 percent of their students achieved proficiency on the state's mathematics assessment. On average, ECSs are doing better than other high schools in their surrounding district.

- In spring 2007, 52 percent of ECS students were enrolled in at least one college course. Students' reported college GPAs were 3.0 on average.

- On average, about 85 percent of students stayed at their ECS and progressed to the next grade each year. For eight of the most mature ECSs, the estimated on-time graduation rate was 70 percent, on average.

- Seventy-nine percent of students expected to graduate with at least 1 year of college credits; 46 percent expected to earn at least 2 years of college credits.

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[50] Note that some of the ECSs with graduates were less than 4 years old, meaning that graduates had not attended an ECS for all of their high school grades. At the time of the survey (winter 2006–07), 2005–06 was the most recent graduating class.

■ Despite serving students who are from populations traditionally underrepresented in postsecondary institutions, ECSs have students who are just as interested as other high school students in furthering their education.

With only the Core Principles uniting them, ECSs come in a variety of models. With these first early outcomes, some patterns are emerging with regard to school structural features that are associated with better student outcomes.

■ *ECS location* — One feature that makes ECSs unique is the integration of college courses through a partnership with a 2-year or 4-year IHE (or both). Early indications are that this integration relates to better student outcomes when the ECSs are located on a college campus. In fact, this school-level characteristic differentiated ECSs on more student outcomes than any other examined characteristic. ECSs located on college campuses had higher attendance and assessment proficiency rates, and students had higher post-ECS aspirations as well. Although location on the college campus is not a requirement for the ECHSI, many intermediaries believe that this is an important feature for motivating students to engage in and take responsibility for their education. This belief leads to the hypothesis that improvements in academic outcomes should be preceded by improvements in students' engagement and academic self-concept. These findings provide some evidence for this hypothesis. Students at ECSs located on college campuses reported more orderly behavior by their peers, more academic interest and persistence, and higher academic self-confidence.

■ *IHE partner type* — Not surprisingly, student at ECSs affiliated with 4-year IHEs were more likely to aspire to attain at least a 4-year degree. However, more surprising were the findings that ECSs affiliated with a 4-year IHE had better outcomes on several other student outcomes than did ECSs affiliated with 2-year IHEs. ECSs with 4-year IHE partners had higher attendance and assessment proficiency rates, and students reported more academic interest. However, students attending ECSs affiliated with 4-year IHEs reported more disruptive behavior in their peers than was reported by students at ECSs partnered with 2-year IHEs (possibly an artifact of ECS location). Participants in the ECHSI likely would not have predicted these findings. Particularly because, based on the experiences of the *schools,* the evaluation noted that 2-year IHEs appeared to make better partners (e.g., fewer barriers to high school students' taking college courses, more flexibility in use of funding, and easier high school to college articulation; see Chapter VI for more policy discussions). One inkling of an explanation came from a statement made by a student at an ECS partnered with a 2-year IHE. The student noted, "When we go to college, I'm scared that we'll be shell-shocked: 'Oh, this is a lot harder than community college!'" As this statement demonstrates, students may think of the 2-year IHE as not "college." Therefore, these students may have concerns about their potential to succeed in a 4-year IHE. Conversely, students at ECSs with 4-year IHE partners may get an extra boost from learning at a 4-year IHE, and perhaps experiencing success in that environment. This is only a hypothesis based on these early results. We will investigate these differences in the future.

■ *ECS origin* — As noted in Chapter II, all intermediaries have at least one ECS that developed at an existing school site, whether as a breakdown of a larger school (conversion), the

transformation of an entire school (adaptation), or the addition of a small program within the school (program). These previously existing sites may have existing challenges, however. On several outcomes, ECSs developed as part of the ECHSI (startups) had better results: Startup ECSs had higher attendance and assessment proficiency rates, and students reported less disruptive behaviors by their peers and higher grades in college courses. This finding echoes that of previous research that found that startup schools made positive changes more quickly than reforming existing schools (AIR & SRI, 2005a).

Several caveats should be reiterated when discussing these findings. First, all of these analyses are relational and do not establish causation. Differences in student outcomes may be attributable to other school differences, student differences, or both. One likely alternative explanation is differences in the characteristics of the enrolled students. None of these analyses controlled for student achievement prior to enrolling in the ECSs. Many of these findings could, in fact, be attributable to differing academic abilities of schools. For example, perhaps ECSs partnered with 4-year IHEs enroll students with stronger academic backgrounds than ECSs partnered with 2-year IHEs.

Despite these differences between ECSs, the overall picture from these early results is quite promising. It shows that ECSs are simultaneously moving students through a high school curriculum and into college courses, and along the way, students are developing interest in and aspirations for education. The evaluation will continue to document the successes and challenges demonstrated by ECSs and the features that appear linked to students' enrolling and succeeding in college courses. The next chapter discusses the outcomes that ECSs are achieving regarding their own sustainability.

Chapter VI — Sustainability of the ECHSI

Chapter Findings
■ Eighty-five percent of the ECSs in our site visit sample have identified some or all of their continuation funding. Although more than half of those schools were confident that all of their costs would be covered, it is not clear how much of that funding has been secured yet.
■ At the midpoint of the ECHSI, intermediaries, JFF, and the foundation are clarifying the ECS model through revisiting some of the Core Principles, including the goals for college credit accumulation and the target student population.
■ With the success of the ECHSI, non-network developers and individual states are adopting aspects of the ECS model as a means to reform high schools. The increase in scale of ECSs outside of the ECHSI raises concerns about fidelity to the original ECS model as intended by the foundation.
■ The continuation of the intermediary network is important to the success of the ECHSI by providing an avenue to share best practices, bringing the ECS model to scale, and providing a collective voice to advocate for policies and practices that support conditions for ECS success.
■ As more students have attempted to take college classes through the ECHSI, more policy issues have come to light that prevent students from taking the classes. The partners have been working to enact changes in state policies. Due to the complex nature of changing state policies, several intermediaries have formed policy working groups with relevant stakeholders from education, policy, and business sectors to discuss policy issues. Their commitment to participate highlights the perceived importance of state policies to the success of ECSs.

Introduction

The sustainability of the ECHSI depends on several factors: (a) sustainability of individual ECSs, (b) sustainability of the initiative that upholds Core Principles and relies on a variety of partners to fulfill important roles, and (c) a supportive policy environment.

Throughout this report, we have discussed the many factors that are essential to the sustainability of individual schools as places where students can earn college credit, such as a strong partnership with an IHE and structures that enable students to enroll and succeed in college courses. In this chapter, we discuss two final important aspects for an individual ECS to be sustained for the long term: stable funding and intentional planning for the future. Beyond the features that must be in place to ensure the sustainability of individual schools, sustainability of the ECHSI as a whole depends on the continuation of the ECS model as it is defined and redefined within the initiative. The ECHSI requires adherence to Core Principles and non-negotiable structures that further specify the ECS model, which are being revised to reflect lessons learned to this point in the ECHSI. Finally, a supportive policy environment is crucial for the continuation of schools and the ECHSI. The chapter's final section highlights the ongoing efforts by partners, specifically JFF and the intermediaries, to elicit state, district, and local policies that support the sustainability of the ECSs.

Sustaining New and Innovative High Schools

Previous evaluation reports (AIR & SRI, 2006, 2007) have highlighted how the sustainability of ECSs hinges upon stable funding. Clearly, intermediaries and the networks they have established play a vital role in the successful implementation and sustainability of ECSs, yet local partners' ability to maintain adequate financial resources is also imperative to the schools' survival. Now that the ECHSI grant term has ended for a growing number of intermediaries and their ECSs, the reality that ECSs need to become self-sustaining looms large. Through the lens of funding, this section considers factors that directly affect the sustainability of ECSs.

Sustainability Plans for ECSs

Initial funding for ECSs is intended to be seed money to help with the startup costs of establishing an ECS, including support for particular expenses that are associated with the ECS model, such as extra services that help students succeed. Per-pupil funding from state and district funds may be sufficient to cover the high school portion of an ECS, but the real challenge of financial sustainability pertains to securing funds to cover the costs associated with college course-taking — tuition, textbooks, fees, and transportation.[51] Given the growing maturity of many ECSs, the evaluation team sought to understand how schools — and their partners — are planning for their future viability. Data gathered from interviews with school and IHE leaders during site visits revealed that 85 percent of schools in the site visit sample had identified some or all of their continuation funding for the foreseeable future. The majority of the schools opened in 2002, 2003, or 2004 and no longer receive funding from the foundation. However, those schools have already successfully implemented sustainability plans. Hence, these schools' confidence about the identification of funding sources for some, if not all, of their financial needs is reassuring. It is important to note that the school staff reported on identifying funding, although there is little concrete information about whether or what percentage of funding was actually secured. For the few schools that had not yet identified additional long-term funding, the primary concern was the continued financial support from the IHE partner.

Of the schools that confirmed the presence of a sustainability plan, 55 percent were confident that all of their costs would continue to be covered. For most of the schools in this category, stable and sufficient funding was provided by IHE partners through in-kind contributions, such as charging a token $1 annual fee for an ECS to be located in and use facilities on the campus. Alternatively, stable funding also was available through state funding policies that encourage high school students to take college classes and that underwrite the participation of both partners.

> *Of the schools that confirmed the presence of a sustainability plan, 55 percent were confident that all of their costs would continue to be covered.*

Such state policies may provide per-pupil funding for both the ECSs and the IHEs, cover the cost of student tuition, or set funding aside expressly for ECSs.

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[51] In a 2004 JFF study of the cost of planning and implementing ECSs, the average cost of the college faculty and courses for a sample of six ECSs was 24 percent of their aggregated costs. For more information about the costs of implementing ECSs, see *What Is the Cost of Planning and Implementing Early College High School?* (Webb, 2004).

The circumstances that allowed leaders at certain ECSs to feel quite positive about their financial outlook varied. For MCNC ECSs (operating in several states), the intermediary has a long history of ensuring the sustainability of sites beyond their initial funding. This long-term sustainability is partly due to the ongoing support of the partner IHEs as well as MCNC's success in securing grant funding from a variety of sources that enables it to provide ongoing technical assistance to the affiliated schools.

The North Carolina and Texas ECSs felt fairly secure for another reason: Each state has a relatively supportive policy environment. The North Carolina schools in the site visit sample are part of a broader state effort, the Learn and Earn initiative, that includes a plan to open 75 ECSs across the state and provides funding to cover startup costs, tuition, and student supports. The state has other supportive funding policies as well, including a policy that provides full-time equivalent (FTE) funds to IHEs for high school students who take college classes, thereby encouraging the IHEs to be receptive to ECS students. Finally, two of the ECSs that were confident about their sustainability were located in Texas, another state with a supportive policy environment, including additional per-pupil funding for college readiness activities that can be used for college textbooks and transportation to colleges.

Like ECSs in North Carolina and Texas, most of the ECSs affiliated with "place-based" intermediaries (e.g., located in just one state or geographic area) were confident about their options

> *Perhaps the ECHSI shift to a few focused locations has resulted in more certainty about continued funding and sustainability.*

for continued funding. As discussed in an earlier evaluation report (AIR & SRI, 2007), the foundation shifted its focus to opening schools in targeted states and locations with supportive early college policies (California, New York City, North Carolina, Ohio, and Texas); these areas already had some favorable policies in place and/or the current policies were supported by JFF and the intermediaries (described later in this section). Place-based intermediaries often benefit from the support of the governor and have an easier time pushing the college-readiness agenda forward. They also can more easily provide support to the ECSs given the limited geographic area (AIR & SRI, 2007). Perhaps this shift to a few focused locations has resulted in more certainty about continued funding and sustainability.[52]

Concerns About Sufficient Funding for the Future

Of the site visit schools that identified some potential continuation funding sources, including ongoing district support and funding from external grants, IHE or ECS leaders at 45 percent of the schools were not confident that the identified funding would be sufficient. The schools where leaders expressed funding concerns were quite varied and included schools with 2-year and 4-year IHE partners affiliated with seven different intermediaries. Overall, leaders identified three primary concerns related to uncertainty about continued funding: (a) state funding for tuition and textbooks (identified

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[52] While there are many benefits associated with being a place-based intermediary, these intermediaries have struggled with having a limited area from which to choose new ECS sites (AIR & SRI, 2007). They, therefore, may end up working with weaker partnerships to meet their goals for opening new sites.

by three schools); (b) continued support from the IHE or district partner (five schools); and (c) funding from soft money sources (one school). Each of these challenges will be addressed in turn.

State Funding for College Tuition and Textbooks

Some states have policies in place that defray the costs associated with high school students enrolling in college classes (Vargas & McKnight, 2006). Although all public schools receive average daily membership (ADM), average daily attendance (ADA), or FTE funding from the state and district, these funds may not cover all of the costs associated with enrollment in college courses, such as tuition and college textbooks. In several states, such as Ohio, North Carolina, and Utah, a line item within the state budget is dedicated to supporting ECSs. Not surprisingly, funding was cited as a challenge in states without such targeted support, with one state representative describing it as "an uphill battle." One option that intermediaries and other partners are considering in states that do not provide necessary resources is starting ECSs as charter schools because there is extra funding for them in certain states (such as California), as well as federal charter school money for startup, early implementation, and dissemination activities (U.S. Department of Education, Office of the Under Secretary, 2004).[53]

College tuition and textbooks are two of the most expensive costs associated with high school students taking college courses and are difficult for ECSs to fund. Tuition policies for high school students enrolling in college classes across the country vary greatly, and are often complicated. Tuition policies range from states covering high school students' college tuition (often through grant programs or scholarship funds, as in Georgia)[54] to states requiring students to cover tuition themselves (as in New York).[55] In between are states with policies mandating that either the high school or the IHE pay for students' tuition in college courses. In other states, the IHEs can choose to cover the tuition. For example, in California, FCCC has worked with community colleges to waive fees for students.

> *College tuition and textbooks are two of the most expensive costs associated with high school students taking college courses and are difficult for ECSs to fund.*

In states in which policy enables IHEs to cover the cost for dual-credit classes, community colleges tend to have more flexibility than 4-year IHEs. For example, some community colleges are eligible to draw additional funding from their local tax base and have more freedom in allocating those funds. In Texas, where IHEs can choose to cover the cost of tuition for high school students, many do waive tuition and fees for in-district high school students. However, according to one intermediary,

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[53] Funds from the federal Charter Schools Program (CSP) flow through the states with charter school laws. Individual states determine how the funds are dispersed — sometimes equally to all charter schools, sometimes competitively.

[54] In Georgia, the ACCEL grant program allows 11th grade and 12th grade students in Georgia accredited public or private schools to enroll in dual-credit college courses at approved Georgia colleges. If the courses are on the approved course list and are taken at a public college, the program pays for tuition and fees and provides a textbook allowance.

[55] However, ECS students typically have their tuition covered by the school and IHE partner.

some IHEs have or will begin to charge tuition they had previously waived due to changing economic conditions. One Texas ECS recognized the benefit of having both supportive state policy and a supportive community college partner that chose to cover tuition. The leader commented, "It's a combination of the state legislature and local policy [that] have worked very well. People will say, 'Well, Texas has great support at the state level.' But that's not true. It has to be approved and implemented at the local level for it to really work." Other ECSs encountered challenges related to tuition policies, including a school in California that must pay the tuition if the college class has fewer than 25 students. (See the text box below for another example.) This policy leads students to take classes the school wants them to take (to fill a class) rather than what the students would like to take.

