Evaluation of the California Linked Learning District Initiative

Third-Year Report

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Executive Summary

This is SRI International's third annual evaluation report on the progress of the California Linked Learning District Initiative ("the Initiative"). This annual report offers preliminary findings about student outcomes in four selected Linked Learning districts, focusing on those pathways that have satisfied the ConnectEd certification requirements. It differs substantially from its two predecessors, which focused exclusively on implementation of the Linked Learning approach in nine participating California school districts during the Initiative's formative years.

In addition to presenting analyses of student outcomes data, this report draws on the rich sources of qualitative and survey data collected for the evaluation to assess Linked Learning implementation progress and to describe the fullness of the Linked Learning student experience. The report is organized into two parts. The first part of the report focuses on the implementation of district systems to support the core Linked Learning components and the establishment of policies and practices that lead to equitable pathway choice. In the second part of the report, we examine whether students' experiences resulted in improved engagement and achievement compared with similar peers in their districts.

KEY IMPLEMENTATION FINDINGS

One of the most intransigent problems in numerous educational reform initiatives is the inability of these reforms to dramatically change how teachers and students interact in high school classrooms. The Linked Learning District Initiative has an opportunity to defy this trend and improve student outcomes with its early focus on curriculum, instruction, and assessment. The evaluation found the following:

Curriculum, Instruction, and Assessment

- With intensive focus and support from ConnectEd and technical assistance providers, district and pathway staffs are delving into the core teaching and learning components of Linked Learning: integrated curriculum, varied instructional strategies including project-based learning, and performance-based assessments.
- Pathway staffs are making good progress towards developing interdisciplinary projects. Students report that these projects are engaging and reinforce content within and across classes. Beyond these projects, however, the interdisciplinary approach to instruction has yet to be broadly and deeply integrated into the daily curriculum. District and pathway staffs are discovering that it takes years to build aligned curriculum, instruction, and assessments that are rigorous and authentically connected to the pathway theme.

Work-Based Learning

- Pathway staffs have been working on developing a continuum of work-based learning experiences for their students. However, many pathway staff struggle with organizing and planning meaningful work-based learning opportunities due to inadequate time and competing priorities. Further, most pathways have not yet successfully made strong connections between the work-based learning experiences and the students' technical and academic coursework.
- Students are enthusiastic about their work-based learning experiences and are eager for more such opportunities. They report feeling that these experiences broadened their

perspectives on the career options available, taught them relevant career and professional skills, and showed them the connection between academic content and real-world applications.

Student Supports

- Pathway students feel they are getting strong academic and social support from their teachers and peers. Their feelings about counseling support are more mixed. While there are encouraging signs that districts are improving counseling, budget cuts continue to threaten counseling capacity. This means that many students—especially in the lower grades—receive limited support from counselors, although pathway teachers are filling some of those gaps. As districts consider how to support and sustain the Linked Learning approach, adequately funding counseling will need to be a priority.

Pathway Choice, Access and Equity

- The Linked Learning equity agenda remains a work in progress. Certified pathways in Antioch, Long Beach, and Porterville enroll a lower proportion of English language learners, special education students, and low-income students than the overall district proportions; only in Pasadena is this trend reversed. District choice and recruitment policies may help explain why the profiles of students in certified pathways differ from the proportions of similar students across those districts.
- As districts work to make Linked Learning pathways accessible for all students, district and pathway personnel will need to consider how their pathway recruitment and student choice policies influence student pathway selection and enrollment. Districts will need to remain vigilant and carefully monitor enrollment patterns, particularly for English language learners and special education students.

KEY OUTCOMES FINDINGS

Linked Learning aims to improve high school graduation rates and increase successful transitions to a full range of postsecondary education opportunities, particularly for low-income and disadvantaged youth. We examined early indicators of pathway students' progress toward UC/CSU eligibility and high school graduation, adjusting for students' background characteristics and prior achievement using a value-added approach.

UC/CSU Eligibility

California requires high school students who aspire to attend one of the state's 4-year public universities to complete a rigorous academic program, generally known as the UC/CSU a-g requirements. Based on our preliminary analysis of student achievement data, we found:

- In Antioch and Long Beach, students in certified pathways are making greater progress toward a-g completion when compared with similar peers in their districts.[1]

[1] We analyzed 9th grade student outcomes for the class of 2013 and class of 2014 and 10th grade student outcomes for the class of 2013.

The Initiative's emphasis on curriculum and instruction contributes to a pathway culture that values challenge and a sense of personal responsibility, which may encourage students to pursue the a-g completion goal.

Progression Toward On-Time Graduation

Research shows that students who struggle early in high school and fall behind in credit accumulation are more likely to drop out than those who stay on track academically.[2] Accordingly, credit accumulation and numbers of courses failed are key indicators of progress toward on-time graduation. Early results from the Linked Learning student outcomes analyses offer positive news on this front:

- Students in certified pathways accumulate more credits by the end of the 9th and 10th grades compared with similar peers in their districts.
- Pathway and non-pathway students fail similar numbers of courses in 9th grade, but pathway students tend to fail fewer courses in 10th grade compared with similar peers in their districts.

While these findings suggest that students in certified pathways make strong progress towards credit completion, many pathways struggle to make credit recovery options available for students who do fail courses.

Perceptions of Skills Gained

- The success of Linked Learning pathways can be assessed, in part, through the academic gains referenced above. Also relevant, though more difficult to measure, are the "soft" skills that students may gain from their pathway experiences. Pathway students were more likely than students not in pathways to report improvements in a range of skills: taking personal responsibility, problem-solving, using information and communication technology, collaborating, and understanding workplace expectations.

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As pleased as we are that this third annual evaluation report finally includes analyses on student outcomes, the evaluation team cannot emphasize too strongly the *preliminary* nature of the findings presented. The sample of pathways on which the findings are based is very restricted this year and is undoubtedly not representative of the universe of Linked Learning District Initiative pathways overall. Drawing firmer conclusions will require more patience as the pool of certified pathways gradually expands. Still, the early findings on student outcomes, while not conclusive, show signs of promise. There are some initial positive findings regarding student progress towards graduation and college readiness, despite the fact that no student has yet experienced the full 4-year Linked Learning "treatment."

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[2] The Consortium on Chicago School Research found that students in Chicago Public Schools who earned at least 25 percent of the credits necessary for high school graduation and failed no more than a single semester of an academic core course by the end of their freshman year of high school were 3.5 times more likely to graduate from high school than those who did not. (Allensworth, E. M., & Easton, J. Q. 2005, *The On-Track Indicator as a Predictor of High School Graduation.* Chicago, IL: Consortium on Chicago School Research.)

Further, implementation results document development of the four core Linked Learning pillars (rigorous academics, a core sequence of technical courses, work-based learning opportunities, and adequate student supports). These encouraging signs should motivate districts and partners to persevere in their Linked Learning implementation efforts, understanding that it takes time to build *systemwide* quality experiences.

At this early stage and given the scale of the Initiative, full implementation of Linked Learning understandably remains a work in progress. Even in districts that have years of experience with small learning communities and small, themed high schools, full implementation of the Linked Learning approach is a year or two away for the most mature pathways, and a longer-term goal for pathways that are only a year or two into the implementation process. Districts are still working to expand the system of pathways with an eye towards providing all students with equitable pathway access. While maintaining a firm commitment to and focus on the teaching and learning aspects of the Initiative, it will be important for ConnectEd, its partners, and the Foundation to acknowledge and communicate to key stakeholders that it may take years of sustained effort to achieve the desired pathway student outcomes.

Chapter 1: Introduction

This is SRI International's third annual evaluation report on the progress of the California Linked Learning District Initiative ("the Initiative"). This annual report offers preliminary findings about student outcomes in four selected Linked Learning districts, focusing on those pathways that have satisfied the ConnectEd certification requirements. It differs substantially from its two predecessors, which focused exclusively on implementation of the Linked Learning approach in nine participating California school districts during the Initiative's formative years.

In addition to presenting analyses of student outcomes data, this report draws on the rich sources of qualitative and survey data collected for the evaluation to assess Linked Learning implementation progress and to describe the fullness of the Linked Learning student experience. The report is organized into two parts. The first part of the report focuses on the implementation of district systems to support the core Linked Learning components and the establishment of policies and practices that lead to equitable pathway choice. We discuss how students came to be in pathways, how they view their academic and work-based learning experiences, and the supports and relationships that have helped them. In the second part of the report, we examine whether students' experiences resulted in improved engagement and achievement compared with similar peers in their districts. We describe students' perceptions of the skills they have gained from their pathway experiences, the early evidence about their outcomes, and their future postsecondary plans as they see them today.

About the Linked Learning District Initiative

Since 2006, The James Irvine Foundation has made a significant investment in promoting Linked Learning as a promising approach to transforming California's high school system. (The Linked Learning approach was initially known as "Multiple Pathways.") Through Linked Learning, the Foundation aims to improve high school graduation rates and increase successful transitions to a full range of postsecondary education and career opportunities, particularly for low-income and disadvantaged youth.

Linked Learning is designed to engage students in challenging and relevant academic and technical coursework connected to real-world experiences through a multiyear

Core Components of Linked Learning

Challenging academics. A core academic component of college-preparatory instruction in essential subjects, including English, math, science, social studies, foreign language and visual and performing arts.

Technical skills and knowledge. A demanding technical component, emphasizing the practical application of academic learning and preparing youth for high-skill, high-wage employment.

Work-based learning. A work-based learning component that offers opportunities to learn through real-world experiences, such as internships, apprenticeships and school-based enterprises.

Support services. Supplemental services, such as counseling and additional instruction in reading, writing and mathematics.

program of study linked to a career or industry theme. Specifically, the Linked Learning approach combines a rigorous academic core curriculum that satisfies entrance requirements for California's public university system, a strong sequence of career-technical coursework, a range of work-based learning experiences, and academic and social supports with the goal of giving all students access to and success in a pathway program of study of their choosing.

Linked Learning builds on more than four decades of experience with career academies and California Partnership Academies, many of which provide students with integrated academic and technical content. In most cases, these pathways and academies have been operating in isolation, without systemic support or structures. Through the California Linked Learning District Initiative, the Foundation is supporting nine demonstration districts across California to develop systems of pathways that are available to all high school students.

The Initiative seeks to demonstrate the impact that Linked Learning can have on students, especially low-income youth. Specifically, the Initiative seeks to offer these students full access to a range of pathways options, with expectations that improved academic performance and high school graduation and college attendance rates will result. Further, the Initiative serves as a vehicle for the Foundation and its various partners to develop and refine the Linked Learning approach, to determine what makes Linked Learning successful at a systemic level, and to demonstrate the viability of Linked Learning as a comprehensive approach for high school reform. This third annual evaluation report looks closely at the Linked Learning student experience to examine the Initiative's progress toward reaching these goals.

Initiative Participants

School Districts

Cohort 1 *(began 2009)*

- Antioch Unified School District
- Long Beach Unified School District
- Pasadena Unified School District
- Porterville Unified School District
- Sacramento City Unified School District
- West Contra Costa Unified School District

Cohort 2 *(began 2010)*

- Local District 4 of the Los Angeles Unified School District
- Montebello Unified School District
- Oakland Unified School District

ConnectEd: The California Center for College and Careers, established by The James Irvine Foundation in 2006, is the primary intermediary and technical assistance provider and maintains strong relationships with each district.

The Los Angeles Small Schools Center is taking on aspects of ConnectEd's role with participating districts in southern California.

The Stanford Center for Opportunity Policy in Education (SCOPE) partners with ConnectEd to offer a district and a pathway leadership series, which involves annual summer institutes and leadership sessions through the school year.

Status of the District Initiative

The nine districts participating in the Initiative vary in size from close to 14,000 to over 83,000 students and represent a variety of geographic regions, but all serve a high proportion of disadvantaged students. Collectively, these nine districts serve nearly 130,000 high school students, or 7% of the roughly 1.8 million high school students enrolled in California public schools. More than three-quarters of the students in each of these districts are non-white and over half in each are socioeconomically disadvantaged. Information on student demographics and achievement for each of the nine districts is summarized in Exhibit 1–1.