> ### One ECS' Struggle With Tuition Costs
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> In California, community colleges have the option of covering students' tuition. Until recently, the IHE partner for one ECS was one of the few 2-year colleges in the state that did not provide a fee waiver for high school students. Students had to pay for the college courses themselves, which limited the ECS' ability to require college courses as part of the high school curriculum.
>
> The ECS could not resolve the tuition issue until a new IHE president came on board, who, after working with the ECS, passed a fee waiver that became effective in June 2007.

In addition to the sustainability challenges associated with college tuition, the cost of college textbooks is a significant obstacle for ECSs. As ECSs mature and more students enroll in college courses, the cost of college textbooks is escalating. For example, one ECS reportedly spent $100,000 on college textbooks in 2006–07. Most states that do cover tuition do not pay for college textbooks. In fact, some state policies present obstacles to finding alternative mechanisms to fund textbooks, such as not allowing schools to use ADA funds to pay for college textbooks, so they have to find other sources to cover textbook costs. For example, in Texas, policies prevent schools from using the state textbook fund for college textbooks.[56] Intermediaries in Texas have been lobbying for ECSs to be allowed to use state textbook funds for college textbooks, as they are a drain on district resources.[57] In California, students in dual-credit courses typically must pay for the textbooks themselves, although some districts will cover the costs for ECS students. In Washington, the leader of an ECS shared that districts will cover textbooks that are on the districtwide adoption list, but it usually does not include college textbooks. For ECSs in these situations, paying for textbooks not on the list is a challenge, especially when college instructors may change their textbooks often. Some schools that had relied on grant funds to cover these costs did not have alternative plans in place to cover the costs of textbooks when the grants ended.

Some states have provided more funding to ECSs that can be used toward textbooks or have attempted to make college textbooks more affordable. In Georgia, the ACCEL grant program, which

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[56] Per Texas Education Code (TEC) 31, only certain pilot projects (designated under TEC 54) with particular students concurrently enrolled in community college courses can draw funds from the state textbook fund for the purchase of college textbooks.

[57] Texas Administrative Code (19 TAC Chapter 102) mandates that districts or charters in which ECS students are enrolled are required to pay for the tuition, fees, and textbooks related to an ECS course that is counted toward high school graduation credit, unless they are waived by the IHE.

enables students to take dual-credit college courses at Georgia colleges, provides participating students with a $150 book allowance per semester, but those funds are limited to students beginning their college courses in 11th and 12th grades. For ECSs that start students in college courses earlier, they must find funding from other sources. In one ECS where students start college courses in 10th grade, the district covered the cost of textbooks until the students reached the 11th grade. Similarly, although Texas does not have funds specifically earmarked for college textbooks for ECSs, in 2006 the legislature passed House Bill 1, which provided for high school allotment funds. Through this measure, districts receive $275 per student (as determined by ADA) in grades 9–12 that can be used toward paying for textbooks for dual-credit courses.

Participants in the ECHSI are working on these challenges at the local and state levels. Some intermediaries and ECSs are actively trying to encourage college instructors to not change textbooks as frequently. Policy-makers are aware that paying for textbooks has created a growing challenge. In two states, Ohio and Michigan, the state departments of education have enlisted outside agencies to conduct policy evaluations and make recommendations to the state on possible strategies to cover this additional cost.

Continued Support From IHE and District Partners

Although supportive state funding policies are important to the financial sustainability of ECSs, support from local IHEs and districts also represents significant funding for ECSs. In fact, many school leaders expressed concern about the continued funding commitment of IHEs and districts. IHEs have provided financial support through direct and in-kind resources. A significant cost that some IHEs have assumed is for the salary of a college liaison position, a key role as more students enroll in college classes (see text box for a description of this position). Some IHEs also have covered tuition costs in states without policies explicitly mandating tuition reimbursement, and they have sometimes used creative financing strategies for this purpose. For example, according to an IHE leader, one college is considering using a "prorated amount [of the instructor's salary based on] the percentage of students who are in regular college classes, rather than having each student pay tuition." In other words, if the salary for the college instructor is $3,200 per class, and half of the class is early college students, the ECS would pay $1,600.

College Liaisons: A Necessary Expense

The college liaison serves an important role in facilitating the partnership between the ECS and IHE and guiding students through their college experiences. The liaison can be involved in making decisions for the ECS; recruiting and supporting college faculty; enrolling, scheduling, and registering students in college classes; and advising students and helping them ease into the college experience. In 2006–07, those serving in this position were typically from the college and included associate deans, department heads, college guidance counselors, and IHE instructors. Seventy percent of ECSs (85 out of 120) have at least one full-time college liaison. One college liaison described his role thus: "Any kind of problem-solving as it comes to us. I have office hours for the students. I do advising. … I've worked out curriculum things over and over again. Trying to figure out which courses are best. Liaison to instruction. Liaison to student services. Whatever needs to happen."

According to district representatives in the site visit sample, funding provided by the district is largely dependent on the ADM or ADA funds it receives from the state to cover costs affiliated with operating a school, such as salaries, professional development, and materials. One school leader reiterated the reliance on ADA funds: "As long as we have students, we are sustainable [based on ADA]." Yet school leaders expressed concern about the districts' continued commitment to the ECSs in circumstances such as leadership turnover or a changing vision for high school reform in the districts. Staff at ECSs located in districts where support was uncertain felt vulnerable. As one ECS staff member commented, "It's always hard emotionally for me because at any moment they could say, 'This isn't working for us,' and we're done."

Funding From Soft Money Sources

The initial seed money provided by the foundation to ECSs, via intermediaries, can be used for some of the supplementary costs associated with being an ECS that are not easily covered by public funding sources. This funding is vital to offsetting the associated costs of opening or converting a high school (Webb, 2004). Several school leaders commented on the significant role of foundation funding, and despite the fact that it is, as one school leader noted, "a relatively small amount of money in the whole picture," they were concerned about replacing that support when foundation funding ends. Another school leader commented, "A concern for us is: Where do you get this money when the Gates money goes away?"

Several schools discussed efforts to identify and acquire alternative funding, much of which would come from other soft money sources. One IHE hired a grant writer with the specific role of working with ECS staff to identify new funding sources. A leader at another school noted its plan to "court donors that are willing to give large amounts of money." A school's continued reliance on soft money carries an inherent risk. One school leader said, "You have to go out and get these grants all the time, you don't know when they are going to stop, and you don't know when the program is going to end." Yet in the short term, the soft money provides needed supplemental funding to support the sustainability of ECSs.

Given the ongoing concern about securing sufficient funding, one benefit of being part of the ECHSI is that schools usually are not alone in their efforts to obtain funding. As part of their intermediaries' network of affiliated schools, most of the intermediaries continued or plan to continue to provide support for the schools even after foundation funding has ended. Like the schools, intermediaries are looking for ways to maintain funding not only for the ECSs, but also for themselves (an issue discussed further below).

Shared Responsibility for Financial Sustainability of ECSs

Although local partnerships ultimately have the responsibility for ensuring the financial sustainability of the ECSs, intermediaries have always played a key role in establishing and fostering the development of local partnerships and in implementing the ECSs. Intermediaries have invested significant human, material, and financial resources in moving the ECHSI forward. During 2006–07, concern about the financial viability of the ECSs varied by intermediary.

A substantial number of intermediaries were relatively unconcerned about the end of the ECHSI grant and had planned to sustain their ECSs without continued funding from the foundation. For example, one intermediary planned to continue opening ECSs, and the intermediary representative believed that federal, state, and private funding, as well as fee-for-service, would adequately replace funding from the foundation. The representative noted that many other funding organizations also were interested in the intermediary's work. In North Carolina, for example, ECSs enjoy strong support and commitment from the governor as part of the state's aforementioned Learn and Earn initiative. Long-term sustainability in North Carolina depends on the state's commitment rather than on continued funding from the foundation. An ECS leader in North Carolina indicated that the governor was the greatest ally to have, because no other stakeholders would challenge the governor's decision to support ECSs. Similarly, an intermediary in Texas hoped that by the time foundation funding ran out, ECSs in Texas, like those in North Carolina, would have a strong foothold at the state level. According to a representative,

> *In the state of Texas, [I hope] ECSs will already have a place in the culture of the state to support these schools over time. We are in a lot of conversations about the role of the Texas Education Agency and the regional support centers and what kind of role they will take in ECS over time.*

On the other hand, some intermediaries felt that additional funding from the foundation was necessary for long-term sustainability at both the intermediary and school levels. An intermediary representative whose funding will end soon explained, "Nationally, ECHSI has great momentum and support. However, what is heard locally and with other intermediaries is that the models are expensive, and without additional funding, the schools aren't sustainable long term."

Ensuring long-term financial viability of the ECSs is vitally important to schools and their partners. The majority of ECSs report that they have been successful in identifying some, if not all, of the funding necessary for sustainability. This news is reassuring given the growing number of ECSs whose funding from the foundation has ended. Yet little is known about whether the identified funding is in fact secured and if it is sufficient. In future years, it will be necessary to monitor whether identified funding sources are enough to ensure the sustainability of the ECSs. Ongoing challenges to sustainability remain, namely costs associated with college courses, the continued support of college and district partners, and the reliance on soft money. There is a shared responsibility for the financial sustainability of ECSs, and intermediaries continue to play an important role in fostering stable partnerships and providing ongoing support to their affiliated schools. Clearly, ECSs continue to reap benefits from their participation in the ECHSI.

Sustainability of the ECHSI

Individual ECSs are not alone in their concerns about sustainability. The ECHSI involves multiple partners, including the foundation, JFF, and intermediaries — all of which are focused on sustaining the schools themselves and sustaining the principles and goals of the ECHSI.

Revisiting the Core Principles of and Fidelity to the ECHSI

As a result of taking stock when the ECHSI reached its midpoint in 2007, the foundation, JFF, and the intermediaries re-examined the vision of the ECHSI and better defined its fundamental key features based on several years of implementation experience. The theoretical vision for the ECHSI has not been static. As the initiative has grown and the number of operating schools has multiplied, the ECHSI has become a case study of translating theory into practice and simultaneously letting practice inform theory. For example, several intermediaries mentioned the foundation's willingness to adapt the vision of the ECHSI when school-level data suggest that the stated goals may not be attainable by all students. A WWNFF representative noted, "[A] positive thing is when they [the foundation] come out with a position, they come out with it very strongly and without equivocation, but soon when they recognize that they may have been too unequivocal, they're willing to reassess."

Central to the vision of the ECHSI are the Core Principles that have guided the initial phase of the ECHSI. When the ECHSI reached its midpoint, the partners decided to clarify the ECS model by revisiting the Core Principles. As a JFF representative said, the Core Principles were effective for "early implementation, [but] the benchmarks are inadequate in how to get from the second year to the sixth or seventh year." As such, intermediary representatives, along with JFF and the foundation, met several times in summer and fall 2007 with the goal of announcing revised Core Principles and benchmarks during the 2007–08 school year.

Many of the partners thought specific Core Principles should be re-examined: two examples are the requirements that all schools provide students with the opportunity to earn 60 credits and that they serve the target population for ECSs. An NCLR representative said, "The [foundation] held firm to the 60 credits, as they should have. They were trying to get an initiative through. But now I think they are open to thinking that all early colleges won't work that way." The foundation decided that it should be more flexible in terms of credit accumulation, given the academic abilities and needs of the target population. Along with revisiting the Core Principles, intermediaries suggested that appropriate structures also should be determined in thinking about the ECS model. An MCNC representative noted, "While every school doesn't need to be alike, there need to be structures in place that ensure the kids can do the college work and get support before and during. I would say we've moved beyond these Core Principles."

As the initiative moves forward, ongoing discussions speak to the fidelity of the ECS model within the context of the ECHSI. A specific question is whether a school has to follow all Core Principles to call itself an ECS. If not, are certain Core Principles more salient to the identity of the ECSs than others? One representative from JFF believes, "You brand by following the Core Principles." For the foundation, the issue of branding or fidelity to the model is an important reason to continue the ECHSI and network of intermediaries, especially as it relates to the quality of the ECSs. As participants in the ECHSI network, most intermediaries work with their affiliated schools

> *A specific question is whether a school has to follow all Core Principles to call itself an ECS. If not, are certain Core Principles more salient to the identity of the ECSs than others?*

to ensure the adoption of the Core Principles. In turn, the schools are monitored regarding their fidelity to the ECS model they implement.

The foundation is somewhat concerned about the quality of ECSs that are not affiliated with the initiative. In particular, a foundation representative suggested that non-network developers may implement ECSs not aligned with the Core Principles. An MCNC representative also recognized the concern about model fidelity, noting,

> *I think [the initiative] has legs of its own — that it's really caught on. And I think people find the idea very compelling. … Unfortunately, because we were not clear in the beginning with what early college meant and who it was for, there are a thousand different versions, and it's very hard to pull back when it's out there.*

To counter the development of unofficial replications, one intermediary is working on a possible accreditation process for schools to ensure fidelity to the ECHSI's model. A WWNFF representative stated,

> *We don't want anyone [within the ECHSI] claiming that they're an early college if they don't support the kids or rigorous curriculum or any of the pieces that those of us in the network sites feel are essential. … We want to make sure that our sites are reflecting what this [ECS model] means.*

Increasing attention on ECSs at the state level as a mechanism for high school reform also raises questions about what it means to be an ECS. While most states involved in the ECHSI do not have an explicit statewide vision for ECSs, they are including some aspects of ECSs (if not the full design model) as part of their secondary reform efforts. Being part of a state's vision for high school reform can help ensure the sustainability of ECSs after foundation funding ends, as the states are more likely to adopt or change policies to support ECSs.

ECSs are included as an explicit goal for states or are promoted by state leaders in (at a minimum) Georgia, Michigan, North Carolina, Ohio, and Texas. For example, Texas has passed a bill that mandates that all high schools have a plan to give students the option of earning 12 college credit hours. The Texas Education Agency plans to use the Texas High School Project (THSP), its overarching high school reform initiative, as a vehicle to enable high school students to graduate with college credit. In a similar vein, Georgia has included the ECHSI as a strategy for meeting the P-16 Council's goal of increasing high school graduation and college enrollment rates, and the ECS Core Principles are being integrated with several high school reform efforts. Specifically, the state of Georgia is encouraging replication of its ECS sites. The University System of Georgia (USG), which has been leading the way on high school reform, believes that having the ECHSI as part of broader work on P-16 issues makes changing policies easier. However, new ECSs implemented in Georgia or other states (that are not funded by the foundation) may not always strictly adhere to the Core Principles that guide the design of ECSs within the initiative. As more states adopt ECSs as a reform mechanism, the model stands a better chance of being diluted or altered. Nevertheless, the effect of ECSs on state policy-makers across the United States appears to be positive and has prompted them to think about how to reform secondary education in their states.