Exhibit 1–1
District Demographics and Student Performance, 2011–12

District	Demographics	Performance
Antioch Unified	Total enrollment = 18,877 Percent minority[a] = 78% Percent poverty[b] = 58% No. of high schools[c] = 4 Total high school enrollment = 6,144	Graduation rate = 73% CAHSEE passing rate[d] = ELA 81%; Math 78% 2011 API[e] =730
Long Beach Unified	Total enrollment = 83,691 Percentage minority = 85% Percentage poverty = 70 % No. of high schools = 9 Total high school enrollment = 27,128	Graduation rate = 78% CAHSEE passing rate = ELA 81%; Math 84% 2011 API =771
Los Angeles Unified Local District 4[f]	Total enrollment = 79,933 Percent minority = 95% Percent poverty = 78% No. of high schools = 32 Total high school enrollment = 39,224	Graduation rate = 64% CAHSEE passing rate= ELA 76%; Math 77% 2011 API = 729
Montebello Unified	Total enrollment = 31,319 Percentage minority = 98% Percentage poverty = 76% No. of high schools = 5 Total high school enrollment = 10,622	Graduation rate = 80.5% CAHSEE passing rate = ELA 75%; Math 76% 2011 API = 719
Oakland Unified	Total enrollment = 46,377 Percentage minority = 91% Percentage poverty = 70% No. of high schools = 26 Total high school enrollment = 12,148	Graduation rate = 59% CAHSEE passing rate = ELA 39%; Math 42% 2011 API = 726
Pasadena Unified	Total enrollment = 19,802 Percentage minority = 85% Percentage poverty = 68% No. of high schools = 7 Total high school enrollment = 5,926	Graduation rate = 75% CAHSEE passing rate = ELA 83%; Math 82% 2011 API = 758
Porterville Unified	Total enrollment = 13,736 Percentage minority = 84% Percentage poverty = 83% No. of high schools = 7 Total high school enrollment = 6,240	Graduation rate = 78% CAHSEE passing rate[g] = ELA 76%; Math 77% 2011 API = 744
Sacramento Unified	Total enrollment = 47,940 Percentage minority = 81% Percentage poverty = 69.6% No. of high schools = 12 Total high school enrollment = 13,627	Graduation rate = 73.8% CAHSEE passing rate = ELA 81%; Math 83% 2011 API = 7560
West Contra Costa Unified	Total enrollment = 29,883 Percentage minority = 89% Percent poverty = 68.1% No. of high schools = 11 Total high school enrollment = 8,532	Graduation rate = 74.0% CAHSEE passing rate = ELA 42%; Math 44% 2011 API = 707

Source: California Department of Education (CDE).

[a] Percent minority is the percentage of all students who do not identify as "White, not Hispanic," including students whose ethnic designation is listed as "not reported."

[b] Percent poverty is based on the percentage of students who qualified for Free or Reduced-Priced Meals in 2010-11.

[c] Number of high schools includes charter and non-charter schools classified by the CDE as high schools (public) and continuation high schools with active/pending status.

[d] The California High School Exit Examination (CAHSEE) passing rates for both the English Language Arts (ELA) and Mathematics (Math) portions of the exam are based on the March exam date for 10th grade students for 2011–12.

[e] 2011 Base Academic Performance Index (API).

[f] Communication with Los Angeles Unified School District (September 26, 2012).

[g] CAHSEE passing rates for Porterville Unified reflect a February exam administration date for 2011–12 due to lack of data for a March exam administration date.

In 2010, ConnectEd developed and implemented a pathway certification tool and process to assess the quality of individual pathways along several dimensions: pathway design,

engaged learning, system support, and evaluation and accountability. Certification is the means by which ConnectEd and the Linked Learning partners are establishing and supporting examples of programs that implement the Linked Learning approach at a high level of quality and fidelity, whether as part of this district Initiative or as individual schools or programs throughout California. Exhibit 1–2 lists that pathways have been certified as of August 2011. As of August 2012, 24 pathways in the nine Linked Learning districts had been certified (Exhibit 1–2).

Exhibit 1-2
Pathways Meeting Certification Criteria, 2011–12

District	Certified Pathways	School Types	Pathway Enrollment
Antioch Unified	Health Science and Medical Technology at Dozier-Libbey	Stand-alone small high school	499
Long Beach Unified	Architecture, Construction and Engineering Academy (ACE)	SLC in comprehensive high school[a]	245
	PEACE Academy	SLC in comprehensive high school	780
	Community of Musicians, Performers, Artists, and Social Scientists (COMPASS)	SLC in comprehensive high school	680
	California Academy of Mathematics and Science	Stand-alone small high school (regional magnet)	642
Los Angeles Unified Local District 4	Los Angeles School of Global Studies	SLC in comprehensive high school	360
	Los Angeles High School of the Arts	Stand-alone small high school	380
Oakland Unified	Life Academy of Health and Bioscience	Stand-alone small high school (CPA[b])	189
	Media Academy	Stand-alone small high school (CPA)	263
	Education Academy	Academy in comprehensive high school (CPA)	108
	Visual Arts and Academic Magnet Program (VAAMP)	Academy in comprehensive high school (CPA)	200
Pasadena Unified	Arts, Entertainment and Media Academy	Academy in comprehensive high school (CPA)	487
	Business and Entrepreneurship Academy	Academy in comprehensive high school (CPA)	383
	Creative Arts, Media and Design Academy	Academy in comprehensive high school (CPA)	236
Porterville Unified	Partnership Academy of Business	Academy in comprehensive high school (CPA, NAF[c])	203
	Engineering Academy	Academy in small high school (NAF)	228
	Multimedia Technology Academy	Academy in comprehensive high school (CPA, NAF)	233
	Partnership Academy of Health Science	Academy in comprehensive high school (CPA, NAF)	250
	Performing Arts Academy	Academy in comprehensive high school	250
Sacramento Unified	Technology Integration at New Tech	Stand-alone small high school	297
	Health Professions	Stand-alone small high school (magnet)	467
West Contra Costa Unified	Multimedia Academy	Academy in comprehensive high school (CPA)	313
	Law Academy	Academy in comprehensive high school (CPA)	206
	Engineering Academy	Academy in comprehensive high school (CPA, NAF)	182

Source: Communication from ConnectEd (August 29, 2012).

[a] SLC refers to "small learning community," sometimes called an academy.

[b] Designates pathways that are also a California Partnership Academy (CPA).

[c] Designates pathways that are supported by the National Academy Foundation (NAF).

Third–Year Evaluation Activities

In 2009, the Foundation commissioned the Center for Education Policy at SRI to conduct a rigorous, multiyear evaluation of the Initiative. This is the third annual report from the SRI evaluation. The evaluation is assessing district-level implementation of a system of Linked Learning pathways and analyzing outcomes for students participating in pathways in the funded districts. SRI is employing a multimethod research design that includes qualitative and quantitative data collection and analysis.

The following key research questions guide the evaluation:

- What structures, policies, and supports facilitate the implementation and institutionalization of a district-wide system of high-quality pathways, and what challenges do districts face in implementing such systems?
- How do districts support the implementation of pathways, and what challenges do pathways face in implementation?
- What are the educational experiences and outcomes for students participating in pathways?

This evaluation report draws on three rich sources of data: (1) qualitative data, including interviews with key district and school staff and focus groups with pathway students; (2) students surveys, including baseline surveys from eight districts and a follow-up surveys from six districts; and (3) for the student outcomes analysis, student-level demographic and achievement data provided by four of the districts that were most developed in their systems of Linked Learning and were able to provide data for the analysis. We provide an overview of these data sources here (see Appendix A for more detail about the data sources and analysis in this report).

Qualitative Data

The research team has conducted qualitative data collection in each of the Linked Learning districts, beginning in 2009 in the cohort 1 districts and in 2010 in the cohort 2 districts. Most recently, SRI researchers conducted a third round of site visits to each of the nine Linked Learning districts that included focus groups with pathway students. The research team analyzed the qualitative data within and across districts, and integrated information gathered from district and school staff interviews with ConnectEd coaches and other technical assistance providers, as well as the student focus groups and surveys, into the findings we present here (see Appendix A for information about pathway and respondent selection).

Student Surveys

Student surveys provide information about students' reasons for selecting pathways as well as their experiences in the pathways.

- In the six cohort 1 districts, we surveyed 9th grade pathway and comparison students in fall 2010, which was the fall of pathway students' first year enrolled in a pathway (and the fall of the equivalent grade level for comparison students).[3] Districts determined the pathway sample by nominating the pathways they thought were most likely to go through early certification. To sample comparison students, we identified classrooms of students in English courses that aligned with the proportions of honors or traditional English courses found in the pathways sampled.[4] We surveyed these same pathway and comparison students in the spring of 2012.
- We also administered the baseline survey to students in two of the three cohort 2 districts in fall 2012, to 9th graders in Montebello and 10th graders in Oakland.

Thus, survey data about pathway choice or selection come from 9th and some 10th graders in the eight districts where we conducted baseline surveys, while comparative data about the high school experiences of pathway and comparison students comes from the follow-up survey of mostly 10th and some 11th graders in five of the six cohort 1 districts.[5]

We only report on differences in responses of pathway and comparison students when they are statistically significant at the .05 level, suggesting they are real differences in the underlying student population and not only for respondents in our sample (see Appendix A for survey methods and response rates, Appendix B for technical documentation, and Appendix C for the survey instruments).

Student-level Demographic and Achievement Data

The evaluation relied on student-level demographic and achievement data from four districts—Antioch, Long Beach, Pasadena, and Porterville—to conduct the student outcomes analysis.[6] We requested data for the class of 2013 (students who started 9th grade in the 2009–10 school year) and the class of 2014 (students who began high school in 2010–11). These data allow us to provide a detailed picture of the demographic characteristics and prior achievement levels of pathway students compared with the district as a whole, as presented in Chapter 2 of this report. The data also allow us to examine 9th grade outcomes for the Classes of 2013 and 2014 and 10th grade outcomes for the class

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3 The cohort 1 baseline survey included 10th graders in two districts: West Contra Costa, where the entry grade for all pathways was 10th grade, and Sacramento, where two of the four pathways sampled started in 10th grade and thus an equivalent proportion of comparison students sampled were in 10th grade.

4 We sampled comparison students from the same school when there were sufficient numbers of students not enrolled in pathways. If not, the team selected comparison schools based on their similarity to the size, achievement level and demographics of the pathway schools. We avoided charter schools and schools with special themes or programs whenever possible. In cases where districts had implemented wall-to-wall pathways in all schools, we selected pathways or SLCs for comparison that were in the earliest stages of development or least aligned with the Linked Learning approach.

5 In West Contra Costa, we did not survey comparison students at follow-up because initial feedback from the district indicated greater than 50% attrition from the comparison sample. Thus we exclude West Contra Costa from the overall cross-district summaries from the follow-up survey because there are no comparison students from this district, but provide the pathway numbers when presenting district-level summaries.

6 The evaluation team received student-level data directly from Long Beach Unified School District. Data from the other three districts came through a third party, the Institute for Evidence-Based Change.

of 2013, adjusting for students' prior achievement and background characteristics, as discussed in Chapter 7 of the report.

Providing all the specific data elements needed for the analysis posed a challenge for the districts, which often house data elements in different data systems. Districts are just beginning to develop systems for flagging and tracking pathway students and for reporting data elements not previously captured, such as pathway enrollment and attendance. Given the gaps in data availability, the research team was unable to conduct some of the planned analyses. Readers should interpret the findings with some caution (see Appendix A for information regarding data availability in each district and our analytic approach).

Despite the data gaps, the ability to include an analysis of student outcomes is an important addition to this long-term evaluation. Our hope is that as the Initiative evolves, districts will be able to maintain more complete and accurate data, both to develop their own ability to check the progress of their students and examine the effectiveness of their pathways and to ensure the validity of the student outcomes component of the Linked Learning evaluation.

In estimating the effects of participating in a Linked Learning pathway on students' 9th and 10th grade outcomes, we used data for all students in each district rather than comparing pathway students' outcomes with those of a matched sample of students within each district. Specifically, to estimate a pathway effect for each outcome, we compared the predicted outcome for the average student in each district, adjusted for background characteristics or prior achievement, to the predicted outcome for this average student if enrolled in a certified pathway. See Chapter 7 and Appendix A for more detail about the methodology we used to analyze this extant student data.

Definition of Pathway Students by Data Source

By necessity, the meaning of the term "pathway students" varies by data source. In the analysis of demographic and achievement data from four districts, pathway students are defined as students enrolled in pathways that achieved certification by the end of the 2010–11 school year. Pathways in the survey sample were identified early in the Initiative by district staff, and are not perfectly aligned with those that were first to achieve certification. In some districts, we surveyed students in pathways that have yet to go through the certification process, and not those in pathways that achieved certification in the first or second year of the Initiative. As a result, when discussing survey results, the term "pathway students" describes students who participated in a group of pathways that includes programs that are in earlier stages of development toward the Linked Learning model. Finally, we conducted focus groups with students in pathways that were in most cases going through the certification process or had already achieved certification.

Report Overview

This report has two parts. We begin with an update on implementation of the core Linked Learning components and discuss student perspectives on their pathway experiences. Chapter 2 describes district policies around student recruitment and selection of pathways, and examines the composition of students in pathways. Chapter 3 discusses progress with the curriculum and instructional practices in pathways. Chapter 4 focuses on the development of work-based learning opportunities, and Chapter 5 assesses the supports available to students. In the second part of the report, we focus on student outcomes.

Chapter 6 discusses students' perceptions of the skills they have gained through their pathway experiences. Chapter 7 presents findings from the student outcomes analysis. Chapter 8 looks at students' post-high school plans. Finally, in the conclusion, we summarize major findings and implications from the 2011–12 evaluation.