JFF and the Intermediaries

The significant roles of JFF and the intermediaries within the ECHSI have been documented in previous reports (AIR & SRI, 2006, 2007). JFF has served in a coordinating role within the ECHSI that has included providing technical assistance to intermediaries and ECSs, hosting conferences, and advocating for policies that support ECSs at the federal and state levels. In addition, JFF is a resource for the foundation, and the new ECS senior program officer noted that JFF has "helped me get up to speed this year." As the ECHSI has matured, JFF staff have become a valuable resource for both intermediaries and schools. In turn, the intermediaries have provided significant technical assistance to ECSs through conferences and coaching and by creating network opportunities.

As discussed previously, the foundation contends that the continuation of the network of intermediaries within the ECHSI is essential to the success of the overall initiative and argues that the network creates opportunities for sustainability in three primary ways. First, the intermediaries within the ECHSI provide an example of a functional network. As one JFF representative noted,

> *It's a huge luxury to keep the group together. It's a wise thing. … We function well as a network; there's something to be learned from network support. The intermediaries are passing along to other networks what they learned from this network.*

Second, as the ECHSI progresses, a key role for JFF and the network of intermediaries will be to help take the ECHSI's model to scale. As one intermediary said, "The major challenge around the initiative is how to transfer what we're learning … to a larger context. The foundation doesn't view its role necessarily as underwriting the entire institutionalization of this concept." Third, the network of intermediaries promotes the sustainability of ECSs by highlighting their success with preparing underrepresented students for postsecondary education through the use of data. A representative from JFF commented, "By and large, there's now a talented and knowledgeable set of intermediaries who can focus on instruction and seeing the data and using data."

The intermediaries and JFF receive assistance in their work to sustain the ECHSI from the foundation. In addition to the direct financial investments, the foundation is integrating its high school reform efforts across individual initiatives and increasing work to foster sustainability of schools that have been funded by the foundation. For example, the program officer for the ECHSI also oversees the alternative schools network sponsored by the foundation, and intermediaries from both initiatives jointly attend conferences to facilitate idea sharing.

Capacity of JFF and Intermediaries to Sustain Their Work

Given the significant role of the partners in sustaining the ECHSI, this section discusses the partners' efforts to develop the capacity to sustain their own work within the initiative.

Capacity of JFF

JFF played a vital role in supporting the initiative during 2006–07. Going forward, in addition to its work with the ECHSI, JFF received funding from the foundation to deepen and extend existing multiple pathways efforts, such as its work with districts. JFF also collaborates with the alternative school networks. A representative from the foundation noted that these networks have similar issues to face in the future, including performance assessment issues, seat-time (credit) issues, and making more deliberate connections with each other. JFF continues its efforts to develop capacity of the foundation and intermediaries as well as taking steps to ensure its own sustainability. Internally, JFF strategically hired new staff to grow its capacity to perform more advocacy and policy work that will support the sustainability of the ECHSI and other high school reform efforts.

Capacity Building by JFF Within North Carolina
JFF uses University Park Campus School in Worcester, Mass., as a mechanism to build ECS leadership capacity within states. This initiative trains instructional and change coaches to work with ECSs in a state. Along these lines, JFF has been working with North Carolina to build "a success mechanism in the state." This initiative reflects the same principles and standards espoused by University Park. One JFF representative said, "Some states bought into that set [of principles and standards]. They [NCNSP] bring folks in [to University Park] and [then] roll it out in the state." JFF teams also have visited North Carolina for preliminary meetings and planning. The initiative will include some clinical internships and residences at University Park for people in the field.

JFF continues to support intermediaries, although the type of support it provides has been adapted as the ECHSI has progressed (see AIR & SRI, 2006 and 2007 for more details about the role of and work conducted by JFF). JFF regularly works with intermediaries to solve problems on issues ranging from policy and advocacy to strategic planning. During the 2006–07 academic year, capacity-building activities by JFF continued to include holding semiannual conferences; hosting visits and internships at University Park Campus School in Worcester, Mass.; participating in a literacy initiative; and conducting ongoing efforts to reform policies in support of ECSs. JFF is seeking additional funding to ensure that technical assistance through University Park and the literacy initiative can continue, as foundation funding for these projects has officially ended. According to a JFF representative, several intermediaries bring resources to help defray JFF's costs in providing technical assistance, such as their work with the North Carolina New Schools Project described in the text box above, but, in the long term, "[funding is] going to be a problem."

Capacity of Intermediaries

As the ECHSI enters the next phase of its work, fewer intermediaries will be receiving support from the foundation, with funding to half of the intermediaries ending in 2007 and 2008 (see Table 6.1).

Thus, in 2006–07, intermediaries focused on developing plans to maintain internal capacity to continue supporting their networks and affiliated ECSs. One intermediary representative said, "In the world of philanthropy, everybody wants to fund something new that they can label as their thing. To just come up with funding for staffing, I think, is going to be hard."

Table 6.1. Status of Intermediary Funding

Intermediary	Year Foundation Funding Ends		
	2007	2008	Ongoing
NCLR	X		
SECME	X		
UP	X		
CUNY		X	
KWF		X	
USG		X	
CNE			X
FCCC			X
GtC			X
MCNC			X
THSP			X
WWNFF			X
NCNSP			**Not directly funded by the ECHSI**

Source: 2006–07 intermediary and JFF interviews

To ensure that intermediaries can continue to support ECSs past their initial grant period, the foundation hired the Bridgespan Group to assist several intermediaries (CNE, MCNC, GtC, and WWNFF) in developing new business plans or revising existing business plans. Through their work with Bridgespan, intermediaries have identified a target number of ECSs to open as well as a plan to support these schools. A CNE representative noted that they intend to develop

> … what Bridgespan calls a quarterback model. We're going to make available the experts in different areas of technical assistance, whether that is advisory, postsecondary relationships, tribal relationships, fundraising, literacy strategies. These areas of expertise that those of us on staff possess will be available to each site within the defined limit.

Other intermediaries have either hired consultants to develop a sustainability plan or are part of a larger statewide policy effort, such as the Learn and Earn initiative in North Carolina, or another organization that will support the initiative beyond the funding by the foundation.

Clearly, partners are working diligently to ensure their own sustainability as well as that of their schools. Supportive state policies are key to maintaining ECSs and, hence, the overall initiative. The

final section of this chapter discusses the work of multiple partners to enact policies that support the ongoing sustainability of ECSs.

Ongoing Efforts to Reform Policy in Support of ECSs

As discussed throughout this report, state policies play a role in how ECSs are able to operate. To ensure a more complete understanding of the policy environment, AIR and SRI reviewed the state Web sites and documents for all of the 12 states with ECSs in our site visit sample. State-level policy-makers from the foundation's five target areas (California, Ohio, New York City, North Carolina, and Texas) also were interviewed to obtain the state-level perspective of state policies that influence ECSs and the effect of the ECHSI within the state. See the technical appendix for more details.

Because national high school reform discussions now focus on programs and policies to ensure that high school students graduate from high school ready for college, ECSs have gained more attention as one avenue for promoting this transition. A JFF representative said, "It created an ideal. … Because there was so much interest in increasing postsecondary attainment, ECS represents a powerful engine." Prior reports by JFF (Hoffman & Vargas, 2005; Vargas & McKnight, 2006; Hoffman, 2005) have discussed policies that can enable (or hinder) ECSs in enrolling students in college courses while in high school and ensure that those college credits they earn can be transferred to postsecondary institutions. As the ECHSI has progressed, it has become more apparent that supportive state, district, and local policies are vital to the implementation and sustainability of ECSs.

Most states had some dual-enrollment policies already in place before the start of the ECHSI, but participation generally included high-achieving students who could be expected to attend college rather than a broader base of students who are traditionally underrepresented in higher education. In 2002–03, for example, although many students had the opportunity to take dual-enrollment courses, not many students took advantage of such courses. In fact, 71 percent of public high schools reported that they offered dual enrollment, and 57 percent of postsecondary institutions reported they have high school students taking courses for college credit (dual enrollment or not). Nevertheless, only 5 percent of high school students took courses within and outside of dual-enrollment programs nationwide (Waits, et al., 2005; Kleiner & Lewis, 2005).

JFF believes that the ECHSI has focused discussion of policy on creating a seamless transition into postsecondary education. As more students have attempted to take college classes through the ECHSI, more policy issues have come to light that prevent students from taking advantage of these opportunities, like those obstacles addressed in previous sections — the cost of tuition, textbooks, and transportation; eligibility requirements; course transferability; and high school graduation requirements.

Changing state and district policies is a complicated and difficult process that involves many stakeholders. The organizational structure within some state governments can present challenges to instigating policy change and supporting ECSs. A state-level respondent from California reported the challenge of putting ECSs on the agenda, amidst the many other problems in the state, and the need for maneuvering between different government entities:

> *To try to make the case [about] something that could affect student achievement for this particular population of students and to convince a legislature to move it, and then to convince the department of finance that it really makes sense and it is fundable. So many players get involved in [instituting] a program that it is a challenge.*

Change in policy also requires intermediaries and ECSs to know what needs to be changed. Often, this is not clear until the schools are up and running. Most of the partners have been so focused on getting the schools implemented that they have had little time to focus on policy. As more students become involved and funding runs out, the importance of policy work becomes more visible. In some cases, schools can obtain waivers from policies they find inhibiting to their programs (see the text box on the North Carolina waiver system). However, in most states, the process is lengthy and requires input from many stakeholders.

North Carolina's Waiver System
Under the Innovative Education Initiatives Act and the Cooperative Innovative High Schools Programs statute, schools in North Carolina can apply once a semester for waivers and exemptions from state policies that impede innovative reform activities.[58] The waivers are precedent setting.
One ECS has been granted exemptions in a number of areas, including allowing students to take college courses and sit for the related end-of-course exams without having to take the associated high school courses, allowing students to take college courses in as early as 9th grade, permitting the school to hire and pay a principal without principal licensure, and increasing the payment level of ECS principals.

To bring all of the stakeholders in a state together, ECHSI participants in several states — including California, New York, North Carolina, and Ohio, all of which are focus geographies for the foundation — have formed policy groups with members from a variety of education, policy, and business sectors and organizations to discuss policy issues. For example, NCNSP continues to meet with a policy working group that includes representatives from the University of North Carolina system, the North Carolina Community College system, and the Department of Public Instruction. Also, the state created a group for ECS college liaisons so that they can get feedback from each other and the community college system office. Georgia, Michigan, and Ohio all described commissioning an independent evaluation of the policy climate for ECSs and plan to enact the recommendations of those reports. The evaluation in Ohio was initiated by KWF.

Because of the difficulty of changing policy, many national intermediaries now consider state policies when making decisions about where to open schools.

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[58] Despite the generally positive policy environment, there are some issues for which waivers have not been granted, such as the inability of ECS students to take developmental courses at the college before obtaining a high school diploma. One school has had to offer high school courses for those non-transfer level classes even though it is not in keeping with its intermediary's model.

foundation focusing on specific geographies, some intermediaries, such as WWNFF, are choosing to open schools in those locations. Other intermediaries have set their own criteria. CNE develops policy briefs to ascertain the state's dual-enrollment climate in areas such as charter school laws, higher education requirements for faculty, and funding. NCLR is focusing efforts on environments that are already receptive to ECSs, including Arizona, California, and Texas, and will not open schools in states where college tuition is not provided.

To support both ECSs already implemented and intermediaries invested in areas without supportive policy, the partners within the ECHSI have begun to work to change the inhibiting policies. Thus, one of JFF's key roles and much of the intermediaries' work has been to move national and state-level policies to help the implementation and sustainability of ECSs. Many of their efforts are still works in progress. But because changing policies is a difficult and long process and often involves many roadblocks, the successes of the partners are important to highlight.

JFF

Over the course of the ECHSI, JFF has engaged in a number of activities to address policy challenges. JFF has worked with intermediaries as a network through policy subgroups at its national conferences and through written policy briefs, as well as with individual intermediaries through state visits to address issues of interest in their particular states. Intermediaries reported feeling JFF supports them well in this policy work. JFF staff have a large repertoire of state policy knowledge and can influence state policy-makers by sharing what other states are doing. For example, the MCNC director reported that a JFF staff member accompanied her to Michigan to speak to state policy-makers: "He has such credibility. He can say, 'In this state [this is the policy] and that state [that is the policy].' I've found that's how you move a state, [by telling the state] this state is doing it this way … because they don't want to get [left] behind." Similarly, JFF is working with CUNY at the state level to find funding for New York ECSs and is supporting NCLR and WWNFF in their efforts to obtain free tuition for ECS students from the Washington, D.C., city council. JFF also has connected groups within a state with similar concerns, such as connecting FCCC with the alternative high school initiative in California.

JFF also has worked on policy issues on the national level. Along with the National Governors Association and MCNC, JFF has educated the U.S. Department of Education during negotiated rulemaking about the impact that the new federal Academic Competitiveness Grants would have on ECS graduates and students who are dually enrolled in high school and college classes. The Academic Competitiveness Grants program began in 2006 and provides grants to students in their first or second year of college who have not previously been enrolled in an undergraduate institution, thus precluding ECS students or dual enrollees. JFF also has worked over the years to ensure that ECSs are adequately represented in accountability processes. The organization has engaged in efforts to make states aware of the need to write ECS students into their Adequate Yearly Progress (AYP) plans so that states would not be penalized for having students in their fifth year of high school. Further, JFF has helped to educate federal policy-makers about the need to account for graduation rates more accurately in accountability formulas, including through stipulations for special models such as ECSs. In addition, FCCC has contacted JFF to look into solutions at the national level for

the challenge related to the cost of textbooks; the Texas Education Agency is planning to join this effort as well. Overall, JFF continues to be an influence on policy and a support for the intermediaries and schools.

Intermediaries

In addition to their work with JFF, intermediaries are having conversations at the state and national levels to put the ECHSI on the states' radar screens and to introduce areas where policy changes are needed. For example, the USG director in Georgia stated,

> *We also began talks of working with the legislators in the region, … to make sure that they are aware of the Early Colleges and inviting them to visit the schools, so they are a bit more informed about it when they begin to make decisions about funding and policy and that sort of thing. … So, we are going to get a bit more aggressive on that piece.*

KWF has forged a strong partnership in Ohio between the Department of Education, the Board of Regents, and the governor's office and has engaged in conversations with these entities about KWF's ECSs. A KWF representative said,

> *We're looking at dual enrollment, and there's always one person from KWF involved in those conversations all over. At this point, our president is advising the governor in areas of higher education and organization. … We are in a position to help shape state policy at this point. It has gained momentum over the last 3 years in terms of our impact on state policy.*

In 2005, KWF worked with the Ohio Department of Education and the Board of Regents to allocate $10.8 million for current and proposed ECSs; these funds helped with tuition, books, and fees. KWF hopes this investment will be renewed by the state.

Although the organization works in many different states, WWNFF pursued funding opportunities in Pennsylvania and presented to the state agency a proposal to support ECS development in the state. Staff at WWNFF also met with two district superintendents there to start ECSs.

Funding for college course tuition and textbooks is a high priority for the intermediaries. Previous sections in this report have shown that these major expenses threaten the sustainability of the schools. With the high cost of tuition at state universities, NCNSP plans to focus future policy efforts on securing funding for ECS students to take courses at the 4-year IHEs, and for students completing an Associate's degree at a community college and transferring to a 4-year IHE. In conjunction with the work of WWNFF, NCLR, and JFF in Washington, D.C., described above, WWNFF worked with one of its ECSs on changing legislation to increase funding in the district. In addition, NCNSP, CNE, and FCCC have been involved in efforts to reconcile the textbook issue. UT System and other Texas intermediaries lobbied the state legislature to change the state policy on textbooks, but it had not been amended by spring 2007.

Intermediaries also have worked hard to change the policies in certain states on transfer of credits. NCNSP worked with the North Carolina State Board of Education to develop a university prep

curriculum and course of study for all students. The intermediaries plan to focus future policy efforts on articulation between ECSs and community college and university systems. In New York, CUNY worked out the status of students who go on to college after high school. The director reported, "We now have an agreement that students who have 23 or fewer [credits] are first-time freshmen. And 24 credits tips you over to a transfer student. That is aligned with other university policies." However, it is less clear what happens if a student goes to a college outside the CUNY system or does not complete the Associate's degree.

Although funding and transfer of credits continue to be challenging policy areas to change, intermediaries have been successful at changing student eligibility requirements at the state level. GtC was able to get waivers on half-day residence requirements in several states. In response to the ECHSI, students in North Carolina and Texas are now able to take college courses in as early as 9th grade. FCCC worked with California for exemptions for ECS and Middle College students so that they do not count toward caps on high school student enrollment in summer school courses. The law states that high school students cannot account for more than 5 percent of a summer college class, but the exemptions allow ECSs to enroll more students in summer classes.

Other efforts by intermediaries were still in process as of spring 2007. MCNC was working on college entrance requirements and was trying to find an alternative to the Accuplacer (college entrance exam). USG was attempting to change admissions standards so they are consistent with new Georgia Department of Education rules, which are changing as a part of the American Diploma Project. The eligibility work also has been undertaken by ECSs themselves. In Michigan, state legislation prevents high school students in their fifth year from taking college courses. ECSs across the state have pushed for less restrictive legislative language. Although no change had occurred by spring 2007, the prospects looked favorable, according to one ECS.

Summary

The ECHSI exists due to the generous startup support of the foundation. The foundation has provided significant funding to enable the creation of ECSs as well as a strong network of intermediaries to support them. With this funding, schools were able to defray many of the significant costs associated with implementing an ECS, and intermediaries were able to facilitate the development of partnerships and provide technical assistance that is important to the creation and stability of an ECS.

However, this funding was not intended to support ongoing school operations. Because many schools are no longer funded, it is not surprising that more ECSs have turned their attention to ensuring their sustainability. In most cases, schools have been able to identify funding options to cover some, if not all, of the funding they need to continue. Yet sustainability is an ongoing issue for all who have a stake in the ECHSI, and challenges remain to sustaining schools and the initiative. The following are some key issues that have emerged for schools and intermediaries to consider for their long-term operation.

■ The site visits in 2006–07 revealed that the majority of ECSs have identified some, if not all, of the funding needed to sustain themselves beyond the end of foundation funding. More than one-half of the schools in the site visit sample will no longer receive funding after the 2006–07 school year, so the identification and the assumed commitment of continued stable funding is a positive finding. For the remaining schools, concerns about ongoing funding were most often related to the costs of college textbooks and tuition, uncertainty about the financial commitment of districts and colleges to the ECS, and the inability to identify permanent funding from state or local funding sources.

■ The foundation remains committed to the ECHSI and continues to provide guidance and resources to promote its sustainability. Given this support and commitment, JFF and the intermediaries are revising the Core Principles to reflect lessons learned about the initiative's implementation in more than 150 schools. As ECSs have proliferated across the country, partners want to ensure model fidelity within the ECHSI. The partners believe that clarity about the characteristics that define ECSs and the ECHSI is important to protecting the quality of schools, given the ongoing efforts to increase the scale of ECSs nationally.

■ As more ECS students enroll in college classes across the country, and as foundation funding ends, a supportive policy environment becomes more important to sustaining the ECSs. Because most state policies were not adopted with ECSs in mind, JFF and the intermediaries have engaged in efforts to change inhibiting state policies, particularly around funding, transferability of credits, and student eligibility. Overall, the ECHSI is seen as one mechanism for reforming high schools and is leading to conversations at the state level about enacting policies that support the transition from high school to college.

Chapter VII — Summary and Next Steps

Introduction

The primary purpose of this chapter is to highlight the findings and observations detailed in the body of the report that appear to have particular salience for the ECHSI as it continues its work throughout the 2007–08 implementation year. Compared with previous years of the evaluation, this report has been able to present analyses based on more types of data: the usual qualitative site visit data, although these are enhanced to include a sample (20 schools) large enough to be fairly representative of the body of ECSs; the school survey administered online to all operating ECSs; a small amount of pilot work using student records now included in the SIS; and a first-time student survey (which will be repeated annually) with a representative sample of students attending the schools in the site visit sample.

The availability of both multiple sources of data and more representative qualitative data has allowed the use of some more sophisticated data analysis techniques that begin to move us toward an understanding of the correlations between variations in ECS implementation and desired outcomes for the schools and the initiative. The bringing together of qualitative and quantitative data really begins with this report, and the evaluation team anticipates that these kinds of analyses will continue and be further refined in future years.

In this final chapter, we consider some issues raised and hypotheses suggested by the findings from both qualitative data on ECS implementation and preliminary quantitative data on student outcomes. These issues and hypotheses will inform the next phase of the evaluation, which we describe in the last section of the chapter.

Structural characteristics of ECSs and preliminary outcomes for students: What is the relationship?

The national evaluation of the ECHSI has been tracking some key structural elements of the universe of ECSs for several years. These descriptors are in part rooted in the initiative's Core Principles and in part in research conducted by others that is relevant to the ECS context. The key elements include:

- The origins of the ECS: new startup, adaptation of an existing school or program, or a school or program developed within an existing school (see Figure 2.1 in Chapter II of this report).

- The nature of the primary local partner(s) for the school (2-year IHE, 4-year IHE, other): a partnership is a required Core Principle of the ECHSI.

- The location of the ECS: on a college campus or not on a college campus. This element derives from research that predated the ECHSI and indicated that housing a school that combines high school and college classes on a college campus may have a positive effect on student outcomes. This theory is sometimes referred to as "the power of the site."

■ The maturity of the school (years in operation): Since the 1990s, many new small schools have been founded in the United States. The accumulated evidence (and common sense) suggests that new schools and programs need time to resolve problems and settle into their mission and goals before they are judged on the outcomes that they are producing.

Using these basic descriptors (and others), Chapter II of this report concludes that the "typical" ECS in 2006–07 was a new, small, urban, public high school serving grades 9 through 12 that was located on the campus of a 2-year public IHE partner. Further, most enrolled ECS students participated in college courses taught by college faculty in classrooms that also included traditional college students.

In the past, and still to a large extent in this report, the evaluation's findings have been limited to this type of descriptive characterization of the current ECHSI universe, along with an ongoing longitudinal comparison of how the initiative looks now compared with previous years. In 2006–07, however, we began to examine the relationships between school characteristics and how students are doing in ECSs that are structured in specific ways. One question of interest is: Are the characteristics of the "typical" ECS associated with positive student outcomes?

A key student outcome indicator that matters in today's policy environment is achievement of proficiency on state assessments. As Chapter V points out, some ECS characteristics seem to be associated with better outcomes on this metric. Most strikingly, students in new (startup) schools outperformed students in schools with other origins by large margins — 22 percent higher proficiency rates in ELA and 21 percent in mathematics. Other characteristics associated with higher proficiency rates included location of the ECS on a college campus, location of college courses on a college campus, and more established ECSs. ECSs with 4-year IHE partners also did better, outperforming schools with 2-year IHE or other partners.

The above finding related to 4-year IHE partners is interesting and to some degree counterintuitive in the context of the ECHSI, given that the majority of the IHE partners are 2-year colleges. In general, this initiative is grounded in the establishment of local partnerships between schools, districts, and community colleges. Partnerships with 4-year colleges and universities were not excluded (for example, it was understood that one of the original intermediaries would work exclusively with 4-year IHEs), but they were not expected to be the norm. From an evaluative perspective, there appears to be a need to generate hypotheses and data collection approaches that can explain differences in outcomes between ECSs with different IHE partner types.

An obvious hypothesis about differences in student assessment outcomes between ECSs with 2-year and 4-year IHE partners is the question of the ECS student recruitment and selection process. Do schools partnered with 4-year IHEs tend to be more selective, enrolling students with higher pre-ECS achievement levels? Differences also could be due to different instructional environments or could be artifacts of other differences between ECSs (e.g., in which state they are located). Examining these differences is an area that can be explored more thoroughly as the SIS acquires more data.

What about other student outcome indicators? It is still too early for robust findings about post-ECS outcomes such as persistence toward and achievement of a baccalaureate degree. However, data

from the student survey administered during 2006–07 allowed stronger analyses of intermediate indicators of success as students moved toward graduation. For example, as Chapter V notes, students attending ECSs that involved 4-year IHE partners reported greater interest in their studies (i.e., higher engagement) than students in schools that partnered with 2-year IHEs. The reasons for this finding need further exploration. Are the reasons associated with the backgrounds of the students enrolled? With the curriculum? With the instructional strategies? With the cachet or prestige of the IHE? Are more student supports provided? Many explanations are possible.

Another intermediate indicator of success is the school attendance rate. There is no doubt that ECS students come to school regularly and at rates that are equal to or higher than the national average (see Chapter V). However, as with other indicators, the data suggest that startup school status and partnership with a 4-year IHE are positively correlated with attendance rates.

Given new data sources, patterns are thus emerging that require new thinking about which ECSs are more successful and why. The evaluative findings presented in this report are intriguing but no more than suggestive, as they are based on either limited SIS data or survey data. The evaluation team encourages the partners in the ECHSI to consider the hypotheses that might explain the variations that are beginning to emerge.

Students: Who do the ECSs serve?

The previous section of this chapter suggests that one possibility for explaining differential student outcomes associated with 4-year versus 2-year IHE partners might be the background characteristics of the students served. As an initiative, the ECHSI intends to serve populations with traditionally low participation rates in postsecondary education. This target population includes a large number of subgroups, but a key concept for the initiative has been inclusion of students from families who have a limited history of participation or success in higher education. An important part of the theory behind the ECHSI is that many subpopulations in the United States do not know how to negotiate the leap between the free K–12 public education system and the many kinds of higher education that are available and sometimes affordable.

Interestingly, student survey data (available for the first time for this report) indicate that, according to students, the parents of students enrolled in ECSs may have higher education attainment levels than might have been hypothesized. A third of the students (33 percent) reported that their mothers had graduated from college, and nearly as many (29 percent) reported the same for their fathers. As Chapter III notes, these proportions are considerably larger than the findings from a survey of a nationally representative sample of 10th-grade students. Among those students, only 17 percent said that their mothers were college graduates, and the exact same percentage applied to fathers who were college graduates. Although we must be somewhat cautious in accepting at face value what students report on an anonymous survey, the comparative discrepancy suggests that ECSs may be attracting students from families that are more savvy about college-going than the ECHSI originally anticipated. These families may still represent *populations* that are traditionally underserved (i.e., minorities and low income), but as family units, they may already have a college-going culture.

These data from a new source (the student survey) confirm and highlight a tension within the ECHSI that the evaluation has reported on for several years. ECSs struggle to find a balance between maintaining high academic standards, including accumulation of significant numbers of college credits, and recruiting and supporting students who have demographic characteristics that generally are associated with academic deficits at high school entry. In past years, using school-level data, the evaluation has been able to report that, on average, ECSs are enrolling students with academic risk factors that equal or exceed the averages for their feeder districts. Yet, it appears that aggregate school-level data may be masking some student-level characteristics (e.g., college background of parents) that will be important for fairly evaluating the overall success and future for the ECHSI. Schools that enroll more students from families that know about and encourage college attendance may skew the results of outcome analyses as the schools mature. Based on previous research, schools that serve more students with high family support for college attendance will likely be more successful at getting students to continue in college than those that serve more educationally disadvantaged populations (NCES, 2000, 2001). Future evaluation analyses should control for this and other student characteristics (such as students' pre-ECS achievement levels) when examining ECSs' differences in student outcomes.

Another important issue that emerged from the 2006–07 analysis of student outcomes is the possibility that some ECSs may have quite significant student attrition rates, particularly in the early years of high school (see Chapter V's analysis of grade-to-grade progression rates). As best we can determine with data currently available, the reasons that students fail to progress from one grade to the next in an ECS are multiple, but it appears that at some schools, up to one-third of 9th-grade students transfer out before 10th grade. No data are currently available on the demographic or prior achievement characteristics of students who leave (transfer) compared with those who remain and complete the program. Further, it is unclear whether transfer students are deciding to leave the ECS on their own or whether the decision is being influenced by others. This issue seems serious enough to warrant some follow-up and investigation, which could perhaps best be undertaken by the intermediaries.

Instruction: What of kinds of instructional experiences do ECS students have?

With a larger sample of schools for site visits (20 instead of the 10 conducted annually in previous years of the evaluation), the total number of observed classrooms (74) allowed a more nuanced analysis of the instruction experienced by ECS students. (The observations nevertheless remain snapshots that cannot represent what students experience in a grading period, semester, or even an academic unit of instruction.) As in previous years, the basic analytic framework for looking at instruction remained the 3R's (rigor, relevance, and relationships) as defined for high school reform sites in the original foundation-sponsored small schools network. We acknowledge that this framework is only partially appropriate for the ECHSI, because the initiative includes the higher education sector as well as secondary schools.

Despite these limitations, Chapter IV of this report describes the results of a more sophisticated approach to analysis that sorted the observed classrooms by both the opportunity for students to

participate in rigorous instruction and the level of instructor supports that allowed students to engage with the instruction. Based on these analyses, the pattern in ECS classrooms appeared to be bimodal: About one-third of observed classes offered students rigorous instruction and the scaffolding from the instructor to help students understand the material, and about one-third offered neither rigorous instruction nor sufficient instructor support to ensure understanding. Obviously, the goal should be to steadily increase the proportion of ECS classrooms that fall into the "high rigor/high support" quadrant of a 2x2 matrix. This goal will require continued attention to professional development, including opportunities for instructors to observe other instructors who are skilled in both presenting challenging lessons and helping students access them effectively.

Given the basic analytic framework of rigorous instructional opportunities and high levels of instructor support of student learning, the evaluation team stratified the classroom sample by educational sector and by subject area. Two striking findings emerged:

- High school classes were more likely to offer both rigorous instruction and significant levels of instructor support to help students comprehend the material than college classes.

- The mathematics classes observed were, overall, rated to be considerably more rigorous than observed ELA classes — 45 percent of mathematics classes were evaluated to be rigorous, versus 25 percent of ELA classes. This finding is a change from previous evaluation reports, for which the total numbers of classroom observations were much smaller and less representative and in which the analyses were more global and interpretive. Under the earlier analytic processes, more ELA classes were judged to be rigorous.