PART I
LINKED LEARNING IMPLEMENTATION

Before examining how Linked Learning is impacting student outcomes—the skills students believe they have gained, our best estimate of how the pathway experience affects students' progress through high school, and their postsecondary plans—we first assess the status of the Initiative. How far have districts come in enacting the Linked Learning model? Specifically, to what extent have districts developed the four core components of rigorous academics, a core sequence of technical courses, work-based learning opportunities, and adequate student supports? To what extent have districts enacted policies and structures to support the access and equity goals of Linked Learning? And, importantly, how are students in pathways experiencing this innovative approach to high school?

In Part I of this report, we address these questions by providing an update on the implementation of Linked Learning three years in, drawing on interviews, site visits, and surveys we have conducted in all nine districts. We begin by describing how students learn about, select, and enroll in pathways and then examine the demographic composition of pathways that results from the interaction between district policies and these individual choices. We then turn to curriculum, instruction and assessment to gauge the extent to which teaching and learning in pathways has been transformed, both in terms of career relevance and academic rigor. We conclude Part I with a discussion of the final two components of Linked Learning, work-based learning and student supports. Throughout this section, we describe the considerable progress districts have made in implementing Linked Learning as well as the challenges they have faced, and highlight the student voice to provide a rich picture of how students are experiencing Linked Learning and what the Initiative means for them.

Chapter 2: Student Choice, Access, and Equity

Key Findings

- In districts with formal recruitment practices, a large proportion of pathway students first learned about their pathway from district-driven recruitment efforts. In contrast, in districts with informal recruitment practices, students typically learned about pathways through friends or family.
- In almost all districts with formal recruitment practices, a majority of pathway students cited the specific, themed focus and a strong academic reputation of the school as very important reasons for attendance.
- Certified pathways in Antioch, Long Beach and Porterville enrolled a lower proportion of English language learners, special education students and low-income students than did these districts overall, and these pathways also enrolled students with higher than average prior achievement levels; only in Pasadena was this trend reversed.
- District choice and recruitment policies may help explain why the characteristics of students in certified pathways differed from the district averages.

The Linked Learning District Initiative has a strong equity agenda. In theory, the Initiative aims to make pathways available districtwide to any student who chooses to enroll—a long-term goal as the number of pathways slowly grows. The assignment of students to schools and programs is an annual event that depends on district policies and processes around pathway recruitment and choice. Ideally, these policies and processes would build towards coherent districtwide recruitment and choice systems. Currently, though, the nine Linked Learning districts vary in their recruitment and choice policies and associated practices.

As the Initiative encourages districts to examine their assignment policies and consider any changes needed to address issues of equitable student choice, districts will need to consider *who* is attending Linked Learning programs and *how* they came to be there. To that end, this chapter provides context on district pathway recruitment and choice policies and describes the characteristics of students who choose pathways.

District Policies Driving Student Choice

Each Linked Learning district has an open enrollment policy for students to select a pathway option. However, districts vary in whether they have two key systems considered necessary for equitable student pathway access:

- **A *formal pathway recruitment system* where the district communicates all pathway choices to parents and students.** We classify districts as having formal recruitment practices when they have well-defined districtwide recruitment strategies to communicate with students about Linked Learning pathways. These strategies

typically include presentations on pathway options to middle school students and brochures or other multimedia describing each pathway. Districts that we classify as having informal recruitment practices generally have a decentralized system for recruitment, which requires each school or pathway to develop strategies for advertising their program and recruiting students to participate. This decentralized process can result in inconsistencies in the information students receive from each school or pathway.

- **A *districtwide choice system* that governs how students select and enroll in pathways.** We classify districts as having districtwide choice if they have a districtwide policy that requires all eighth grade students to make an *active* choice in selecting a high school and/or pathway to attend in ninth grade. We classify districts as having no districtwide choice in the absence of these criteria—for example, if active student pathway choice occurs within individual schools but not at the district level, or if only those students interested in enrolling in a pathway go through an application process. Students who do not actively make a choice get assigned to a neighborhood school or another school with available space.

Exhibit 2-1
District Choice Policies and Recruitment Practices[6]

In Exhibit 2–1, we array the Linked Learning districts by the presence or absence of a formal pathway recruitment system and a districtwide choice system. Two districts, Long Beach and Pasadena, have both of these systems in place at the district level, enabling all students to learn about the full range of Linked Learning pathways and requiring all students to make an active choice. In the remaining districts, one or both of the recruitment and choice processes is not yet centralized at the district level, limiting equitable student access to all pathways.

How Students Learned About and Chose Pathways

Across the Linked Learning districts, students reported that they first learned about their pathways from a variety of sources, including siblings, friends, middle school teachers or counselors, and/or presentations at their middle schools.[7] By individual district, some relationships are apparent between recruitment practices—specifically, the presence or

[7] LAUSD4 is broken into distinct geographic areas that have their own policies and practices on pathway choice and recruitment. In the Belmont Zone of Choice (BZOC) there is a formal choice system wherein students have access to all pathways. The other sub-districts (i.e., non-BZOC) have limited choice and pathway options within neighborhood schools.

absence of a formal districtwide recruitment system—and students' reports of how they first learned about their pathways and why they chose to attend.

The priorities that students cited in choosing their pathways align with how they learned about their pathway options.

In districts with formal recruitment systems, pathway students most frequently learned about their pathways from presentations and other district-driven recruitment efforts. In contrast, in districts with informal recruitment practices (where not all pathways engaged in structured outreach), students most frequently learned about their pathways from friends or family—limiting the district's ability to ensure that pathway information is accurate and consistent and to monitor equity issues. Students also reported choosing pathways for a variety of reasons. Student survey data reveals that nearly half of pathway students cited safety, a special theme/focus, and a strong academic reputation as very important reasons for attending their schools. [8]

By district, patterns of how students chose their pathways align with how districts advertised pathways and how students learned about their pathway options. For example, in most districts with formal recruitment practices, a majority of pathway students reported that a special theme or focus was a very important reason for attending their schools. A strong academic reputation was also a very important reason why a majority of pathway students attended their schools in three of the five districts with formal recruitment practices—Antioch, Long Beach, and Porterville. In these districts, where administrators have produced materials and organized events (e.g., informational meetings, choice fairs) explaining all of the district's Linked Learning pathways, it seems clear that many students valued district-provided information that helped them align their interests with the industry themes and academic expectations of available pathways.

Meanwhile, in those districts with informal recruitment practices—where students most often learned about pathways from friends or siblings—a majority of students did *not* identify their pathway's special theme/focus as a very important reason for attending. In fact, across the three districts with informal recruitment practices, no one reason stood out as very important in the choice process for a majority of the pathway students. This pattern suggests a link between how explicitly districts advertise pathways and the reasons pathway students choose to attend.

Characteristics of Students Who Chose Pathways

Linked Learning seeks to provide all students with equitable access to high-quality, certified pathways. Understanding which students choose pathways provides insight into how closely the profile of students attending certified pathways reflects the demographics of each district. Additionally, patterns that exist between data on student characteristics and district choice policies and recruitment practices illuminate how district policies affect equitable student access to pathways. Below, we look closely at profile of pathway students in Antioch, Long Beach, Pasadena, and Porterville, the four districts from which we received student demographic and achievement data for the outcomes analysis.

[8] For source and technical information, see Appendix B.

The demographic characteristics and prior test scores for students in certified pathways differed from the overall district proportions.

Exhibits 2–2, 2–3 and 2–4 show the percentage of special education students, English language learners, and Free and Reduced Priced Lunch-eligible students enrolled in certified pathways versus the districtwide proportions of those students from the same grade levels.

- **Across Antioch, Long Beach, and Porterville, certified pathways enrolled lower proportions of students with special needs and students of lower socio-economic status than the districts overall.** Similarly, on average, certified pathways in these three districts attracted and enrolled students with higher prior achievement on the 8th grade English language arts California Standards Test (CST) and 7th grade mathematics CST. Notably, not every certified pathway in these districts is systematically enrolling higher achieving students; in Long Beach and Porterville, trends differed across the certified pathways (see Appendix A).
- **In contrast, pathways in Pasadena enroll higher percentages of special education students, English language learners, and low-income students than the district overall**. This phenomenon in Pasadena is likely due to their efforts to develop pathways in lower performing schools with large populations of students with these demographics.

Exhibit 2-2
Special Education Students in Certified Pathways

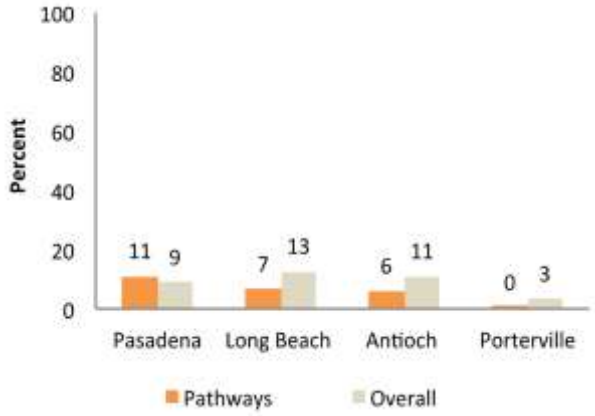


Exhibit 2-3
English Language Learners in Certified Pathways

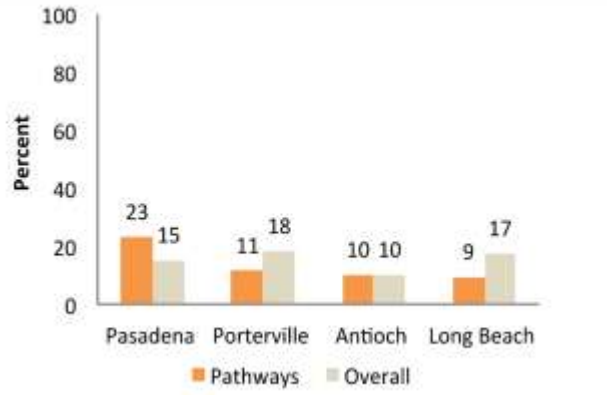
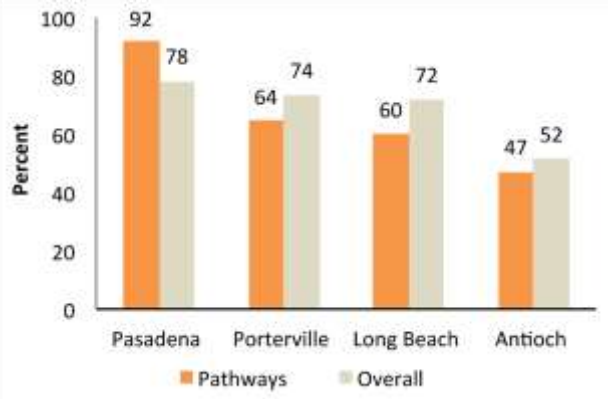


Exhibit 2-4
FRPL-Eligible Students in Certified Pathways



For source and technical information for Exhibits 2-2, 2-3, and 2-4, see Appendix A.

The nine Linked Learning districts first identified pathways to go through the certification process that were most developed according to the certification criteria established by ConnectEd and its partners. In some districts, these were pathways with established reputations that attracted high-achieving students. A more complete analysis of whether certified pathways are truly open and accessible to all students will be possible in coming years.

Districts' pathway recruitment, choice, and enrollment practices help explain *why* the profile of students in certified pathways differed from overall district enrollment.

In considering why higher-need students are underrepresented in pathways in three of the four districts from the outcomes analysis and overrepresented in the other, district policies around pathway recruitment and choice—and their implications for pathway enrollment—provides some insight:

- **In Antioch and Porterville, the absence of a districtwide choice system may lead to differential student engagement in the pathway outreach and recruitment process, and to differential student enrollment in pathways.** Although all four districts included in the outcomes analysis implement formal recruitment practices, Antioch and Porterville do not have districtwide choice systems that require every eighth grade student to select a high school. With only a subset of students choosing to apply to certified pathways in these two districts, pathway applicants could differ from their peers in ways that are not evident from the demographic and achievement data we collected (e.g., higher motivation, parents who are more involved in their schooling). Furthermore, qualitative data from Antioch and Porterville demonstrate that when not all students are required to select pathways, not all students engage with the information communicated through a formal recruitment process. For example, a district administrator in Antioch shared that only a third of the district's 1,400 eighth graders signed up for information nights to learn about high school pathway options. As one principal pointed out, "[Pathways are] open and accessible, but are students with special needs applying? We don't have an accurate representation of a community of students with these special needs. The school has been so successful. Its reputation is very rigorous, and a lot kids are scared to apply there."
- **In Long Beach, selective pathway entrance requirements may influence the composition of pathways relative to the district at large.** Although Long Beach has districtwide choice as well as formal recruitment, all of their certified pathways all have selective entrance requirements (e.g., minimum grade point average). Given these requirements, pathway student demographics logically may differ from the district enrollment on the whole, as fewer students from at-risk demographic categories may be qualified to apply, and still others may be intimidated by the academic requirements.
- **In Pasadena, where many pathways were developed in lower-performing schools, pathways enroll higher proportions of low-income, English Language Learner, and special education students.** Pasadena has both formal recruitment and districtwide pathway choice systems. Further, more than half of the current pathways in Pasadena are in lower-performing schools. This helps explain the higher proportions of special student populations enrolling in certified pathways relative to overall district enrollment.

Districts' Efforts to Improve Pathway Access

Without formal systems for pathway recruitment and choice, districts run the risk of certain groups of students—such as those who are more motivated or those with more family support—enrolling in pathways at disproportionately high rates. Such enrollment patterns run counter to the Linked Learning objective of ensuring all students have equitable access to the pathways that interest them. Robust districtwide recruitment and choice systems can require far more substantial and coordinated effort than the informal school- or pathway-specific processes that have been the norm in certain districts. Some districts without formal recruitment and/or choice systems are beginning to recognize the advantages of these systems and are taking steps to implement them.

Districts have started to streamline their recruitment practices and choice policies in order to improve students' pathway awareness and access.

According to interview data, administrators from many of the Linked Learning districts are mindful of the connections between choice, recruitment, and student access to pathways. Some districts also recognized that informational meetings and brochures may not be enough to make students aware of their career choices. As one Linked Learning Director stated,

> We have to develop ways to build awareness while they are in middle school. Just visiting them and setting up a table for them on back to school night or bringing them on a school tour is just not adequate. Eighth graders haven't really wrestled with the realities about having to make decisions about their initial vocations. All of this points to the need to doing a better job around career awareness and pathway awareness in our middle schools. It's a big challenge we have to devote more energy to next year.

Many districts also have been actively working to improve their outreach to middle school students so students can make informed decisions about their pathway selection based on their career interests. For example, West Contra Costa created an internal coach position for middle school guidance counselors to improve middle school career exploration. Montebello began facilitating a "Day in the Life" event at each of their pathway schools to provide middle school students with the opportunity to spend a day in a pathway engaging in project-based learning activities. These and similar outreach efforts could help to improve all students' access to information about their high school pathway options.

Additionally, some districts are attending to access and equity needs specific to special populations. For example, because smaller schools and pathways often do not have the resources to provide supplemental services and instruction to meet special learning needs, students with special needs can be limited in their enrollment choices. To address this challenge, district officials in Long Beach created an access and equity subcommittee of their Expanding Pathways Implementation Council, which is the district's broad-based coalition comprised of educators from the district and local higher education institutions. This subcommittee developed a rubric to guide the integration of special education students and English language learners into pathways and other small learning communities.

Implications

The Linked Learning equity agenda remains a work in progress. The actions districts take to structure pathway choice and access help determine which students choose to apply to and enroll in pathways. As we have described, different district policies either facilitate or hinder open and equitable access to certified pathways. As districts work to make Linked Learning pathways accessible for all students, district and pathway personnel will need to consider how their choice policies and recruitment practices influence student pathway selection and enrollment. No matter what their pathway recruitment and student choice policies are, districts need to remain vigilant and carefully monitor enrollment patterns, particularly for English language learners and special education students. In the coming years of the evaluation, it will be instructive to see whether districts that move towards more formal recruitment and choice systems produce pathway enrollment patterns that more closely approximate the district's demographic make-up.

Chapter 3: Curriculum, Instruction, and Assessment

Key Findings

- ConnectEd's increased attention to pathway curriculum, instruction, and assessment has led to positive momentum in these areas across the nine Linked Learning districts. District and pathway staff are expanding their focus from making curriculum relevant and engaging to also infusing rigor.
- Pathways have made progress towards developing interdisciplinary projects, but pathway instruction is not yet broadly and deeply integrated beyond these projects.
- Pathway students explained that they appreciate project-based learning because it reinforces content within and across classes and engages them in their coursework. Between projects and other integrated instruction, pathways are starting to help students make connections across their classes, interests, and future plans.
- District and pathway staff are discovering that it takes years to build aligned curriculum, student-centered instructional approaches, and performance-based assessments that are rigorous and authentically connected to the pathway theme.

Ultimately, improvement in student outcomes will come from changes in the ways that teachers and students interact in high school classrooms. Lack of direct attention to teaching and learning has been one of the most intransigent problems in numerous reform initiatives, with attention to structural changes often far exceeding attention to changing to the way teachers and students approach course content. In contrast, the Linked Learning District Initiative shows great promise because of its attention to these issues—with its conceptual focus on integrated curriculum, authentic assessment, and rigorous student-centered instruction, but more importantly with its intention to address these issues relatively early on in the implementation work.

In previous reports, we focused on the efforts that Linked Learning districts and pathways have made, and are continuing to make, to set up the policies and structures that facilitate these types of instructional experiences for students. During the past year, we observed increased attention in the districts and pathways to the instructional components of Linked Learning relative to previous years, with intensive focus and support from ConnectEd and its Linked Learning partners. This chapter reports on the work to develop engaging, interdisciplinary curricula and aligned performance-based assessments and to improve instructional practices. It also describes students' experiences with integrated, project-based learning.

Changing Teaching and Learning

Over the past year, ConnectEd has intensified its focus on the instructional components of Linked Learning. ConnectEd is collaborating with its Linked Learning partners, including the Stanford Center for Opportunity Policy in Education (SCOPE), the Los Angeles Small Schools Center (LASSC), and the New Teacher Center, to support this work in the nine Linked Learning districts. Staffs in the Linked Learning districts and pathways are paying more attention than in previous years to these components. The coaching, professional development, guidance, and other supports delivered to the districts have an increased focus on instruction.

ConnectEd's increased attention to pathway curriculum, instruction, and assessment has led to positive momentum in these areas across the nine Linked Learning districts.

Across the participating districts, we observed an increased familiarity with—and attention to—pathway curriculum, instruction, and assessment during the 2011–12 academic year. Previously, district and pathway staff had reported that they felt overwhelmed and confused when they tried to understand the many components of the Linked Learning approach and the policies and structures needed to implement them. They felt there were too many objectives to address all at one time, which made it difficult to set priorities for implementation. Consequently, they have spent significant time since the start of the Initiative setting up policies and structures to support Linked Learning (e.g., hiring staff, revamping master schedules) with less focus on improving teaching and learning. While these structural changes have been necessary, educators involved with Linked Learning have known that what happens in the classroom must ultimately become the heart of the pathway experience for students.

> *What happens in the classroom must ultimately become the heart of the pathway experience for students.*

District and pathway staffs, as well as coaches, in several districts, appreciated ConnectEd's emphasis on teaching and learning, especially the clarity of focus and improved communication. They felt were more prepared than in previous years to grapple with and delve more deeply into the academic component of Linked Learning. In most districts, district staff along with their external coaches, are regularly reinforcing this more tightly defined set of priorities with schools and pathways. As one pathway coach described, "I think we're conveying the message to them, and they're hopefully feeling a little less stretched… I think the teachers really do need to know that the work is about increasing student buy-in and achievement, and once we talked at that level, they bought in more."

District and pathway staffs are expanding their focus from making curriculum relevant and engaging to also infusing rigor.

The rhetoric of Linked Learning (and of many other high school reform initiatives throughout the nation) embraces the terms "rigor" and "relevance" as descriptors for the kind of desirable teaching and learning that will ultimately improve student outcomes. According to ConnectEd, "students should be engaged in inquiry-based learning

contextualized in real-world applications," through rigorous academic and technical content that is integrated and contextualized in real-world applications.[9]

Thus far, pathways have thus far largely focused on developing integrated curriculum, which by itself is challenging to create and implement thoughtfully. Interviewees observed that changing instructional practice—especially while building in connections across subject areas—is especially demanding. Across many districts and pathways, the prevailing sentiment was that Linked Learning is starting to influence student engagement (perhaps through increased curricular relevance), but has not yet influenced the rigor of the academic and technical content at the levels that would be expected to fully prepare students for college and careers. For example, the Linked Learning Director in one district observed that "the more immediate effect… is kids are more actively engaged… relevance they're grappling with and moving forward, but rigor continues to be difficult to move forward." Similarly, a pathway teacher in another district asserted, "We've seen some growth, I think, in the sense of student buy-in… we've seen growth with engagement, which counts for a lot… but not yet with student achievement."

Having focused on making curriculum more relevant and engaging to students, district and pathway staff members are beginning to take on the challenging work of shifting instructional practice to be more student-centered and rigorous. As we describe later in this chapter, teachers and pathway leads—with direction from district officials and coaches and external professional development providers—are beginning to develop and implement authentic assessments and inquiry-based instructional techniques designed to help students engage with more rigorous content. Interviewees acknowledged that this work is time-intensive but important.

One key strategy districts are using to improve rigor in pathways is to explicitly align curriculum, instruction, and assessment with pathway student learning outcomes.

One key strategy districts are using to improve rigor in pathways is to explicitly align curriculum, instruction, and assessment with pathway student learning outcomes. Districts, and pathways within districts, are at various stages of trying to develop district graduate profiles and/or pathway student outcomes and then aligning these outcomes with pathway curriculum, instruction, and assessments. Interviewees described this process as important for successful incorporation of rigor into pathway teaching and learning because it helps teachers understand the level at which they will need to prepare students to perform. One pathway coach explained that teachers were initially resistant to developing pathway outcomes, but became highly invested once they understood how clarifying pathway outcomes would align and focus their other efforts related to pathway curriculum and instruction:

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[9] ConnectEd. *Academic Curriculum*. Retrieved from http://www.connectedcalifornia.org/curriculum/academic

> It has been interesting to see [pathway leads] move from 'this is another hoop we have to jump through' to something more thoughtful…I saw light bulbs going off, that oh, if we do these, if we develop these pathway outcomes, then we can start developing integrated projects that lead to these, and we can figure out how to map our curriculum so that we have these benchmarks that make sense. Everything started to come together.

Integrated Curriculum

A critical component of the Linked Learning Initiative is the extent to which the pathway theme is infused throughout a student's academic and co-curricular experiences. Linked Learning aims to help students understand how the theme is applied across content areas while reinforcing their understanding of each individual content area. According to ConnectEd, "Integrating technical and academic content allows students (and teachers) to explore connections in depth—and ultimately deepens student understanding and makes learning more exciting and relevant."[10]

To this end, for the past three years, pathway teams across the Linked Learning districts have invested significant time and effort into developing integrated curriculum, initially focusing on integrating academic subjects with the career and technical education component of a pathway. Ideally, integrated curricula should reach across all subject areas and be aligned with the pathway's theme. ConnectEd materials go into further detail about how this should be achieved: "Lessons that are delivered by a multidisciplinary team and make meaningful connections for students across subject areas. English, mathematics, science, social studies, and career technical teachers collaborate to plan and present these lessons that center around a career-themed issue or problem."[11]

Although there are numerous strategies that pathways use to integrate curriculum—through projects as well as daily instruction—pathways require considerable time and effort to implement these strategies thoughtfully. Our interviews with pathway staff, district staff, and ConnectEd coaches indicate that at this point in the Initiative, integrated curriculum within a pathway program of study typically constitutes a few projects per year that tie content from a career technical education (CTE) course with one or two other subject areas, with pathways beginning to engage in the important but time-consuming work to expand the reach of integrated curriculum.

Pathways are making progress towards developing interdisciplinary projects, but pathway instruction is not yet broadly and deeply integrated beyond these projects.

As we have reported previously, many pathways have developed interdisciplinary projects across two or three subject areas; at least some pathways have made good headway in developing one to two interdisciplinary projects per grade level. Projects ranged in the number of classes included and in the depth of integration. Additionally, the large majority of projects were stand-alone projects: these projects served as a vehicle for students to learn

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[10] ConnectEd. *Technical Curriculum.* Retrieved from http://www.connectedcalifornia.org/curriculum/technical

[11] ConnectEd. *Integrated Units.* Retrieved from http://www.connectedcalifornia.org/curriculum/integrated_units

a new set of information from multiple angles, but often did not draw upon previous coursework or project work or build towards subsequent coursework or project work. In numerous pathways that we visited this past year, staff explained that they have been working to develop projects that pulled in more subject areas; some pathways are also working to connect projects more directly to other academic content.

Students' characterizations of these projects illustrated their teachers' varying levels of success in making authentic connections. In a few pathways where students were less enthusiastic about their projects, teachers had reported that they felt pressure to more broadly integrate projects and found this effort challenging; students seemed to pick up on this pressure, reporting that the connections between content areas within the projects felt contrived or otherwise lacking.

Further, as one district coach noted, integrated curriculum is "not rich and deep yet," because it is project-focused and not part of the daily teaching and learning practice. In numerous districts, interviewees (including teachers, coaches, and administrators) pointed out that many pathways seem to be focusing on project-based learning to the exclusion of other opportunities for integrated instruction.

Integrated curriculum is "not rich and deep yet" because it is project-focused and not part of the daily teaching and learning practice.