One additional summary point about the ECS academic experience should be mentioned here, since it is potentially actionable by participants of the ECHSI in the near term. Research evidence suggests that continuity of mathematics classes throughout high school supports positive college success and persistence (see, for example, ACT, 2005). Prominent advocacy organizations such as Achieve, Inc., and its American Diploma Project have used this and other research evidence to promote a rigorous 4-year high school curriculum for all students — including a program of studies that includes one or more mathematics courses in every year of high school. Extremely limited and preliminary data from ECSs (two schools only) suggest the possibility that academic programs are allowing a gap in mathematics course-taking between high school and college. This pattern may not serve students well. This issue, however, could be remedied with relative ease. It is, of course, a finding that the evaluation team will continue to monitor.

Outcomes of ECSs: What do schools and students expect?

The ECHSI began its life asserting that a new kind of school could offer high school students the opportunity to earn a high school diploma and an Associate's degree or 60 college credits on completion of a 4- or 5-year blended academic program. Over the first 5 years of the initiative, some participants (including intermediary and school staff and even students) questioned the feasibility of 60 college credits.

Nevertheless, some research evidence suggests that there is a threshold of less than 1 full year of college credit earned (while in high school or as a first-year regular college student) that pushes students to persist and complete a postsecondary degree (Adelman, 2006). Given the commitment of the ECSs to create a college-going culture and provide support for students in negotiating the higher education system, it may well be that the combination of attitudes, tools, and significant college credits earned while in high school will eventually result in an outstanding college completion rate among ECS graduates. The road to a summative assessment of the ECS model's success, however, seems to be getting longer if students will leave the ECS with fewer credits than originally posited.

Next Steps for the Evaluation

At the end of each annual synthesis report on the ECHSI, the evaluation team has ended by giving others in the initiative an indication of where evaluation activities are headed and what that means for the intermediaries and schools that are driving this high school reform initiative. Currently, the evaluation — like the initiative — is at a crossroad, heading into new territory as the number of ECSs in operation reaches critical mass and increasing numbers of these schools have moved students through to ECS completion. We have proposed a new set of evaluation activities to the Bill & Melinda Gates Foundation, which will carry the evaluation out to 2012. Many activities with which the ECHSI is familiar would continue — for example, the school survey, the student survey in a sample of schools that in most years would also receive site visits, the site visits themselves, and the analysis of extant data submitted annually to the SIS. Additionally, postgraduate interviews will be conducted with students from a select number of ECSs to provide more information about the transition after high school graduation, in particular to postsecondary education.

However, the 2007–08 implementation year for the ECHSI is an appropriate time for new thinking about how to assess implementation approaches and success. Therefore, in early 2008, the evaluation team engaged in the development of new instruments to be employed during 2008–09 and 2009–10 data collection cycles. Our primary activity is the development of a simple set of implementation dimensions. These dimensions will be based on the revised Core Principles, including attributes of effective high schools (and, of course, the new 3R's), and the benchmarks by which intermediaries judge their schools' implementation.

Summary

As the findings in this report indicate, the schools in the ECHSI have made strong headway on implementation and student outcomes. As the initiative continues, participants may consider such questions as: What kinds of students are ECSs attracting, and are these students in the targeted populations? How much year-to-year attrition is acceptable, and under what circumstances? Are schools' and students' expectations aligned with changes in the ECHSI expectations? The evaluation will continue to support the participants as they grapple with these issues and others in the coming years.

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Appendix A — Technical Appendix

Introduction

Since 2002, the American Institutes for Research (AIR) and SRI International (SRI) have worked together in a joint effort to evaluate the national Early College High School Initiative (ECHSI) for the Bill & Melinda Gates Foundation. For this purpose, the evaluation team has collected qualitative and quantitative data from various sources since the pilot year in 2002–03 through 2006–07, summarized in Table A.1.

Table A.1. Overview of ECHSI Evaluation Qualitative and Quantitative Data Collection Activities and Samples, 2002–07

Data Collection Activity	2002–03 (Pilot Year)	2003–04	2004–05	2005–06	2006–07
Foundation interview				1	1
Jobs for the Future interviews		1	1	1	1
Intermediary	7	13	14	17	17
State policy Web searches					12 states
State policy interviews					5 states
Early College School site visits	1	12	14	10	20
Early College School leader telephone interviews	0	10	10	14	0
Student Information System (SIS)				18[b,c]	28[b,c]
School survey		22[a]	50[a]	60[b]	120[b]
Student survey					20 schools 1,396 students

[a] Collected by AIR/SRI.

[b] Collected by JFF.

[c] Number of Early College Schools for which AIR/SRI received or collected at least some data.

During the first 4 years, the data collected have been analyzed to describe the key features of the wide range of Early College Schools (ECSs) and their interrelationships in implementation. This year, the evaluation team has made the effort not only to describe the ECSs and to integrate findings from prior years, but also to do preliminary work in relating these findings with student outcomes. The focus of this technical appendix is on the qualitative and quantitative data collected in 2006–07 and on the analysis methods used with these data.

Qualitative Data

During 2006–07, qualitative data collection focused on structural and organizational elements of ECSs, as well as ongoing implementation and sustainability of the schools and the ECHSI. Table A.1 describes the qualitative data collection activities and samples in each year of the evaluation.

Intermediary, JFF, and Foundation Interviews

In 2006–07, the evaluation team conducted 1- to 2-hour interviews with a representative from each of the 13 intermediaries and the four subintermediaries, a group of representatives from Jobs for the Future (JFF), and the ECHSI program officer. These interviews covered topics such as vision, grant distribution, partnership development, technical assistance, policy and advocacy, grant management, organizational capacity, and sustainability. The evaluation team also requested documentation from the intermediaries. Documents requested included brochures and other marketing materials, requests for proposals and related documents, materials and schedules related to technical assistance and/or professional development opportunities, curriculum outlines, MOUs, and documentation or reports produced by in-house or independent evaluators.

Site Visits

In 2006–07, AIR/SRI visited 20 ECSs (see the Student Survey Data Collection section for a description of the sample selection). Two-person teams visited each school over a period of 2 to 3 days in spring 2007. School site visits included interviews with the ECS leader(s), institution of higher education (IHE) leader(s), the college liaison (at either the school or the partner IHE, or both), district or charter management organization (CMO) representative(s), the guidance counselor, two focus groups of students, and four instructors. The site visit team also observed the classrooms of those instructors. When all 20 site visits were completed, the site visit team held a debriefing to identify emerging themes. Following is a description of each of the interviews, student focus groups, and classroom observations:

- *ECS and IHE leader interviews* — Site visit teams interviewed ECS leaders and IHE leaders, including college liaisons from the IHE or high school. These interviews covered topics such as ECS vision, implementation, partnering agreements, resources, supports and decision-making at the IHE and district, student recruitment, staffing, professional community, curriculum, instruction, student supports, student outcomes, and sustainability.

- *District or CMO interviews* — Site visit teams conducted 60-minute interviews with a district or CMO representative(s) at the ECSs that had district or CMO partners. These interviews covered topics such as vision, district policies, partnerships, district supports, governance, ECS implementation, capacity, and sustainability.

- *Instructor interviews* — Site visit teams interviewed up to four instructors at each school. When possible, the priorities for instructor selection were: 10th-grade mathematics, 10th-grade English language arts, college mathematics, and college English/composition. If an interview was not possible with either a mathematics or English language arts high school instructor, then an

instructor from another discipline was interviewed, e.g., a science instructor. With few exceptions, site visitors interviewed the instructors who were observed. In addition to a discussion of the observed lessons, the instructor interviews covered topics such as implementation, classroom practices, student supports, climate, professional development, and the ECS–IHE partnership.

■ *Guidance counselor interviews* — Site visit teams conducted interviews with a guidance counselor at each ECS that had someone in this role. These interviews covered topics such as vision, student recruitment, feeder school involvement, course sequence, student academic and social supports, climate, professional community, and student outcomes.

■ *Student focus groups* — Site visit teams conducted two student focus groups per school — one group of six to eight 10th-grade students and one group of six to eight students taking college-level classes. If no college-level students were available, then one focus group included students in the highest grade at the school and the other focus group included 9th-grade students. ECS leaders identified the students, and only students with parental consent participated. In the focus groups, students were asked to describe what they liked best and least about the ECS, how they selected the school, high school and college classes, assignments, homework, academic supports, internships, academic goals at the ECS and postgraduation, teacher–student interactions, student–student interactions, and school climate.

■ *Classroom observations* — Site visit teams observed four classrooms at each site, ideally two at the high school level and two at the college level. Wherever possible, site visitors observed one English language arts class and one mathematics class at each level. Site visitors observed lessons for a full class period (or up to 90 minutes) using a protocol that required them to provide a narrative of the classroom activity in a running log format, including descriptions of classroom activities, the instructor's strategies, and the students' activities and responses.

■ *Document collection* — Site visit teams requested documentation from the ECSs as part of each visit. The requested documents included course syllabuses and class assignments (or lesson plans) for the observed classes, course sequences, curriculum plans, MOUs, brochures and other marketing materials, staff lists, professional development calendars/schedules, and relevant district documents. Site visitors also retrieved relevant documents from the ECSs' Web sites.

State Policy Data

The evaluation team collected data regarding state-level policies that influence how ECSs operate. The evaluation team scanned publicly available information to learn about pertinent policies in the 12 states in which a sample of ECSs and/or intermediaries were located, conducted telephone interviews with state policy-makers in the foundation's five target geographies (California, Ohio, New York City, North Carolina, and Texas), and asked specific policy questions during ECS and intermediary staff interviews. Following is a description of each data collection activity:

■ *Public Document Review* — The evaluation team examined state Web sites and publicly available documents focusing on policies related to dual enrollment, course alignment, credit transfer, funding, facilities, student eligibility, teacher certification, and accountability.

■ *State Policy-Maker Interview* — The evaluation team held telephone interviews with state-level policy-makers from the foundation's five target locales to build on what was learned in the initial Web site and document review. In addition to the policy areas listed above, the interviews included questions about the impact of the ECHSI within the state.

■ *Intermediary and ECS-Level Interviews* — The team asked questions related to states' policy environments, including questions about the impact of state policies on ECSs and the work participants in the ECHSI have undertaken to change or shape state policies to better enable implementation of ECSs.

Qualitative Data Analysis

Intermediary Interviews

Using the intermediary interviews, the evaluation team members filled in a structured analytic matrix for each intermediary. The matrix included a series of questions that required the evaluation team members to analyze and synthesize data from the interviews (both in 2006–07 and in previous years), collected documentation, and visits to the intermediary's ECSs. The matrix questions were organized around the topics of vision, grant distribution, partnership development, technical assistance, policy and advocacy support, grant management, and organizational capacity. A small quality control team reviewed all of the intermediary matrices to ensure consistency and thoroughness of the data presented.

JFF and Foundation Interviews

The evaluation team analyzed the data collected in the JFF interview, specifically on JFF's role in capacity building of both the foundation and the intermediaries and in moving national and state policy to help the sustainability of ECSs. Data analyzed from the foundation interview primarily focused on how the foundation integrates the ECHSI within its high school reform efforts, JFF's role, the significance of the network of intermediaries, and the capacity of the foundation, JFF, and the intermediaries to sustain their work.

Site Visits

Following each site visit, the site visit team wrote a 4–5 page summary report based on data collected at the school. The report included an overview of the school and a summary of key successes, challenges, and upcoming activities. Each school was given a pseudonym in the report to maintain confidentiality. These reports were then shared with the affiliated intermediaries and the foundation.

Using the interview, observation, and document data from the site visits, each pair of site visitors filled in a structured analytic matrix for each school. Relying on site visitors for the first level of

analysis ensured a high level of validity in the characterization and classification of the data. The matrix included questions on school background information, vision/mission, general partnership structure, decision-making, partnering agreements, accountability, IHE role, district role, ECS and IHE staff, facilities, collaborative leadership, professional community, student recruitment, admissions/selection, curriculum plan, instructional environment, academic and social supports, climate, policy and sustainability, and intermediate student outcomes. A quality control team reviewed all of the matrices to ensure consistency and thoroughness of the data.

The school analytic matrices were entered into Atlas.ti, allowing analysts to query particular topics (based on the questions indicated previously) across all of the 20 visited schools. Analysts reviewed all of the responses to the school matrix questions on a particular topic, such as general partnership structure or IHE role, with the goal of identifying patterns or trends in the data. As a theme emerged from this process, analysts delved into each topic by returning to the source data (e.g., a particular interview or observation).

Classroom Observations

Across the sample of school site visits, a total of 78 classroom observations were conducted. All but four of these observations were analyzed.[59] The classroom observations analyzed for this report included subject area and level distribution, illustrated in Figure A.1.

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[59] The four classroom observations were eliminated from the sample for a variety of circumstances. In one classroom, the instructor administered an assessment during the entire class period. In a second, the observation data capture consisted of parts of two consecutive lessons taught by the same instructor, each to a different group of students, but did not portray one complete lesson. The third class was eliminated because the high school instructor was replacing the college instructor who normally taught the class, essentially serving as a substitute. And in the fourth class, most students were attending an assembly during the observed period. Of the three students in attendance, two took a test while one was tutored by the instructor.

Figure A.1. Subjects of Observed Classes
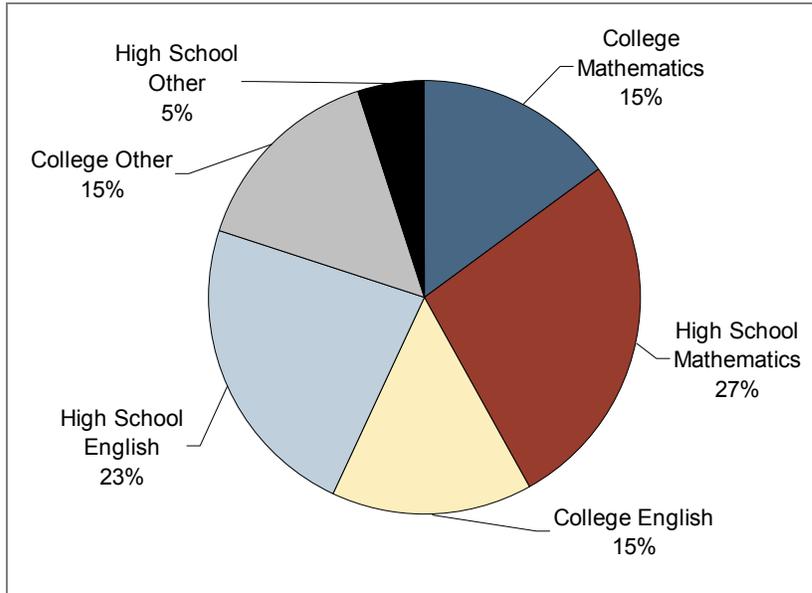
In addition to the matrix produced for the overall ECS visit, each observer did the first level of analysis for the classroom observations. Observers provided a brief summary of the lesson, which described the ways in which the observed instruction demonstrated evidence of each of the "3R's" — rigor, relevance, and relationships — in the classroom and the level of student engagement or participation in the lesson.

In addition to examining the observers' analyses of the classes, the evaluation team examined the source data (i.e., the narrative logs) to determine the extent to which the 3R's were present in observed lessons. First, the evaluation team coded the extent to which observed lessons exhibited evidence of two orthogonal dimensions of rigor. On one dimension, analysts considered the extent to which a lesson provided students with the opportunity to engage in rigorous activities that required them to use analytical thinking and build new understanding within the discipline. On the other dimension, analysts considered the extent to which a lesson provided students with sufficient support to access that opportunity (see Table A.2). These two dimensions combined resulted in four different categories: (a) high opportunity/high support, (b) high opportunity/low support, (c) low opportunity/high support, and (d) low opportunity/low support.