Several of these interviewees explained that some pathway teachers are beginning to notice opportunities for authentic cross-curricular alignment outside of semester projects and to discuss these opportunities with their colleagues. Specifically, colleagues across multiple content areas are starting to work together to identify places in the curriculum where they can cover related content and can time this instruction so that it coincides and helps reinforce that content for students. For example, a CTE or science teacher might cover the technical aspects of a given topic as it comes up in a social studies unit or in a book that students are reading for English (e.g., forensics in a law pathway, epidemiology in a health pathway). Some pathway leads and coaches are also working with their teachers to identify such opportunities.

At this stage of the Linked Learning Initiative, not many teachers have yet been able to work these connections into their instruction. Time during the academic year is limited and the focus has been on developing projects. However, the trend is promising. As one pathway lead described, "It's a constant struggle for all of us to build the relevance and examples in… Teachers were feeling too pulled over to the big project-based learning stuff… but then [our district's Linked Learning director] came in and said, 'Don't miss the low-hanging fruit,'" describing other obvious places to align curriculum.

Pathway students appreciate project-based learning because it reinforces content within and across classes and engages them in their coursework.

In our follow-up student survey, the vast majority of pathway students (86%) reported that their teachers had asked them to work on a project that lasted for two weeks or longer at least a few times during the 2011–12 academic year.[12] The large majority of the student

[12] For source and technical information, see Appendix B.

focus group participants across all nine districts were able to speak with considerable detail about projects they had participated in. Students were enthusiastic about the value of those projects, citing several ways the projects helped them better grasp course content:

> *I like that it's hands-on and we get to apply what we're learning and [that we're] seeing the real picture.*
>
> *– Pathway student*

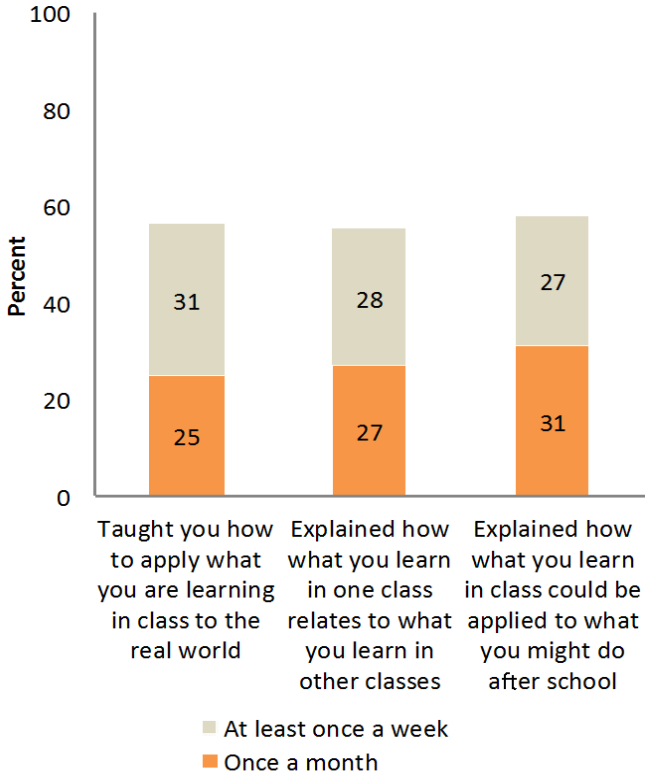
- **Deeper understanding.** Many students explained that the hands-on nature of projects helped them more thoroughly understand the academic content they were learning. Students were especially excited about those projects that built upon course content from multiple years.
- **Broader and deeper connections across content areas.** Students also observed that projects helped them make connections between different content areas, reinforcing what they were learning by showing it through different perspectives. Students whose teachers found meaningful, relevant ways to pull in content from a broad range of courses spoke highly about the value of their projects.
- **Increased engagement.** Some students focused on the increased level of engagement fostered by the hands-on nature of project-based learning.

As a pathway student said, "I like that it's hands-on and we get to apply what we're learning and [that we're] seeing the real picture."

Between projects and other integrated instruction, pathways are starting to help students make connections across their classes, interests, and future plans.

Student survey data suggest that pathways still have work to do to ensure that *all* pathway students can regularly benefit from cross-curricular connections, but pathways are making progress in this area. A majority of pathway students reported that their teachers regularly help them connect and apply what they are learning in one course to other courses and to the "real" world. Specifically, students reported that at least once per month, their teachers explained how what they are learning could be applied to what they learn in other classes, to the real world, and to what they might do after high school. When we restricted the analysis to students whose teachers made these connections at least once per *week* – a far higher threshold, and one more closely aligned with what might be considered Linked Learning best practices – the

Exhibit 3-1
Pathway Students Reporting How Frequently Their Teachers Made Connections to Academic Content



For source and technical information, see Appendix B.

frequency was considerably lower. Less than a third of pathway students stated that their teachers made each of these connections once a week or more during the 2011–12 school year (see Exhibit 3–1).

Performance-Based Assessments

Another key component of the Linked Learning approach is the frequent use of authentic, or performance-based, assessments of student work. The Linked Learning certification rubric states that authentic assessment occurs when "pathway teachers individually and collectively use a variety of formative and summative assessments to gain an accurate understanding of student learning. Assessments include opportunities for students to demonstrate deep content learning and the application of skills through authentic products and performances."[13]

Pathway teachers are beginning to develop performance-based assessments, but these are not yet widely used or consistently aligned with pathway outcomes. Several interviewees observed that thoughtful assessment tools aligned with student learning outcomes are critical, but time-consuming to develop quickly. A pathway coach explained that, although he "think[s] people are open to it and interested in it… the challenge is carving out the time as a team to create those scoring tools and [assessments]."

Performance-based assessments—at this point typically connected to projects—help students understand the most important components of what they are learning.

The performance-based assessments that are in place are aligned with the pathway projects. In focus groups, students described many examples of their teachers walking them through rubrics to help them understand the components of the rubric, the objectives of the project, and individual and group roles and responsibilities. Students told us about ways in which they valued the assessments and associated rubrics:

- **Focus on skills as well as content.** Students appreciated that the rubrics typically require them to be assessed on more generalizable ('soft') skills as well as academic content.
- **Clarity about expectations.** Students thought grading in general was fair because the rubrics were clear, helping students understand what content and skills teachers had identified as most important. In a health pathway, a student explained, "Teachers talk about rubrics—[they are] cumulative over what you have learned in every class, so that the final project has pieces from every class. Before each project, they talk about the rubric and we ask questions and get clarity. Different parts of each project count for each course."
- **Sense of investment.** In some cases, students helped create the rubrics, which helped them become more invested in their learning.

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[13] ConnectEd. (2011). *Rubric for Linked Learning Pathway certification and continuous improvement*. Berkeley, CA: Author.

Over half of pathway students (54%) reported that they had received an assignment that counted towards their grade in two or more classes at least a few times during the 2011–12 academic year.[14] The frequency of these cross-course projects and other assignments suggests numerous logical opportunities for pathway teachers to continue developing and refining authentic assessments, especially given the value that students place on these assessments.

Student-Centered Instruction

In addition to changing *what* teachers are teaching, Linked Learning aims to change *how* teachers deliver instruction in order to foster student engagement and higher-order thinking skills.

Although teachers in most pathways are being introduced to more inquiry-based, student-centered instructional strategies, teachers need more time and coaching to feel comfortable incorporating these instructional techniques into their everyday teaching.

Across the participating districts, interviewees confirmed that pathway teachers have become more familiar over the past year with the concepts of inquiry-based instruction as defined in the ConnectEd certification rubric. Interviewees attributed this familiarity to increased exposure from ConnectEd, coaches, and partners, who have been working with districts and pathways to introduce new instructional models and present aligned strategies.

However, in most cases, incorporation of student-centered instruction tends to be restricted to no more than a few teachers or classes rather than pathway-wide, let alone districtwide. As one pathway coach described, "Progress towards more student-centered instruction] is very uneven. Some teams in some pathways are making progress… [But] even within a [pathway] it varies from teacher to teacher. Some teachers are fairly effective at it and are figuring out ways to teach differently…" Common barriers to broader incorporation of student-centered instruction include teachers' time and willingness to adjust to new instructional techniques, as well as concerns that inquiry-based instruction is incompatible with pacing guides in classes under heavy accountability pressure.

Ongoing Development of Pathway Academic Components

District and pathway staff are discovering that it takes years to build aligned curriculum, student-centered instructional approaches, and performance-based assessments that are meaningful and rigorous and connected to the pathway theme. Indeed, interviewees in pathways where some of these components are farthest along explained that their success was a result of years of thoughtful iteration and refinement, requiring long-term investments in professional development for pathway staff. Intensive and sustained professional development in these areas is taking place more systematically across many districts and pathways.

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[14] For source and technical information, see Appendix B.

Pathway teachers access professional development on curriculum from many sources; they particularly value time to work with colleagues on their own curriculum rather than being shown exemplars developed by others.

Pathway leads and teachers require dedicated time, often during the summer, to make substantial progress in developing and refining curriculum, instructional strategies, and assessments aligned with Linked Learning objectives. Pathway teachers rely on a combination of established curricula, collaborative planning with their fellow pathway teachers, and coaching support. When pathways are part of a broader network (e.g., Project Lead the Way, the New Tech Network, National Academies Foundation), pathway leads and teachers typically use the curriculum developed by that network as a foundation for at least some of their cross-curricular projects. Teachers in such pathways also frequently take advantage of the professional development that these networks offer (e.g., New Tech professional development on project-based learning) when it aligns with Linked Learning principles. In other pathways, pathway leads and teachers typically turn to a range of sources for curriculum support. Pathway teachers tend to rely heavily on their peers, with additional support from coaches, district staff members, advisory board members, and external professional development providers. Staff in many districts expressed particular enthusiasm for the coaching that they have received from external providers to develop interdisciplinary projects and integrate instruction. Pathway teachers value support most when the support providers meet individual pathways where they are and when pathway teams have time to process what they have learned and develop their own, rather than just looking at models.

It takes intensive and sustained effort for pathway teachers to create interdisciplinary units, map and align curriculum, develop meaningful performance-based assessments, and develop comfort with new instructional strategies.

Interviewees frequently reported that it takes intensive and sustained effort for pathway teachers to create interdisciplinary units, map and align curriculum, develop meaningful performance-based assessments, and develop comfort with new instructional strategies. Teachers then need additional time to revisit and refine this work after trying it out in the classroom. Pathway teacher teams explained that they appreciated professional development opportunities that included a combination of structured training or coaching on a given topic *and* time to work together to build tools or structures associated with that topic (e.g., training on project-based learning along with time for a team to develop their own integrated project or projects), which is often only feasible during the summer. To this end, numerous districts have provided pathway teams with significant, compensated time over the summer to work together in one or more of these areas. Pathway teachers and leads tend to value this time highly, as it can be difficult for these teachers to find time during the academic year to move beyond their numerous day-to-day demands in order to collaborate on these topics. As one teacher explained when describing the drawbacks of training during the academic year, "A lot of times, [training] has been done on webinars, people explaining [things] and walking us through models. That's not when you actually get your [product] done… there is a lack of time to actually go and work on those."

Implications

Pathway students expressed enthusiasm about the pathway-specific instructional components that they have received thus far. However, pathways have made different levels of progress towards creating fully integrated projects, assessments, and day-to-day curriculum. Students in the more advanced pathways spoke with particular excitement about the content and value of the instruction that they are receiving. Given the objective of providing all students in Linked Learning districts with equitable access to pathways and to desired pathway outcomes, district staff, pathway staff, and coaches will need to continue efforts to build quality instructional experiences in pathways on a *systemwide level* to ensure that students receive similar opportunities regardless of the pathway that aligns with their interests.

There is no doubt that changing the nature of teaching and in high schools will be a long-term endeavor requiring long-term investment. ConnectEd and its partners are taking on this challenge earlier than is often seen in other major high school reform initiatives. While maintaining a firm commitment to and focus on the teaching and learning aspects of this work is critical, it will also be important for ConnectEd, its partners, and the Foundation to acknowledge and communicate to key stakeholders that it may take years of sustained effort to achieve the desired pathway student outcomes. This communication may be especially important for district and pathway staff to hear, given that interviewees in several districts identified a tension between building up interdisciplinary curricula and student-centered instruction and performance-based assessments quickly—often in response to perceived pressure to satisfy criteria on the certification rubric—versus building these components thoughtfully and sustainably.

Chapter 4: Work-Based Learning

Key Findings

- In many districts, creating the appropriate breadth and depth of work-based learning opportunities is a challenge due to inadequate staffing. Pathway leads or their designees consistently described the work of developing these opportunities as extraordinarily time-consuming on top of their teaching loads.
- To the extent that students have received work-based learning opportunities, they found them relevant and valuable and wanted more of them. They reported that these experiences broadened their perspectives on the career options available, taught them relevant career and professional skills, and showed them the connection between academic content and real-world applications.
- Although work-based learning opportunities are connected to the pathway theme, most pathways have not yet successfully made strong connections between these experiences and students' academic and technical coursework.