Table A.2. Definitions for Rigor Dimensions

Opportunities for Rigor	
Low	**High**
Lesson activities provide limited opportunities for rigor: ■ Activities primarily require students to recite or report recalled information or demonstrate mastery over procedures, with less emphasis on requiring students to think analytically. ■ Activities may be limited in the ways in which they build students' understanding of key (or foundational) concepts within the discipline.	**Lesson activities provide consistent opportunities for rigor:** ■ Activities call upon students to think analytically. They may utilize recitation/recall in a way that generates new understanding. ■ Activities require students to build on earlier learning to generate new understanding or skills. ■ Content builds students' understanding of key (or foundational) concepts within the discipline.
Level of Support From the Instructor	
Instructor provides limited supports for students to take on the learning: ■ Purpose and rationale for lesson activities may not be clear and/or may be limited or superficial. ■ The standards for achievement on lesson activities may be limited in scope and/or not communicated clearly to students. ■ Feedback provided to students is largely corrective in nature. ■ The instructor may or may not model/encourage the use of discipline-specific tools, frameworks, and academic language.	**Instructor provides supports that allow students to take on the learning:** ■ Purpose and rationale for lesson activities are clear and build on one another in such a way to lead to increased understanding or skill in the discipline. ■ The standards for achievement on lesson activities are clearly communicated to students (implicitly or explicitly). ■ Feedback provided to students is informative, allowing students to increase their conceptual understanding of the content. ■ The instructor models or encourages the use of discipline-specific tools, frameworks, and academic language.

The evaluation team also developed a framework for describing the extent to which observed lessons exhibited evidence of relevant instruction. These classifications included:

■ *Low relevance* — No evidence of relevant instruction present in the activity.

■ *Moderate relevance* — Activity makes some connection to students' life experiences and/or real-world problems. This connection may or may not be central to the core objectives of the activity.

■ *High relevance* — Activity builds on students' life experiences and/or incorporates real-world problems and/or real-world applications. The connection to real life is central to the objective of the activity and/or the topic of the lesson. The instructor makes this connection clear to

students. The instructor may explicitly point out the connection and/or may provide coaching/scaffolding/etc. to guide students toward making those connections.

Taking into consideration the extent to which real-life connections were central to a given lesson, the analysts coded each lesson according to one of these three categories.

Curriculum Plans

A total of 16 curriculum plan documents from 15 ECSs were collected during the 2006–07 site visits. Although 19 of the 20 visited ECSs had curriculum plans, site visit teams were only able to acquire 16 curriculum plans for in-depth analysis, including from an ECS that has two sites with two different curriculum plans.

Analysts coded each course listed in the curriculum plan documents to indicate the subject associated, level of course (college or high school), number of credits earned, and grade level at which the course was offered. College-level courses were further grouped into one of the following categories: academic, elective, and college preparatory. Analysts used data from the curriculum plan analysis, supplemented with available site visit data, to describe the college credit accumulation goals for each ECS and to analyze when college course offerings began for students and what types of college courses were offered.

State Policy Data

Using information from the data collection activities, evaluation team members filled in a structured matrix for each state. The matrices covered the following policy areas: dual enrollment, credit transfer, funding, student eligibility, teacher certification, course alignment, and autonomy. Within each area, the team indicated which policies were in place prior to the ECHSI, those that were introduced after the ECHSI, and those that were planned for the future. The team also included the relationship of the ECHSI to policy changes when that information was available.

The team used the completed policy matrices to identify trends across the states within each policy area. The team used each matrix to discern the ranges of state policies, the influence of the ECHSI on state policies, the impacts of state policies on local implementation, and the work schools, intermediaries, and JFF have done to try to change impeding policies. These findings were then integrated within this report.

Quantitative Data

This section describes the various quantitative data sources used for analyses presented in this report. These data include information on school and student attributes and outcomes. Data are primarily from the 2006–07 academic year, but some are from earlier years, if those were the most recent data available. Table A.1 provides an overview of the quantitative data collection activities.

SIS Transcript Data

The analysis of mathematics classes in this report comes from the transcript database of the Student Information System (SIS) collected from schools by JFF. All districts, and in some cases schools, were asked to provide extant administrative data, including transcript data, for the SIS. As data are provided on a rolling basis, transcript data include all data in the system as of September 2007.

Although 28 ECSs had transcript data in the SIS by September 2007, the analyses in this report include data provided by nine schools with usable data. The remaining data were excluded for the following reasons. Eight of these schools were not included because their schools do not have grade levels (i.e., students progress through the program but not through traditional grade levels). Three schools provided transcripts that only included data from college classes and had no information about high school classes taken. Two other schools only sent data on high school classes. One school provided 2 years of high school transcripts with no college transcripts and 2 other years of college transcripts but no high school transcripts. Another school was not able to be coded due to variation in subject names. Two more schools did not include all of the ECS students. Finally, two schools did not provide the semester in which the courses were taken.

School Survey Data

JFF administered the school survey online in fall/winter 2006–07. Data were collected from the universe of ECSs. The intermediaries identified all of the schools they considered to be in the initiative, and all schools, 128 in total, received a request to participate. Ultimately, representatives from 120 of the ECSs in the initiative completed at least some of the survey, resulting in a response rate of 94 percent. For one indicator, on-time graduation rates, data came from the 2007–08 school survey ($n = 152$, a 95 percent response rate) combined with data from previous years' surveys (2002–03 and 2003–04).

The school survey was developed to collect important information about the diverse range of early college characteristics and designs, including items about structural features, curricular and extracurricular offerings, IHE partners, and student enrollment, achievement, and progress. Several of the variables from the school survey served as bases of analysis throughout the synthesis report, particularly in Chapter V (see Table A.3 for more on these variables). In two cases, data from other sources were used in conjunction with survey data:

- *Year opened as an ECS* — Data were collected for all 128 ECSs, not just the 120 that completed the school survey. Each school's response in the school survey was validated against data available from other sources, including JFF and site visit staff. Where there were discrepancies between the school survey and extant data, the year supported by the greatest number of data sources was used.

- *IHE partners* — Data on IHE partners were collected from the JFF Web site (www.earlycolleges.org) for each of the 120 schools that completed the school survey. Partner type information was obtained through the publicly available National Center for Education

Statistics' Search for Schools, Colleges, and Libraries online database (NCES, n.d.) and through IHE partner Web sites.

Table A.3. School-Level Predictor Variables

Variable Name	Description
STARTUP	A dichotomous variable indicating whether a school was a new startup (1) or evolved from an existing school (0).
ECS AGE	An interval variable (mean = 2.1; sd = 1.0) indicating the number of years an ECS had been open. Values ranged from 1 (opened in 2006–07) to 4 (opened in 2003–04).
LOCATION HS	A dichotomous variable used to indicate whether an ECS was located on a high school (1) or on a 2-year or 4-year college campus (0). Adapted from school-level variable indicating where the majority of high school courses were taken.
IHE2YR	A dichotomous variable indicating whether an ECS partners with a 2-year IHE (1) or not (0).

Student Survey Data Collection

The student survey data presented in this report come from a survey administered in spring 2007. The survey was administered at a systematic sample of 20 ECSs in the initiative. All schools that had been open for at least 1 year, enrolled grades (i.e., excluding ungraded programs), and enrolled high school grades in 2006–07 were eligible for selection. The student survey sample is the same as the sample used for site visits in spring 2007. All of the sampled ECSs participated in the survey administration.

At each ECS, students were selected using a simple random sample. The student survey was administered to 25 randomly selected students at each grade level in each high school grade offered at the school. In schools with fewer than 25 students per grade, all students were sampled. All students were eligible for selection, provided they were part of the school or the ECS program and were eligible for state standardized testing. The student response rate for the survey was 93 percent, which was also the overall response rate. The response rate at 19 of the 20 ECSs was 89 percent or higher (and at the remaining ECS, the response rate was 77 percent). In total, 1,396 students completed the survey.

The school sizes varied dramatically, from 35 students to 473. For our analyses, student survey responses were weighted to be representative of their grade level at their school. For example, if 25 students from a class of 100 were surveyed, each student received a weight of 4. If 25 students from a class of 50 were surveyed, each student received a weight of 2. With this weighting, student responses are representative of the full population of students at their school.

The majority of items included in the student survey were replicated from the spring 2005 student survey for the national evaluation of the National Network Grants Program conducted by AIR and SRI. In addition, a number of items related specifically to the ECS experience were developed by the

evaluation team and pilot tested in winter 2007. Additional items were incorporated from existing surveys of students' high school experiences. These surveys included:

- A survey conducted by the College Board and the Gallup International Institute, as reported in an article by King (1996)

- Pilot Survey of Chicago Public Schools High School Students (AIR, 2006)

- Early College Consortium for Native Youth Student Survey Instrument (Early College Consortium for Native Youth, n.d.)

- The Hemingway Measure of Late Adolescent Connectedness (Karcher, 2000)

- High School Survey of Student Engagement (Indiana University, 2005)

- First Things First Student Survey (MDRC, 2004)

- Early College High School Survey 2003–04 (National Center for Restructuring Education, Schools and Teaching, 2003)

- Ohio High School Transformation Initiative Student Survey Winter 2005 (AIR, 2005)

Demographic Variables

Six demographic variables were used as control variables in the analyses presented in Chapter V. The control variables included students' grade level and whether a student was from a minority group, first generation college-going, female, or low income. Descriptions of these variables are presented in Table A.4. As noted in the full results tables presented below, many of these demographic characteristics were related to student outcome variables. Whether there are differences based on student demographics is a primary research question for this evaluation and will be examined in depth in future synthesis reports.

Table A.4. Student-Level Demographic Control and Predictor Variables

Variable Name	Description
COURSES ON COLLEGE CAMPUS	A dichotomous variable indicating students who had taken any courses (either high school or college level) on a college campus (1) or had taken no courses on a college campus (0).
FEMALE	A dichotomous variable indicating students who identified themselves as female (1) or male (0).
FIRSTGEN	A dichotomous variable indicating whether a student would be a first generation college student (neither parent attended college = 1) or had at least one parent who had attended college (0). Variable was coded based on students' survey responses about both parents.
FRPL QUALIFY	A dichotomous variable indicating students who responded that they qualified for the free or reduced price lunch program (1) or did not qualify for the free or reduced-price lunch program (0).
FRPL MISSING	A dichotomous variable indicating students with missing data for FRPL QUALIFY (including students who did not know their status). All missing values for FRPL QUALIFY were coded as 1.
GRADE	Student responses indicating their current grade level. An ordinal variable (mean = 5.2; sd = 1.1) taking on values from 4 (9th grade) to 8 (13th grade).
MINORITY	A dichotomous variable indicating students who described themselves as minorities (multiracial and/or nonwhite = 1) or as white (0).

Recoded Student-Level Dependent Variables

Four student survey variables were recoded so they could be used as dependent variables in analyses presented in Chapter V. The purpose of the recoding was to create meaningful numeric values for categorical data. The recoded variables also allowed us to present the data in an existing context, with grades recoded to reflect an estimated GPA and expectations for credit recoded to reflect a number of years. The recoded values for these three student survey variables are displayed in Table A.5.

Table A.5. Recoded Student-Level Variables

Variable	Response Options	Recoded Values
HIGH SCHOOL GPA: What have most of your grades been in your courses that count ONLY for high school credit since you have been at this school?	Mostly A's	3.9
	Mixed A's and B's	3.5
	Mostly B's	3.0
	Mixed B's and C's	2.5
	Mostly C's	2.0
	Mixed C's and D's	1.5
	Mostly D's	1.0
	Below D's	0.5
	Grades not used	Missing
	I haven't taken courses for just high school credit at this school	Missing
	I don't know	Missing
	Mean value	2.92
	Standard deviation	.78
COLLEGE GPA: What have most of your grades been in your college courses since you have been at this school?	Mostly A's	3.9
	Mixed A's and B's	3.5
	Mostly B's	3.0
	Mixed B's and C's	2.5
	Mostly C's	2.0
	Mixed C's and D's	1.5
	Mostly D's	1.0
	Below D's	0.5
	Grades not used	Missing
	I haven't taken courses for just high school credit at this school	Missing
	I don't know	Missing
	Mean value	2.97
	Standard deviation	.80
COLLEGE CREDIT: How much college credit do you think you will have by the time you graduate from this school? If you aren't sure, just make your best guess.	None	0
	Less than 1 year	0.5
	1 year	1
	More than 1 year but less than 2 years	1.5
	2 years	2
	More than 2 years	2.5
	Mean value	1.46
	Standard deviation	.71
FOUR-YEAR COLLEGE: Right now, what is your best guess about how far you will go in school? I plan to …	Leave high school before graduation	0
	Graduate from high school	0
	Get some college or other training	0
	Complete a job-training program (such as technical school or military training)	0
	Graduate from a 2-year community college	0
	Graduate from a 4-year college	1
	Graduate from college and take further training (such as graduate school)	1

School Survey Variables

To measure on-time graduation rates, ideally one must have student-level cohort data so that entering students can be tracked for the number of years until they graduate or leave the school. Without these data, school aggregate data must be used to provide an approximation of the ECSs' graduation rates. One measure, on-time graduation rates, was calculated using multiple years of school survey data. This calculation was based on the freshman graduation rate, found to be a strong estimate of actual graduation rates (NCES, 2006b & 2006c).

For the on-time graduation rate, the number of students who entered the ECS is used as the total number of students who should be graduating by the end of a 4- or 5-year program. This number is then compared to the number of students who actually graduate 4 or 5 years later. This calculation may overestimate the graduation rate (for example, if an ECS admits new students after the first year of the program) or may underestimate it (for instance, if students leave the ECS but finish their degree elsewhere).

Below is an explanation of the data sources and calculations for estimating the on-time graduation rates for both 4-year and 5-year programs.

4-Year ECSs

- 2007–08 survey: number of graduates in grade 12 in 2006–07

- 2003–04 survey: number of 9th-grade students enrolled in 2003–04

On-Time Graduation Rate: $\dfrac{\text{12th-grade graduates in 2006–07}}{\text{9th-grade students enrolled in 2003–04}}$

5-Year ECSs

- 2007–08 survey: number of graduates in grade 13 in 2006–07

- 2006–07 survey: number of graduates in grade 12 in 2005–06

- 2002–03 survey: number of 9th-grade students enrolled in 2002–03

On-Time Graduation Rate: $\dfrac{\text{12th-grade graduates in 2005–06} + \text{13th-grade graduates in 2006–07}}{\text{9th-grade students enrolled in 2002–03}}$

Student Survey Variables

The student survey data included scales developed by other evaluations and scales developed specifically for this evaluation. Table A.6 displays all of the scales used in the synthesis report and includes the underlying items and scale characteristics.

Table A.6. Student Survey Scales, Items Used in the Scales, and Descriptive Statistics

Scale and Survey Items	Min	Max	Mean	SD	Reliability (α)
ACADEMIC EXPECTATIONS — COLLEGE This college instructor makes clear to you: Examples of high-quality work that will lead to high grades. Examples of low-quality work that will lead to low grades. That you are expected to come to class prepared. That the work is meant to challenge you. How to figure out specific steps you can take to improve your performance. *Response scale: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree*	1.00	4.00	3.12	.57	0.80
ACADEMIC SELF-CONCEPT I am good at: Asking instructors for help when I get stuck on schoolwork. Working in a group with other students. Taking part in class or group discussions. Understanding what I read for classes. Writing papers or stories. Learning math. *Response scale: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree*	1.00	4.00	3.09	.45	0.66

Table A.6. Student Survey Scales, Items Used in the Scales, and Descriptive Statistics (continued)

Scale and Survey Items	Min	Max	Mean	SD	Reliability (α)
ENGAGEMENT/INTEREST This school year, I have: Asked questions in class or contributed to class discussions. Talked to my family about what I am working on in school. Asked my friends for advice about something I am working on in school. Worked with classmates outside of class or school on schoolwork. Asked my instructors to meet with me to talk about grades, assignments, or my work on projects. *Response scale: 1 = never; 2 = a few times this year; 3 = once or twice a month; 4 = once or twice a week; 5 = almost every day*	1.00	5.00	3.35	.86	0.75
ENGAGEMENT/PERSISTENCE I got frustrated and gave up when my schoolwork became too hard.* When my schoolwork became difficult, I found a way to get help. I gave extra effort to challenging assignments or projects. I kept trying to do well on my schoolwork even when it wasn't interesting to me. I tried really hard to do a good job. I really found my schoolwork interesting. I really did not care too much about my schoolwork.* *Response scale: 1 = never; 2 = a few times this year; 3 = once or twice a month; 4 = once or twice a week; 5 = almost every day*	1.00	5.00	3.70	.67	0.78
HIGH EXPECTATIONS The instructors I have had at this school: Believe that all students in this school can do well. Have given up on some of their students.* Care about only the smart students.* Expect very little from students.* Work hard to make sure that all students are learning. *Response scale: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree*	1.00	4.00	3.20	.56	0.76

Table A.6. Student Survey Scales, Items Used in the Scales, and Descriptive Statistics (continued)

Scale and Survey Items	Min	Max	Mean	SD	Reliability (α)
INSTRUCTOR RELATIONSHIP I care what my instructors think of me. I want to be respected by my instructors. I try to get along with my instructors. I always try hard to earn my instructors' trust. *Response scale: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree*	1.00	4.00	3.24	.58	0.83
INSTRUCTOR SUPPORT — COLLEGE The instructor for this class: Is willing to give extra help on schoolwork if I need it. Helps to catch me up if I am behind. Notices if I have trouble learning something. Helps me improve my work if I do poorly on an assignment. *Response scale: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree*	1.00	4.00	2.83	.67	0.86
INSTRUCTOR SUPPORT — HIGH SCHOOL The instructor for this class: Is willing to give extra help on schoolwork if I need it. Helps to catch me up if I am behind. Notices if I have trouble learning something. Helps me improve my work if I do poorly on an assignment. *Response scale: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree*	1.00	4.00	3.19	.61	0.87
ORDERLY CLIMATE This school year, how often have these things occurred in your school (during the school day or after school)? Fighting Destroying property Verbal bullying Physical bullying Cheating Theft *Response scale: 1 = almost every day; 2 = once or twice a week; 3 = once or twice a month; 4 = a few times this year; 5 = never*	1.00	5.00	4.01	.79	0.86

Table A.6. Student Survey Scales, Items Used in the Scales, and Descriptive Statistics (continued)

Scale and Survey Items	Min	Max	Mean	SD	Reliability (α)
PERSONALIZATION How many adults in your school: Would be willing to help you with a personal problem? Really care about how well you are doing in school? Would be willing to give you extra help with your schoolwork if you needed it? Helped you think about whether you are meeting the requirements for graduation? Helped you think about what you need to do to prepare for college or for a career? *Response scale: 1 = no adults; 2 = one adult;* *3 = two or three adults; 4 = four or five adults;* *5 = six or more adults*	1.00	5.00	3.80	.80	0.81
RELEVANCE This school year, I have solved problems based on real life. My instructors have let students decide on the projects or research topics they will work on. My instructors have let students decide how to work on their assignments or projects (e.g., read on their own, do research in the library). How much does your instructor emphasize making connections: Between what goes on inside and outside of school? Between what's covered in your class and what you've covered in other classes? *Response scale: 1 = never; 2 = a few times this year;* *3 = once or twice a month; 4 = once or twice a week;* *5 = almost every day*	1.00	5.00	3.16	.66	0.59

Table A.6. Student Survey Scales, Items Used in the Scales, and Descriptive Statistics (continued)

Scale and Survey Items	Min	Max	Mean	SD	Reliability (α)
RESPECT/RESPONSIBILITY Many students in my school don't respect one another. There are groups of students in this school who don't get along. How many students in your school feel it's okay to: Make racist or sexist remarks? Cheat? Get into physical fights? Steal things from other students? Destroy or steal school property? *Response scale: 1 = all or almost all; 2 = most; 3 = about half; 4 = a few; 5 = none or almost none*	1.00	5.00	3.75	.70	0.83
RIGOR When I work on a topic, I am able to spend enough time on it to understand it really well. This school year, I have: Made tables or graphs to organize information. Used a notebook to keep records, logs, and comments about my schoolwork. Collected and summarized information or data. Defended my own point of view or ideas in writing or in a discussion. Practiced computations, procedures, or skills. Memorized facts, definitions, or formulas. Written a report of more than 5 pages about a topic I researched. During this school year, how often have your INSTRUCTORS done the following things? Expected me to learn some topics well enough to be able to teach others about them. Assigned projects or presentations that let us show what we have learned. Encouraged us to find multiple solutions to problems rather than just one. *Response scale: 1 = never; 2 = a few times this year; 3 = once or twice a month; 4 = once or twice a week; 5 = almost every day*	1.00	5.00	3.30	.74	0.83

Table A.6. Student Survey Scales, Items Used in the Scales, and Descriptive Statistics (continued)

Scale and Survey Items	Min	Max	Mean	SD	Reliability (α)
SAFE COLLEGE This school year, how often have you felt unsafe: In your college classes? In the hallways, stairs, and bathrooms of the college campus? Immediately outside the college campus? *Response scale: 1 = almost every day; 2 = once or twice a week; 3 = once or twice a month; 4 = a few times this year; 5 = never*	1.00	5.00	4.70	.66	0.90
SAFE HIGH SCHOOL This school year, how often have you felt unsafe [where you take high school classes]: In your classes? In the hallways, stairs, and bathrooms? Immediately outside the school? *Response scale: 1 = almost every day; 2 = once or twice a week; 3 = once or twice a month; 4 = a few times this year; 5 = never*	1.00	5.00	4.63	.77	0.88

* Item was reverse coded for inclusion in the scale.

Quantitative Data Analysis

Several statistical methods were used to analyze quantitative data. The methods used for each of the quantitative data sources are presented below.

Analysis of SIS Transcript Data

Courses were coded to indicate the subject and the type of class: college or high school. Mathematics classes were further sorted into Calculus, Advanced Mathematics, Algebra II, Geometry, and Algebra I or below. All other courses were coded as one of the following subject areas: fine arts, basic/remedial, college orientation/study skills, elective, English/reading/writing, foreign language, physical education/health, science, history/social science, and technology. SIS transcript data were summarized using descriptive statistics.

Analysis of Survey Data

Various analytic strategies were employed to address the evaluation questions. School survey data were summarized using descriptive statistics. Data also were used to compare schools with different structural features on other indicators and on student outcomes.

In addition to univariate analyses conducted for descriptive purposes, four multivariate techniques were used to explain student outcomes: regression analysis, logistic regression analysis, hierarchical

linear modeling, and multilevel logit modeling. Student-level weights were used in nearly all the data analyses. Only the regression analyses used adjusted weights, which were normalized to have a mean of 1. Table A.7 shows the different student outcomes examined, student demographics controlled for, and the student- and school-level characteristics analyzed.

Table A.7. Student Outcomes, Student Demographics, and Student- and School-Level Characteristics Included in Survey Data Analysis

Student Outcomes Examined	Student Demographics Controlled For
Dependent Variables	*Control Variables*
Academic Self-Concept	Female
College Credit	First Generation College (FIRSTGEN)
College GPA	FRPL Missing
Engagement/Interest	FRPL Qualify
Engagement/Persistence	Grade
Four-Year College	Minority
High School GPA	
Orderly Climate	

Student Characteristics Analyzed	School Characteristics Analyzed
Predictor Variables (Student-Level)	*Predictor Variables (School-Level)*
Academic Self-Concept	ECS Age
Courses on College Campus	ECS Location
Engagement/Interest	IHE2YR
Engagement/Persistence	Startup
Instructor Relationship	
Relevance	
Respect/Responsibility	
Rigor	

Note: The above scales and variables were created from student and school survey items and are described in more detail in Tables A.3, A.4, and A.5.

First, regression analyses were conducted to examine the relationship between a set of student-level characteristics and six student outcomes: (a) engagement/interest, (b) engagement/persistence, (c) academic self-concept, (d) perceived orderliness of school climate, (e) high school GPA, and (f) college credit expectations. Note that these analyses do not require hierarchical linear modeling, since all of the variables (predictors and outcomes) in the models are at the student level. In addition, a logistic regression model was used to examine the relationship between the student-level characteristics and the dichotomous variable indicating whether a student aspired to receive a 4-year college degree or higher. Tables A.8 and A.9 report the results of the regression models, and Table A.10 reports the results of the logistic regression model.

Table A.8. Results of Regression Analyses Examining the Relationships Between a Set of Student Characteristics and Student Interest, Persistence, Academic Self-Concept, and Orderly Climate in 2006–07

Predictor	Engagement/Interest			Engagement/Persistence			Academic Self-Concept			Orderly Climate		
	B	(s.e.)	p	B	(s.e.)	p	B	(s.e.)	p	B	(s.e.)	p
Intercept	−.19	.19	ns	.11	.14	ns	1.16	.10	***	.91	.15	***
Female	.14	.04	***	.10	.03	***	−.04	.02	**	−.04	.03	ns
Minority	.00	.04	ns	−.00	.03	ns	.02	.02	ns	−.01	04	ns
Grade	−.01	.02	ns	.03	.01	**	.01	.01	ns	−.00	.01	ns
First Generation College (FIRSTGEN)	−.16	.04	***	.07	.03	**	−.02	.02	ns	.01	.03	ns
FRPL Qualify	−.04	.04	ns	.06	.03	*	−.02	.02	ns	.03	.03	ns
FRPL Missing	−.44	.42	ns	.21	.33	ns	.02	.24	ns	.14	.35	ns
Courses on College Campus	.04	.04	ns	.02	.03	ns	.02	.02	ns	.15	.03	***
Instructor Relationship	.14	.04	***	.25	.03	***	.11	.02	***	.01	.03	ns
Respect/Responsibility	−.02	.03	ns	.11	.02	***	.02	.02	ns	.81	.02	***
Rigor	.35	.03	***	.15	.03	***	.12	.02	***	−.04	.03	ns
Relevance	.11	.03	***	−.01	.03	ns	.07	.02	***	−.05	.03	*
Engagement/Interest				.18	.02	***	.06	.02	***	−.06	.02	**
Engagement/Persistence	.30	.04	***				.18	.02	***	.07	.03	**
Academic Self-Concept	.19	.05	***	.34	.04	***				.06	.04	ns
Adjusted R^2	.44			.47			.38			.56		

Note: *N* of students (unweighted) = 1,200

Source: 2006–07 ECHSI student survey

B = Unstandardized regression coefficient; s.e. = standard error; ns denotes nonsignificance

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.9. Results of Regression Analyses Examining the Relationships Between a Set of Student Characteristics and Students' High School GPA, College GPA, and College Credit Expectations in 2006–07

Predictor	Dependent Variable								
	High School GPA			College GPA			College Credit		
	B	(s.e.)	Signif.	B	(s.e.)	Signif.	B	(s.e.)	Signif.
Intercept	1.24	.21	***	2.45	.28	***	1.84	.19	***
Female	.10	.04	**	−.03	.05	ns	.01	.04	ns
Minority	−.19	.05	***	−.20	.06	***	−.08	.04	*
Grade	.00	.02	ns	−.13	.03	***	−.25	.02	***
First Generation College (FIRSTGEN)	−.15	.04	***	−.05	.06	ns	−.12	.04	***
FRPL Qualify	−.19	.04	***	−.19	.06	***	.09	.04	**
FRPL Missing[†]	.34	.95	ns				.32	.42	ns
Courses on College Campus	.18	.04	***	.29	.06	***	.15	.04	***
Instructor Relationship	−.05	.04	ns	−.20	.05	***	.08	.04	**
Respect/Responsibility	−.03	−.30	ns	−.05	.04	ns	.02	.03	ns
Rigor	.06	.04	*	.09	.05	*	.08	.03	**
Relevance	−.04	.04	ns	.05	.05	ns	.00	.03	ns
Engagement/Interest	−.05	.03	ns	−.12	.04	***	.03	.03	ns
Engagement/Persistence	.41	.04	***	.37	.05	***	.02	.03	ns
Academic Self-Concept	.19	.06	***	.22	.07	***	.03	.05	ns
Adjusted R^2	.24			.21			.19		

Note: *N* of students (unweighted): High School GPA: *n*=1,143; College GPA: *n*=778; College Credit: *n*=1,192

Source: 2006–07 ECHSI student survey

B = Unstandardized regression coefficient; s.e. = standard error; ns denotes nonsignificance

[†] The values on FRPL Missing were constant (= 0) for College GPA, and therefore were not included in the analysis.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.10. Results of Logistic Regression Analysis Examining the Relationships Between a Set of Student Characteristics and Students' Expectations for Completing a 4-Year Degree or Higher in 2006–07

Predictor	Model 1 (Baseline)			
	B	(s.e.)	e^B	Signif.
Intercept	−2.35	.73	.10	***
Female	.39	.15	1.47	***
Minority	−.03	.18	.97	ns
Grade	−.11	.07	.89	ns
First Generation College (FIRSTGEN)	−.63	.15	.53	***
FRPL Qualify	−.04	.15	.96	ns
FRPL Missing	−.19	1.65	.83	ns
Courses on College Campus	.47	.15	1.61	***
Instructor Relationship	.25	.14	1.28	*
Respect/Responsibility	−.05	.11	.95	ns
Rigor	.20	.13	1.22	ns
Relevance	.00	.13	1.00	ns
Engagement/Interest	.17	.11	1.18	ns
Engagement/Persistence	.38	.14	1.46	***
Academic Self-Concept	.25	.20	1.28	ns
Chi-Square	140.43			
df	14			

Note: N of students (unweighted) = 1,200

Source: 2006–07 ECHSI student survey

B = Coefficient representing the amount of change in the logit (log odds) of student's expectation for graduating a 4-year college per unit change in each of the predictors in the model; s.e. = standard error; e^B = exponentiated B; ns denotes nonsignificance

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Second, when both school- and student-level characteristics were examined for their effects on student-level outcomes such as students' engagement, we employed hierarchical linear modeling (HLM). The primary benefit of HLM is that it explicitly takes into account the nested data structure (i.e., students nested within ECSs) and therefore produces less biased standard errors of estimates, compared with conventional regression analytic technique. This multilevel analytic technique allowed for examinations of the effects of high school-specific characteristics (such as an ECS's age, location, and partner type) on student interest, persistence, academic self-concept, high school GPA, and college credit expectations, as well as school climate.