As one of the four core components of the Linked Learning approach, work-based learning is designed to be "coordinated, sequenced, and scaled" such that "all pathway students participate in and have access to a continuum of high-quality, real-world learning experiences. The sequence culminates in an extended, intensive work-related experience that may occur in a workplace, in the community, at school, and/or when using virtual technology."[15] It is the integration of the academic and technical curriculum with work-based learning that makes the Linked Learning experience so unique for students.

Although districts and pathways are still working to develop a continuum of work-based learning opportunities for students—especially at the more advanced grade levels—we have observed considerable progress in this area over the last three years. In several pathways, work-based learning opportunities better align with the pathway theme and generally build upon one another from grade to grade (i.e., from guest speakers and mentors in the lower grades to job shadows and internships in the upper grades). However, a number of the issues and challenges that districts have faced, and that we have discussed in previous reports, remain in place.

In this chapter, we discuss pathway progress towards developing a continuum of work-based learning opportunities, explore pathway students' experiences with work-based learning, and then turn to how work-based learning aligns with pathway academic and technical curriculum.

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15 ConnectEd. (2011). *Rubric for Linked Learning Pathway certification and continuous improvement*. Berkeley, CA: Author.

A Work-Based Learning Continuum

Pathways are charged with building work-based learning experiences that are coordinated, sequenced, and scaled; the objective is that students progressively gain more exposure to and experience with the pathway theme as they build towards a culminating experience such as an internship. While many pathways are making viable progress in developing an array of work-based learning experiences that align with the academic and technical components of the pathway theme, one of the biggest challenges that the Initiative continues to face is the need to broaden educators' perspectives and understandings of what—*beyond* internships—constitutes work-based learning. Many educators remain unclear about the broad range of activities that can provide students with viable experiences that prepare them for future careers. ConnectEd has developed a Career Practicum guide (June 2011) that aims to broaden educators' perspective as they work to develop more cohesive systems around work-based learning, but in districts and pathways, internships continue to be the most highly valued of the work-based learning experiences.

In many districts, creating the appropriate breadth and depth of work-based learning opportunities is a challenge due to inadequate staffing.

As pathways work towards developing a continuum of work-based learning experiences, pathways staff need help to organize and manage work-based learning opportunities. For the participating districts, developing systems and structures to support work-based learning is a new endeavor. Several districts have hired district-level work-based learning coordinators to support pathways in their efforts to develop relationships with industry partners and identify work-based learning opportunities for students. Still, in the majority of districts, pathway staff (typically the lead teachers) continue to be charged with primary responsibility for securing and setting up pathway-specific work-based learning opportunities, such as speakers, mentors, and internships, while district-level work-based coordinators are focusing on setting up broader (e.g., districtwide) systems and structures. Pathway leads or their designees consistently described this situation as highly frustrating and challenging—they find this work to be extraordinarily time-consuming, especially given their teaching loads. As a pathway lead reported:

> *I'm really a teacher. My job is to teach. Having time to develop internships is beyond the scope of one day. It is very difficult to get off at 3 and be able to get to a business at 4 and have them be excited to talk to you about internships. That is what I could use more support in…*
>
> *–Pathway lead*

> The biggest problem for me now is that I'm really a teacher. My job is to teach. Having time to develop internships is beyond the scope of one day. It is very difficult to get off at 3 and be able to get to a business at 4 and have them be excited to talk to you about internships. That is what I could use more support in is having people do that for us….I need you to knock on the doors, make the phone calls, find out who already does high school internships so I can take it from there.

In reality, no individual person has the time it takes to do the legwork in developing relationships with industry partners, locating work-based learning opportunities, scheduling and setting up the experiences, and following up with site supervisors and students. Pathway teachers are already stretched thin due to budget challenges and

pathways' ongoing (and time-intensive) efforts to build capacity in several areas at once. At the same time, an individual district-level coordinator may not realistically be expected to engage in these detailed and time-consuming efforts on behalf of numerous pathways at once while also attending to larger district-level work-based learning structures and systems. Furthermore, district work-based learning coordinators, especially in larger districts, may not be tied closely enough to the individual pathways to understand the outcomes the work-based learning experiences are supposed to support

Developing a continuum of work-based learning is essential for pathways in fulfilling the Linked Learning mission. However, pathways struggle with finding the time and resources to develop partnership and create meaningful opportunities for students. Thoughtfully designed systems of support for work-based learning at the district-level could provide pathways with the needed support.

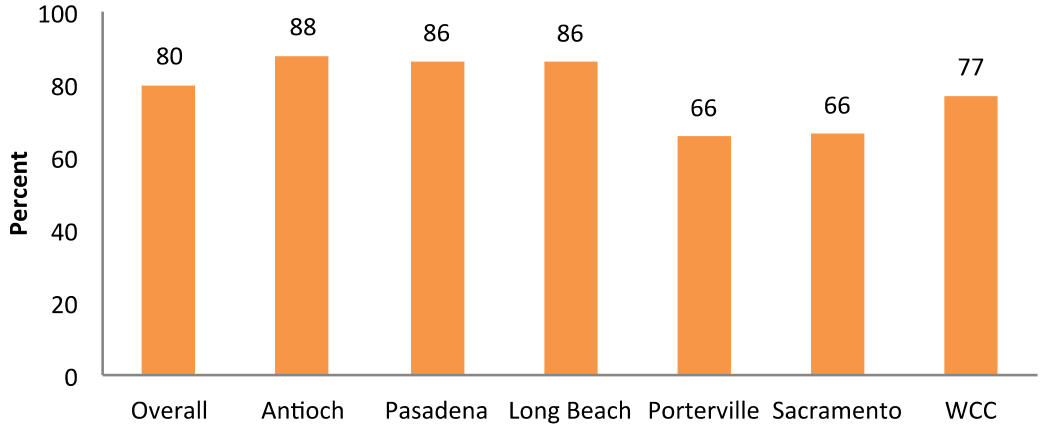
How Pathway Students Experience Work-Based Learning

Although it is a challenge for districts and pathways to organize a continuum of meaningful work-based learning opportunities, students clearly value these opportunities. A better understanding of how students have experienced work-based learning, and what they have gained from their experiences, reinforces the need for the systems and structures that allow every student to participate fully.

The vast majority of pathway students participated in work-based learning opportunities.

Pathway students reported engaging in a variety of experiences that fall along the continuum of work-based learning. As Exhibit 4–1 illustrates, 80% of pathway students reported participating in at least one work-based learning experience during the 2011–12 school year. The percentages stand out Antioch, Pasadena, and Long Beach.

Exhibit 4–1
Pathway Students Participating in Any Work-Based Learning Activities in 2011–12



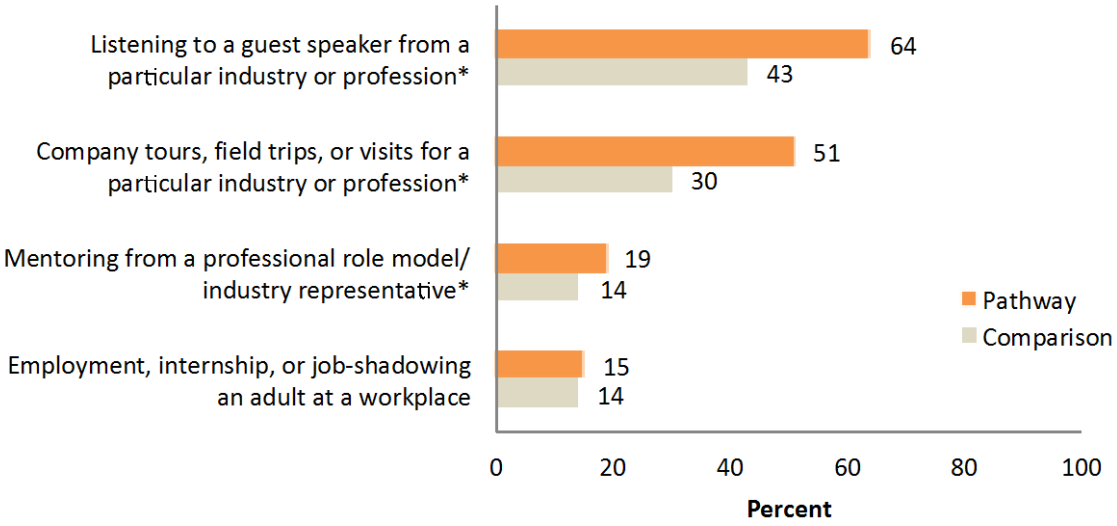
For source and technical information, see Appendix B.

Those three districts provide varying levels of district support to pathway staff to create work-based learning opportunities. Antioch in particular has been held up as a model for its centralized work-based learning structures and systems. The district has hired three part-time work-based learning coordinators to assist each pathway in arranging work-based learning opportunities for students. These work-based learning coordinators all provide administrative support (for example, scheduling and making sure the paperwork is completed for guest speakers or for field trips). They also provide specialized support to all pathways (e.g., one brings in college representatives and arranges college field trips, while another is developing a database of all industry and community partners). These supports in Antioch for pathway students may explain why a larger proportion of pathway students than comparison students report participating in at least one work-based learning experience. In Porterville, two thirds of pathway students reported participating in work-based learning. While the district also provides supports to pathway staff to create work-based learning opportunities for students, its rural location makes it more difficult to locate such opportunities and has required more creative approaches (e.g., virtual apprenticeships).

Students in the 10th and 11th grades participated in work-based learning that includes guest speakers and industry-specific field trips.

According to the work-based learning model developed by ConnectEd, students should progressively gain more exposure to and experience with the pathway theme as they build towards a culminating experience such as an internship. Thus, it is important to examine not just overall participation levels in work-based learning, but the type of experiences students report. Along the continuum of work-based learning opportunities, 9th and 10th grade students gain initial exposure to a pathway's career theme through activities such as hearing from industry speakers and taking tours of industry offices. Indeed, students responding to the follow-up survey (which was administered to 10th grade and some 11th grade students) most frequently reported engaging in activities on the earlier end of the work-based learning continuum (see Exhibit 4–2). Pathway students participated in these early work-based learning activities at significantly higher rates than their non-pathway counterparts. As pathways typically reserve the more intensive workplace placements (e.g., job shadows, internships) for 12th graders, we would expect that participation rates in these types of activities would be considerably lower among the 10th and 11th grade survey respondents.

Exhibit 4–2
Pathway and Comparison Students Participating in Specific Work-Based Learning Activities in 2011–12



*Difference between pathway and comparison students is statistically significant at $p < 0.05$.

For source and technical information, see Appendix B.

Conversations with students during focus groups affirm that pathways have made progress towards developing a continuum of work-based learning opportunities, and that the early opportunities help prepare them for their culminating experiences. For example, in Oakland, students discussed the importance of first learning "soft" professional skills, such as communication, collaboration, and organization skills, in addition to industry-specific subject-matter expertise such as basic medical terminology, before participating in internships. Similarly, in Antioch, students in 10th grade discussed the importance of learning how to write resumes and dress professionally, skills that are important precursors to any internship or job-shadow. Many pathways are building students' professional skills in 9th and 10th grades in preparation for more rigorous work-based learning experiences during their senior year. As a pathway student reported, "I took information from guest speakers to [my] internship." Another said, "[We] use experiences from guest speakers to step towards the future."

To the extent that students have received work-based learning opportunities, they find them relevant and valuable. Numerous students spoke about wanting more work-based learning experiences.

Overall, a majority (56%) of pathway students who responded to the survey reported being "Satisfied" or "Very satisfied" with the work-related experiences they participated in.[1] Our conversations with students complement this survey finding. Students reported feeling that work-based learning opportunities broadened their perspectives on the career options available, taught them relevant career and professional skills, and showed them the

[1] For source and technical information, see Appendix B.

connection between academic content and real-world applications. Several students wished that they had more opportunities for work-based learning in order to better understand specific aspects of how the pathway theme is applied in the real world:

- **Application of technical skills.** Some students wanted more opportunities to see how real-world professionals use their technical skills to create products.
- **Better understanding of career options.** Other students desired more industry field trips and job shadows to better understand the range and specific details of various pathway-aligned career options.

Work-based learning opportunities are connected to the pathway theme, but not to specific academic and technical course content.

Ideally, work-based learning should be an integral part of the pathway program of study, not separate from the academic and technical core. Work-based learning experiences linked to the pathway theme can help students broaden their understandings of the careers that exist within an industry sector while building their professional skills. When integrated with projects and daily instruction, these experiences can help reinforce academic and technical content knowledge and strengthen students' desire to further develop skills and knowledge related to their career interests

Currently, the work-based learning opportunities (speakers, visits, etc.) we heard about tend to be related to the pathway theme but not tied to the instruction happening in the classroom. One pathway coach observed that "[Pathways] have not cashed in on the connections supporting the kids' academic goals…It just seems like there are missed opportunities to me when there could be just a little more thought, even, and perhaps a little more concerted effort making connections."

In the few pathways in which work based-learning opportunities are directly related to pathway curriculum, students could better articulate the value of their experiences. For example, a student in a law academy shared, "I liked visiting courts…We saw where they did drug testing…We met police officers and got to ask them questions. We took a trip to the appeals court…We separated and went to different hearings and then analyzed them when we got back [to the classroom]." For this student, the in-class analysis of court hearings reinforced her experience visiting the courts. Likewise, students in a health pathway talked about the usefulness of taking a course in medical terminology to prepare for their internships.

While these explicit connections between pathway curriculum and work-based learning are occurring in certain pathways, they are not occurring systematically across all pathways. Pathways have more work to do to connect the specific work-based learning experiences back to classroom instruction and ensure that the experiences are directly tied to student learning outcomes. However, teachers face several challenges in making explicit connections between work-based learning and the curriculum:

- **Variation in work-based learning opportunities.** Students' internships and other experiences may vary substantially, especially when there are few opportunities in the industry sector.

- **Variation in work-based learning contexts.** Individual teachers cannot be deeply familiar with all the job responsibilities, office environments, tasks, and expectations that their students experience.
- **Timing of related instruction.** Learning opportunities may not present themselves at times that coincide with the curriculum, making it more challenging for pathway teachers to make a connection between work-based learning and the academic and technical content.

As difficult as the task may be, it is important for pathway staff to persevere in strengthening the connections between academic and technical classes and work-based learning experiences. The students are very clear that these connections are valuable.

Implications

Given the considerable challenges districts face in scaling work-based learning and reaching a broader group of students than ever before, it is essential that ConnectEd and its partners continue to work with districts to clarify the range of activities that can provide students with experiences that prepare students for internships and support their attainment of college and career readiness outcomes. Since job-site experiences are neither practical nor available across all pathways and districts (especially where industry sectors are not well-represented locally), districts must consider school-based opportunities as well as virtual experiences as they work to develop a continuum of work-based learning.

While work-based learning may not be connected explicitly to coursework yet in most pathways, several interviewees observed that the experiences, especially internships, do teach students the soft skills of how to behave and be successful in a workplace, which is valuable in and of itself. Further, students in pathways that explicitly connected work-based learning experiences to content were better able to explain the purpose and value of that experience. Although making these explicit connections between work-based learning and curriculum are challenging given the breadth of experiences students participate in, they are powerful for demonstrating the real-world application of pathway curriculum. The Career Practicum guide developed by ConnectEd and its partners is very clear that work-based learning should be tied to student outcomes. Moving forward, and as lessons are learned, it may be helpful for ConnectEd to provide additional guidance regarding how work-based learning should be ideally connected to the pathway program of study and academic and technical content.

Chapter 5: Student Supports

Key Findings

- Students appreciated the close-knit community of their pathway and the support they received from both adults and peers.
- Counseling services are weak in a number of Linked Learning districts due to budget cuts and layoffs. Where such services have been available, students seemed to appreciate the counseling support they received, especially when counselors were assigned to their pathway.
- Upper-grade students were generally positive about the support and guidance they received from teachers and counselors around their postsecondary plans. Lower-grade students typically received information and guidance about careers and college from teachers, not counselors, and had less developed thinking about their postsecondary plans than upper grade students.
- English learners, special education students, and students performing below grade level have limited access to pathways, but there are efforts to accommodate special populations through structural supports such as flexible schedules.
- In many cases, students must balance the desire to take electives and Advanced Placement classes with the pathway program of study.

Providing adequate supports for student success is one of the four pillars of the Linked Learning approach. Supports associated with a pathway might include differentiated instruction, advisories, looping of teachers, and stable counselor assignment to meet students' academic, personal, and social support needs. The small size of the pathway often supports a culture of high expectations, meaningful relationships, and connections between students and peers. In addition, pathways may offer academic interventions within the pathway context—additional support and remediation that is integrated with the program of study to ensure all pathway students achieve pathway learning outcomes. These interventions may include strategies to address special needs, including language development and special education services.

The small size of the pathway often supports a culture of high expectations, meaningful relationships, and connections between students and peers.

In this chapter, we explore the supports and relationships that pathway students have with others in their pathway, including teachers, counselors, and their peers. We also focus on the information and guidance students receive to prepare for life after high school. Finally, we discuss the supports available for students with special needs, more general academic

interventions, and strategies to ensure that higher-achieving students have access to more advanced coursework.

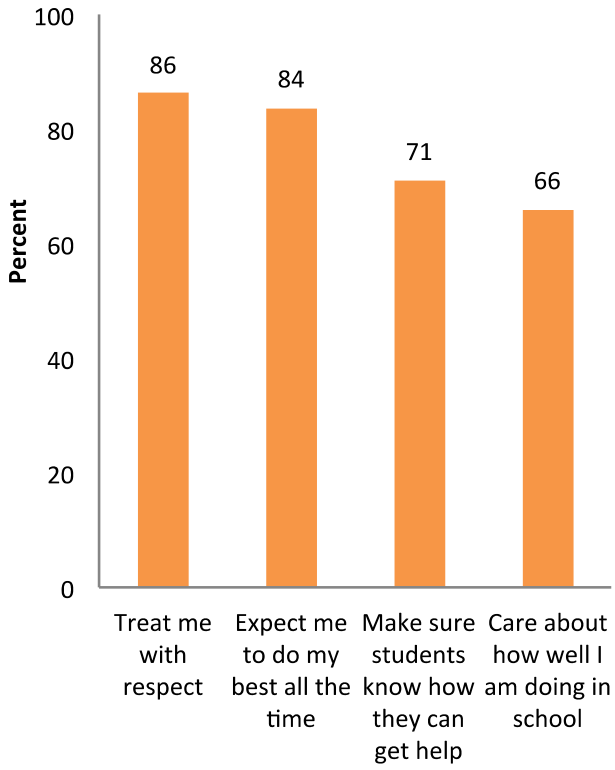
Pathway Culture: High Expectations and Mutual Respect

At the core of the pathway experience are the personalized relationships that students often develop with staff and their peers as part of a small school or small learning community within a larger higher school campus. In the ideal, these relationships foster a culture of high expectations, mutual respect, and support for students' academic, personal, and social support needs. As a pathway student reflected, "The teachers here care so much about the kids. They are so involved with us. They inspired me."

A large majority of pathway students felt supported by the adults in their school.

In our student survey, a substantial majority of pathway students reported that most of the adults at their schools treated them with respect, expected them to do their best all the time, ensured that students knew how they could get help, and cared about how well they were doing in school. At least two thirds of pathway students stated that the majority of school staff were supportive along each of these dimensions (see Exhibit 5–1).

Exhibit 5-1
Pathway Students Reporting Ways Majority of School Staff were Supportive



For source and technical information, see Appendix B.

In Porterville, students reported particularly high levels of support from school staff (for district-by-district survey data, see Appendix B). There, students have the same teachers over multiple years (a practice called looping). One student in Porterville said, "[Some] teachers see different students every year, every semester. These teachers, we've seen them since sophomore year. It's a really big help."

When we spoke with pathway students in focus groups, students discussed the depth of the support that they receive from the adults at their schools. Students told us that staff members in their pathways were available to them and were generous with their time, attentive to their needs, supportive, and willing to help. Specifically, we found the following:

- **Pathway staff create a culture of success.** Numerous pathway students across the nine districts spoke about teachers and other staff taking the time to help them, trusting them, and pushing them to succeed. As one remarked, "Everybody at the school's behind you. Nobody wants to see [anyone fail]. So basically, students, teachers, counselors, and [the] principal are behind you all the way."

> *Everybody at the school's behind you. Nobody wants to see anyone fail. So basically, students, teachers, counselors, and the principal are behind you all the way.*
>
> *–Pathway student*

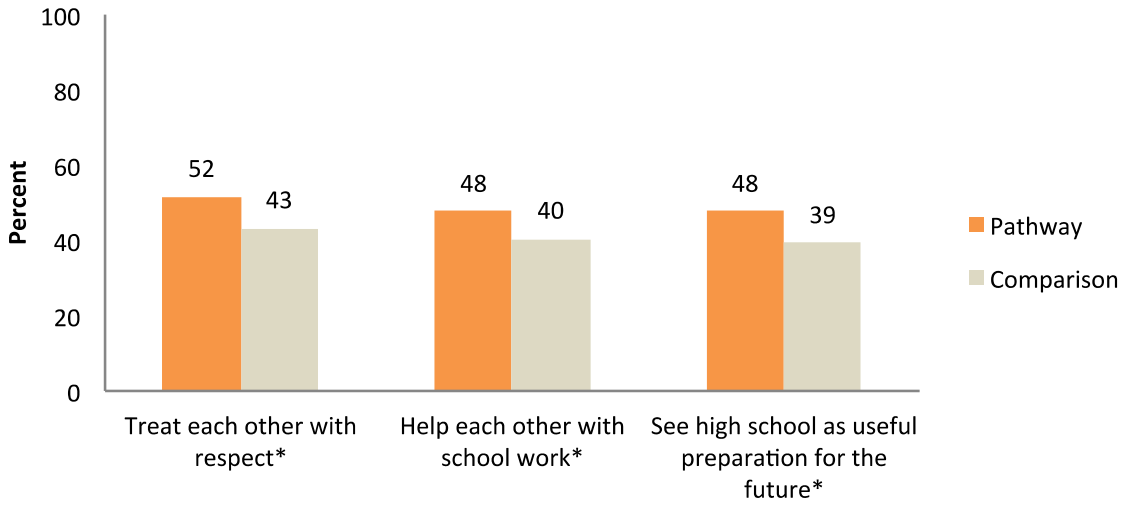
- **Pathway staff seem more invested than at students' prior schools.** Not only do pathway students have the sense that the staff are invested in their success, but students often differentiated this high level of investment from the support they had received from staff at their prior schools. As a 9th grade pathway student explained, "I was surprised at how involved the teachers were with students. Because before, in middle school, they wouldn't really care."

Pathway students expressed appreciation for being part of a close-knit community where peers support one another, and were more likely than comparison students to report positive peer relationships.

In addition to the relationships that pathway students have with the teachers, counselors, and other adults in their pathways, they also reported very positive relationships with their peers, contributing to an overall positive academic climate. Pathway students are typically grouped in cohorts, so that they take some or all of their pathway classes together. Because they are part of a cohort taking classes together, students stated that their pathway felt like a family where everyone is looking out for each other. They noted the sense of community, the respect students have for one another, and the positive culture. Students in several focus groups talked about the students in their pathways being "close," and knowing one another: "You know their names. You know their faces. I think there is less drama here. I've never seen a fight."

In our student survey, more pathway students than comparison students reported that the majority of students in their classes treated each other with respect, helped each other with school work, and saw high school as useful preparation for the future (see Exhibit 5–2).

Exhibit 5–2
Students Reporting Positive Relationships with Peers



* Difference between pathway and comparison students is statistically significant at $p < 0.05$.

For source and technical information, see Appendix B.

Students also appreciated the opportunity to learn from other students. For example, a student described the academic support that grew out of the close community: "We all help each other in classes. [We] boost each other. We are all family so we try to get each other to get our grades up. One benefit of being in an academy, everyone becomes so close, they're always there when you need them."

Academic Guidance and Postsecondary Planning

While connections between students and teachers are critical, counselors can and should also play an important support role in the context of the Linked Learning experience. Specifically, counselors can help ensure that students' class schedules prepare them for their future career and college plans. They can also provide students with a wide range of academic, personal, and social support.

Across the Linked Learning districts and pathways, guidance counselors primarily help assign students to classes. There is variation in the extent to which they support students' college and career exploration: upper-grade students in many focus groups described positive relationships with their counselors, while students in the lower grades appeared to have less frequent contact with counselors around postsecondary plans. For example, many lower-grade students reported in focus groups that there were counselors available, but they did not typically meet with their counselors on a regular basis or did not get the attention from their guidance counselors to the extent that they would have wanted. When students did meet with their counselor, the contact typically was initiated by the student.

Our general perception over the past three years is that counseling services have been weakened, primarily because of budget cuts and layoffs. We were thus surprised by what we heard in focus groups—especially from upper-grade students, who were quite positive about their overall academic guidance and postsecondary planning. It may be that some

students, having nothing to compare with the current level of services, consider the level of counseling they receive normal. As we document below, though, many students who expressed satisfaction with the counseling support in their pathway described the ways that teachers and other pathway staff take on some responsibilities related to academic guidance and postsecondary planning.

In some districts and pathways, budget cuts and layoffs have reduced the availability of college and career counseling services.