The sample for the HLM analyses consisted of 20 schools in total. The final analytic sample for the cross-school-type comparisons included 20 ECSs. On average these ECSs had been open 2.1 years; nine of them were startup schools; eight ECSs were located on high school campuses; and 14 ECSs

partnered with a 2-year IHE. The control variables and the student- and school-level predictor variables in each HLM equation are provided in Table A.7.

Using a two-level HLM model, we performed a separate analysis for each of six student outcomes under examination in this report: (a) engagement/interest, (b) engagement/persistence, (c) academic self-concept, (d) perceived orderliness of school climate, (e) high school GPA, and (f) college credit expectations. The results of the HLM analyses on the effects of these outcomes are shown in Tables A.11 through A.17, respectively. For the purpose of illustration, we specify a two-level HLM model that examines the effects of ECS and student characteristics on students' engagement/interest in 2006–07, as follows:

Level-1 Model (Student-Level)

$Y_{ij} = \beta_{0j} + \beta_{1j}*(\text{FEMALE}) + \beta_{2j}*(\text{GRADE}) + \beta_{3j}*(\text{FIRSTGEN}) + \beta_{4j}*(\text{MINORITY}) + \beta_{5j}*(\text{FRPL MISSING}) + \beta_{6j}*(\text{FRPL QUALIFY}) + r_{ij}$

Level-2 Model (School-Level)

$\beta_{0j} = \gamma_{00} + \gamma_{01}*(\text{STARTUP}) + \gamma_{02}*(\text{ECS AGE}) + \gamma_{03}*(\text{LOCATION HS}) + \gamma_{04}*(\text{IHE2YR}) + u_{0j}$
$\beta_{1j} = \gamma_{10}$
$\beta_{2j} = \gamma_{20}$
$\beta_{3j} = \gamma_{30}$
$\beta_{4j} = \gamma_{40}$
$\beta_{5j} = \gamma_{50}$
$\beta_{6j} = \gamma_{60}$

where

- Y_{ij} is the level of engagement/interest of student i in school j

- β_{0j} is the mean level of engagement/interest in school j

- β_{1j} is the gender gap in school j (i.e., the mean difference between the engagement/interest of female and male students)

- β_{2j} is the differentiating effect of grade-level in school j (i.e., the degree to which grade-level difference relates to engagement/interest)

- β_{3j} is the gap between first generation and non-first generation college-going students in school j (i.e., the mean difference between the engagement/interest of first generation and non-first generation college-going students)

- β_{4j} is the gap between minority and white students in school j (i.e., the mean difference between the engagement/interest of minority and white students)

- β_{5j} is the gap between students who did not provide free- or reduced-priced lunch (FRPL) status information and those who did in school j (i.e., the mean difference between the engagement/interest of students who did not provide FRPL information and those who did)

- β_{6j} is the gap between students who qualify for FRPL and those who do not in school j (i.e., the mean difference between the engagement/interest of students who qualified for FRPL and those who did not)

- γ_{00} is the overall mean level of student engagement/interest across all schools

- γ_{01} is the marginal effect of being a startup ECS (1) on student engagement/interest, compared with an existing ECS (0)

- γ_{02} is the marginal effect of ECS age on student engagement/interest

- γ_{03} is the marginal effect of ECSs located on a high school campus (1) on student engagement/interest, compared with ECSs on a college campus (0)

- γ_{04} is the marginal effect of ECSs partnered with 2-year IHEs (1) on student engagement/interest, compared with those not partnered with 2-year IHEs (0)

- r_{ij} and u_{0j} are random errors at the student and school levels, respectively

Table A.11. Results of HLM Analysis on the Effects of ECS and Student Characteristics on Student Engagement/Interest in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	.06	.03	1.82	*	.06	.03	2.10	**
MINORITY	−.04	.04	−.93	ns	−0.02	.04	−0.39	ns
FIRSTGEN	−.16	.06	−2.87	***	−.16	.06	−2.01	***
FEMALE	.26	.06	4.41	***	.25	.06	4.39	***
FRPL MISSING	.21	.29	.72	ns	.23	.29	.79	ns
FRPL QUALIFY	−.03	.07	−.38	ns	−0.02	0.07	−0.31	ns
School-Level								
Intercept	3.38	.06	60.60	***	3.79	.16	23.27	***
ECS AGE					−.10	.05	−2.21	**
IHE2YR					−.21	.07	−2.82	**
LOCATION HS					−.16	.08	−2.03	*
STARTUP					.07	.09	.79	ns
Variance Components								
Between students	.65				.65			
Between schools	.04				.02			
Degrees of Freedom								
Student level	1,219				1,215			
School level	19				15			

Note*: N* of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); *N* of students (unweighted) = 1,226

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: ENGAGEMENT/INTEREST

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.12. Results of HLM Analysis on the Effects of ECS and Student Characteristics on Student Engagement/Persistence in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	.06	.02	2.38	**	.07	.03	2.58	**
MINORITY	−.08	.06	−1.44	ns	−.04	.06	−.78	ns
FIRSTGEN	.01	.05	.16	ns	.02	.05	.37	ns
FEMALE	.21	.03	6.57	***	.20	.03	6.41	***
FRPL MISSING	.30	.31	.97	ns	.32	.31	1.03	ns
FRPL QUALIFY	.06	.04	1.39	ns	.07	.04	1.62	ns
School-Level								
Intercept	3.72	.04	100.45	***	4.02	.12	34.41	***
ECS AGE					−.08	.03	2.49	**
IHE2YR					−.06	.07	−.80	ns
LOCATION HS					−.20	.07	−2.85	**
STARTUP					.01	.07	.17	ns
Variance Components								
Between students	.42				.42			
Between schools	.02				.01			
Degrees of Freedom								
Student level	1,217				1,213			
School level	19				15			

Note: *N* of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); *N* of students (unweighted) = 1,224

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: ENGAGEMENT/PERSISTENCE

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.13. Results of HLM Analysis on the Effects of ECS and Student Characteristics on Academic Self-Concept in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	.04	.02	2.19	**	.04	.02	2.51	**
MINORITY	−.03	.03	−1.00	ns	−.00	.03	−.05	ns
FIRSTGEN	−.03	.02	−1.35	ns	−.03	.02	−1.18	ns
FEMALE	.04	.03	1.36	ns	.04	.03	1.27	ns
FRPL MISSING	.04	.13	.32	ns	.05	.13	.39	ns
FRPL QUALIFY	−.01	.03	−.18	ns	.00	.03	.00	ns
School-Level								
Intercept	3.10	.03	119.62	***	3.30	.09	35.27	***
ECS AGE					−.05	.02	−2.84	**
IHE2YR					−.04	.06	−.61	ns
LOCATION HS					−.11	.06	−1.96	*
STARTUP					−.03	.04	−.75	ns
Variance Components								
Between students	.19				.19			
Between schools	.01				.01			
Degrees of Freedom								
Student level	1,221				1,217			
School level	19				15			

Note: *N* of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); *N* of students (unweighted) = 1,228

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: ACADEMIC SELF-CONCEPT

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.14. Results of HLM Analysis on the Effects of ECS and Student Characteristics on Orderly Climate in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	.02	.04	.61	ns	.03	.04	.67	ns
MINORITY	−.01	.06	−.14	ns	−.01	.05	−.12	ns
FIRSTGEN	.05	.05	1.11	ns	.06	.05	1.21	ns
FEMALE	−.05	.06	−.86	ns	−.05	.06	−.90	ns
FRPL MISSING	.14	.15	.96	ns	.14	.15	.94	ns
FRPL QUALIFY	.05	.06	.95	ns	.05	.06	.93	ns
School-Level								
Intercept	3.99	.10	41.24	***	3.96	.28	14.29	***
ECS AGE					−.08	.05	−1.45	ns
IHE2YR					.31	.13	2.45	**
LOCATION HS					−.41	.16	−2.63	**
STARTUP					.36	.12	3.11	***
Variance Components								
Between students	.48				.47			
Between schools	.18				.07			
Degrees of Freedom								
Student level	1,221				1,217			
School level	19				15			

Note: *N* of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); *N* of students (unweighted) = 1,228

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: ORDERLY CLIMATE

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.15. Results of HLM Analysis on the Effects of ECS and Student Characteristics on Students' High School GPA in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	.04	.02	1.79	*	.04	.02	1.95	*
MINORITY	−.14	.06	−2.36	**	−.11	.06	−1.87	*
FIRSTGEN	−.10	.05	−2.23	**	−.10	.05	−2.08	**
FEMALE	.16	.04	3.75	***	.16	.04	3.68	***
FRPL MISSING	−.07	1.02	−.07	ns	−.06	1.02	−.06	ns
FRPL QUALIFY	−.14	.05	−2.93	***	−.13	.05	−2.79	***
School-Level								
Intercept	2.92	.06	47.64	***	3.30	.25	13.40	***
ECS AGE					−.11	.06	−1.76	*
IHE2YR					−.00	.16	−.03	ns
LOCATION HS					−.21	.16	−1.30	ns
STARTUP					−.08	.14	−.57	ns
Variance Components								
Between students	.49				.49			
Between schools	.06				.06			
Degrees of Freedom								
Student level	1,161				1,157			
School level	19				15			

Note: *N* of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); *N* of students (unweighted) = 1,168

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: HS GPA

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.16. Results of HLM Analysis on the Effects of ECS and Student Characteristics on Students' College GPA School GPA in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	−.09	.04	−2.07	**	−.08	.04	−1.94	*
MINORITY	−.24	.08	−2.98	***	−.24	.09	−2.63	***
FIRSTGEN	−.10	.05	−2.02	**	−.09	.05	−1.73	*
FEMALE	−.01	.07	−.21	ns	−.01	.07	−.13	ns
FRPL MISSING[†]								
FRPL QUALIFY	−.21	.09	−2.49	**	−.22	.08	−2.60	**
School-Level								
Intercept	2.97	.05	56.25	***	2.79	.16	17.89	***
ECS AGE					.04	.05	.90	ns
IHE2YR					.02	.09	.21	ns
LOCATION HS					−.05	.10	−.56	ns
STARTUP					.20	.09	2.24	**
Variance Components								
Between students	.55				.55			
Between schools	.03				.02			
Degrees of Freedom								
Student level	784				780			
School level	19				15			

Note: N of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); N of students (unweighted) = 790

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: COLLEGE GPA

[†] The values on FRPL Missing were constant (= 0) for College GPA, and therefore were not included in the analysis.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.17. Results of HLM Analysis on the Effects of ECS and Student Characteristics on Students' College Credit Expectations in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	−.17	.02	−9.65	***	−.17	.02	−9.56	***
MINORITY	−.12	.04	−2.87	***	−.11	.04	−2.75	***
FIRSTGEN	−.11	.04	−2.94	***	−.10	.04	−2.79	***
FEMALE	.01	.03	.43	ns	.01	.03	.38	ns
FRPL MISSING	.55	.22	2.48	**	.56	.22	2.54	.**
FRPL QUALIFY	.05	.05	.94	ns	.05	.05	.96	ns
School-Level								
Intercept	1.47	.07	21.17	***	1.68	.24	6.97	***
ECS AGE					−.08	.06	−1.31	ns
IHE2YR					−.10	.13	−.75	ns
LOCATION HS					−.13	.16	−.83	ns
STARTUP					.23	.15	1.52	ns
Variance Components								
Between students	.35				.35			
Between schools	.08				.07			
Degrees of Freedom								
Student level	1,211				1,207			
School level	19				15			

Note*: N* of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); *N* of students (unweighted) = 1,218

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: COLLEGE CREDIT

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Lastly, we used a multilevel logit model to examine students' expectations for their own educational attainment. Note that the students' outcome was on a dichotomous variable indicating whether a student aspired to receive a 4-year college degree or higher, hence requiring a logit model. The specification of the model is as follows:

Level-1 Model (Student-Level)

$Prob(\text{FOUR-YEAR COLLEGE}=1|\beta) = \varphi$

$Log[\varphi/(1-\varphi)] = \eta$

$\eta = \beta_{0j} + \beta_{1j}*(\text{FEMALE}) + \beta_{2j}*(\text{GRADE}) + \beta_{3j}*(\text{FIRSTGEN}) + \beta_{4j}*(\text{MINORITY}) + \beta_{5j}*(\text{FRPL MISSING}) + \beta_{6j}*(\text{FRPL QUALIFY}) + r_{ij}$

Level-2 Model (School-Level)

$\beta_{0j} = \gamma_{00} + \gamma_{01}*(\text{STARTUP}) + \gamma_{02}*(\text{ECS AGE}) + \gamma_{03}*(\text{LOCATION HS}) + \gamma_{04}*(\text{IHE2YR}) + u_{0j}$

Coefficients represent the amount of change in the logit (log odds) of a student's expectation for graduating from a 4-year college per unit change in each of the predictors in the model such as FEMALE, GRADE, STARTUP, etc.

Table A.18 reports the results of the multilevel logit model.

Table A.18. Results of Multilevel Logit Modeling Analysis on the Effects of ECS and Student Characteristics on Students' Expectations for Completing a 4-Year Degree or Higher in 2006–07

Measure	Model 1 (Baseline)				Model 2 (Full)			
	Coefficient	SE	t-stat	Signif.	Coefficient	SE	t-stat	Signif.
Student-Level								
GRADE	.09	.10	.98	ns	.11	.10	1.06	ns
MINORITY	−.12	.13	−.91	ns	−.05	.16	−.32	ns
FIRSTGEN	−.45	.20	−2.26	**	−.43	.20	−2.16	**
FEMALE	.38	.19	1.98	**	.39	.20	1.96	*
FRPL MISSING	1.22	1.18	1.04	ns	1.25	1.18	1.06	ns
FRPL QUALIFY	−.05	.15	−.32	ns	−.03	.14	−.22	ns
School-Level								
Intercept	1.33	.20	6.53	***	3.00	.74	4.04	***
ECS AGE					−.34	.20	−1.70	ns
IHE2YR					−.87	.32	−2.72	**
LOCATION HS					−.91	.33	−2.78	**
STARTUP					.16	.41	.40	ns
Degrees of Freedom								
Student level	1,222				1,218			
School level	19				15			

Note*: N* of schools = 20 (open for an average of 2.1 years, with 9 startup, 8 located on a high school campus, and 14 partnered with 2-year institutions); *N* of students (unweighted) = 1,229

Source: 2006–07 ECHSI student survey; 2006–07 ECHSI school survey

Dependant variable: FOUR-YEAR COLLEGE

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

HLM models also were used to calculate adjusted means for dependent variables of interest. To do this, we re-ran the models by centering all student- and school-level variables around grand means, except for the variable of interest (which was left uncentered). For example, to understand the adjusted mean of the engagement/interest scale for schools that are startups, the variable STARTUP was left uncentered, while all other variables were grand-mean centered.