Counseling remains an area needing continued attention in the development of district pathway systems, particularly in districts where counseling positions are being reduced due to budget pressures. In a number of districts and schools in the Linked Learning Initiative, including Oakland, Sacramento, and West Contra Costa, ongoing budget cuts have forced the layoff of counselors. With these budget cuts and layoffs, remaining counselors can be extremely stretched, with their attention often consumed by interventions for those students at immediate risk of dropping out. As a result, such schools may have few or no adults dedicated to providing specialized support to students around their long-term college and career plans, and to providing academic, personal, and social support. Limited counseling capacity has several implications for pathway students. In particular:

- **It can be challenging for students to maintain continuity with one counselor.** As one guidance counselor commented, "Obviously they keep cutting counselors. We get cut every year. Then at the end, they shuffle us…most are not able to maintain relationships with students or families." This instability of counseling staff had not gone unnoticed by students. A student in a different district told us, "This year they changed the counselor so I've never met him. I don't know who he is. I feel like I can't speak to him because I don't feel comfortable just going up to him. He seems busy."

> *Obviously they keep cutting counselors. We get cut every year. Then at the end, they shuffle us… most are not able to maintain relationships with students or families.*
>
> *–Guidance counselor*

- **Limited counselor availability may particularly impact disadvantaged students.** For disadvantaged students—who often require especially extensive supports—the absence of strong guidance counseling may greatly reduce success in making the transition from high school to higher education.

Districts are coping with the loss of counselors in various ways. Antioch, for example, is trying to bring back counselors by relying on various external funding sources, including their ConnectEd grant. To address the lack of counseling capacity (both in terms of numbers and quality) in its high schools, Oakland now has centralized counselors who review transcripts and counsel students with less than a 2.0 GPA; two of the large comprehensive high schools still have guidance counselors.

Some districts are changing the ways that they approach counseling support to better align with the Linked Learning approach.

Counseling support has also been problematic for pathway students given that many counselors still have little knowledge of the Linked Learning approach. This unfamiliarity

makes it difficult for schools to engage counselors in creating master schedules that support full implementation of Linked Learning and in assigning students to courses that allow them to be in pure pathway cohorts. Ideally, counselors should be assigned by pathway and should be part of the pathway community so that they know the students and are able to meet their academic, social, and personal needs. While this has not yet been realized across the Initiative, we are beginning to see some improvement in counseling, especially as some districts and schools attempt to assign counselors by pathway (instead of by grade) and include counselors as part of the pathway community of practice. Porterville provides one such example.

Ideally, counselors should be assigned by pathway and should be part of the pathway community so that they know the students and are able to meet their academic, social, and personal needs.

In a small high school in Porterville, students described the size of school as an advantage when it comes to counselors being available and knowing students' interests. A student remarked, "Because [it's a] smaller school, we have more opportunities. Our counselors know who to talk to and know what we're interested in, where in bigger schools you can be lost." Counselors in small high schools containing pathways are particularly well equipped to understand the needs of pathway students. To replicate such relationships in other pathways, Porterville has started assigning counselors by pathway in some large high schools as well, with an enthusiastic response by students. As one student asserted, "The [pathway] counselor knows exactly what is going on and knows each one of us like the back of your hand."

In the upcoming year of the evaluation, we will further explore the student supports and counseling area. As the Initiative continues, it will be critical that students get strong counseling and guidance support from the early grades to ensure they are taking the appropriate coursework for postsecondary education, especially if they have plan to attend a four-year university. At the same time, counselors cannot be expected to know the training and requirements for specific industry fields and that is where pathway teachers, especially CTE teachers, can and should play a role in guiding students.

In focus groups, 11th and 12th grade pathway students reported positive experiences with support and guidance around their postsecondary plans from both counselors and teachers.

A core function of high school is to help students with postsecondary planning—a fact that was confirmed by the student survey, where over 90% of both pathway and comparison students reported that adults at their school helped them understand high school graduation requirements and how to prepare for and select a postsecondary educational program. Pathway students in the upper grades across a number of the Linked Learning districts spoke very positively about the college and career counseling they received from school guidance counselors.

- For example, at a pathway in Porterville, students said, "Our counselor is the best of all high schools; always on time, tells us what scholarships to apply for; she's every aware of all of us. All [of us] know her on a personal level. [It] gives us that college opportunity." Students in Porterville were particularly enthusiastic about their counselors, which may be because counselors are assigned to their pathway.

- Similarly, in both Long Beach and Pasadena, students in the 11th and 12th grades reported talking at least somewhat regularly with their counselors, who appear to actively encourage students to consider their college options and various career options. A student in a Long Beach pathway said, "[Counselors] talk to us about what we're interested in and what...colleges you're interested in going into, what majors you want to do and making sure that you're on track and you have all your credits. And they are also there all the time if you need to just walk into their…office."

For postsecondary guidance, students also may go to their college and career center, where available, and may get help from the college and career center coordinator around developing their postsecondary plans. As a pathway student in West Contra Costa told us, "We also have a career center here and the lady in there…you go to her and tell her anything, like I don't know what I want to be when I grow up, and she'll help you."

Pathway teachers also provide guidance around postsecondary plans; students across pathways in multiple districts reported that their teachers "talk about college all the time."

- In Porterville, a 12th grade pathway student said, "Teachers are a great connection when it comes to our education after high school and what careers, good university for what specific majors we have [in mind]." Similarly, in West Contra Costa, 11th and 12th grade students said that their teachers "always try to help us out in many things. [They] tell us about internships, college classes so we can get more credits."

Pathway teachers also help guide students' career interests. An upper-grade student in a Long Beach pathway said, "I talked to my digital imaging class teacher. It really opened my eyes. I originally wanted to be a film editor, but as a graphic designer you can be more creative."

Pathway students in the 9th and 10th grades appear to have limited contact with counselors, but teachers appear to be a major source of support for their postsecondary planning.

Students in the lower grades typically reported less exposure to guidance counselors around postsecondary plans, but told us they talk about college and postsecondary opportunities with their pathway teachers. For example, with limited counseling capacity in West Contra Costa, we heard that guidance counselors are typically not very involved in supporting students around their college and career plans. However, as 10th grade pathway students told us, "[We] talk to all the teachers—what to do after college, how health classes and teachers can help us get to our goals." Similarly, in Montebello and LAUSD4, where we only spoke with 9th and 10th graders, students reported that their teachers talk to them fairly regularly about college and career options, requirements, and different job opportunities. However, they also told us that they did not actively seek out their counselors, either because they felt they did not need to yet or were not ready to do so.

In Pasadena, 9th and 10th grade students also told us they talk to their teachers about their postsecondary plans. A student in a business pathway said, "With my marketing teacher, I kind of talked about my interests and what would be the best way to reach the field I wanted to and how I can go about it." Pasadena is also an interesting case in that it was one of the only districts in which pathway students reported that they have received strong counseling support even since the early grades. Counselors sit down with students every semester to revise their four-year plan and talk with students about their progress.

A student in a Pasadena pathway said, "Ever since our sophomore year, we've always had a counselor come and talk to us about colleges. [We] talk about our grades, talk about if we are fitting the criteria and everything."

Supporting Students' Individualized Needs

Pathways are successful at fostering peer and adult relationships for students and peer learning, despite the lack of counselors in some districts. For some populations of students, such as English Learners, special education students, and students performing below grade level, these general supports are not enough. Such students require targeted outreach to bring them into pathways and specific structures and supports to help them be successful.

Structural supports, such as flexible schedules and modified instruction within mainstream classes, help to better support special student populations.

While pathways may be open to special education, English language learners, and low-performing students in principle, participation rates by those students are still relatively low. In general, pathways—especially those in small high schools—struggle to accommodate special populations given the small size of the teaching staff. This is particularly true of students with severe disabilities or with very limited English proficiency. The support classes that many special education students and English learners need make it difficult for those students to fully participate in pathway curricular offerings. According to a recent EdTrust West report, "Lack of flexibility in scheduling, as well as lack of systematic and targeted academic remediation and credit recovery options, have been identified in the literature as key obstacles to college and career readiness for disadvantaged students."[17]

Some Linked Learning districts and schools have engaged in systematic efforts to incorporate special populations into pathways. For example:

- **Flexible scheduling.** Flexible schedules help students fit in support or credit recovery classes as well as pathway classes during the school day. At a large comprehensive high school in Pasadena, the flexible schedule (due to an 8-period day) has helped provide special populations with support while also giving them access to the pathway program of study. The school's block schedule allows special education students to take their special education classes or English learners to take their English language development [ELD] classes but also be mainstreamed into pathway courses in their grade level. Flexible scheduling policies can also be an answer for districts that have struggled to support pathway students in need of graduation credits. In a number of districts, summer

Flexible schedules help students fit in support or credit recovery classes as well as pathway classes during the school day...This has helped provide special populations with support while also giving them access to the pathway program of study.

[17] Education Trust—West. (2011). *Unlocking doors and expanding opportunity: Moving beyond the limiting reality of college and career readiness in California high schools.* Oakland, CA: Author.

school and adult education have been cut due to a lack of funding, so there are few opportunities for credit recovery. Some schools, like Skyline High School in Oakland and Hiram Johnson High School in Sacramento, (which are broken up into small learning communities) have a 7-period day, which allows for an elective period that students can use for making up credits.

- **Providing modified instruction within mainstream classes.** Placing students from special populations in mainstream classes and providing modified instruction as needed increases students' exposure to pathway-specific content. At a small high school in Antioch, where there is limited capacity to provide supplemental services and instruction to meet special learning needs, staff place special education students and English learners in the college preparatory classes and provide modified instruction. While school staff admit they need to improve support for special education students, they feel their English learners do well at the school, even though this is not the general perception. As a staff member reported, "We reclassify a high percentage [of English learners], but we need to get the word out to the middle school that our program is accessible." In other cases, such as a pathway in Long Beach, English learners and special education students are not mainstreamed for the academic classes but are able to fully participate in the pathway CTE class if their schedule allows.

Additionally, when pathways contain a critical mass of students who need special supports, these supports can be naturally worked into pathway structures. In LAUSD Local District 4, the pathways we visited were described as serving student populations that reflect the surrounding community. Because the pathways have a large proportion of students who are below grade level in reading and/or math, many of whom are English learners or special education students, teachers know how to meet students' individual academic needs through differentiated instruction, special academic support classes, before- and after-school tutoring, and strategic use of group work to help students support each other.

These are structural approaches pathways have taken to accommodating students with different needs, and they can be quite powerful. Without this kind of flexibility in scheduling, certain students can be excluded from participating in pathways altogether. In addition, the fact that pathway teams can monitor and discuss shared students also allows them to more quickly and effectively address student needs as they arise, which also helps improve individual student learning experiences. The pathway structure (small size, teachers and ideally counselors who share the same students) lends itself to supporting student success more so than any supports offered specifically to pathway students. Having students grouped into pathway cohorts that are more intimate than the comprehensive high school environment, along with a program of study that is more relevant to students' particular career interests, helps to provide more personalized learning experiences.

Students face challenges in balancing the pathway program of study with the desire to take electives and Advanced Placement classes.

Pathways, especially but not exclusively in small high schools, struggle to offer a large number of elective courses and advanced-level courses. Pathway students reported a range of related scheduling issues:

- **Difficulty scheduling electives.** Some pathway students reported that they experienced scheduling challenges trying to get their academy classes and still fit in electives. In focus groups, pathway students reported that it was especially challenging to take performing arts and foreign language electives because of scheduling conflicts.
- **Difficulty scheduling AP classes.** Other pathway students reported that scheduling conflicts prevented them from taking desired AP classes. Small high schools, out of necessity, tend to restrict their AP offerings. Of the AP classes that are offered, there are typically limited sections. Students reported that these AP classes conflicted with the pathway CTE class or required pathway academic classes.
- **Difficulty balancing non-pathway classes and pathway academic experiences.** When pathway students were able to get into electives and AP classes outside of their pathways, these non-pure classes sometimes interfered with pathway academic experiences. Because students generally take AP classes and electives outside of their pathway program of study, enrollment in these courses can affect their ability to fully participate in their pathway's integrated curriculum, projects, and/or work-based learning opportunities.

One way in which pathways have addressed the scheduling issues is by working with the students to help them take electives and other classes at a local community college or at a different high school.

Implications

Pathway students, on the whole, feel they are receiving strong social support within their pathways. Students credit pathway staff as well as their peers for sustaining a culture of high expectations as well as mutual respect and caring. The story around academic support and postsecondary planning appears more nuanced, especially with regard to counseling. In the past, we have reported that counseling support for pathway students has been weak, with counselors minimally involved as part of the pathway community of practice. We are seeing encouraging signs in some districts, such as Porterville, where administrators are assigning counselors to specific pathways. This change provides counselors an opportunity to get to know their pathway students more intimately and provide more tailored academic and social support, while also helping students with their long-term college and career planning. Yet in many districts, budget cuts continue to threaten counseling capacity. This means that many students, especially in the lower grades, receive limited counseling support. As districts consider how to support and sustain the Linked Learning approach, adequately funding counseling will need to be a priority. More counseling support is needed beyond what is currently being provided to realize the student support component of the Linked Learning Initiative.

Further, with respect to improving pathway access to all students, some districts are engaged in early efforts to accommodate special student populations in pathways through more flexible schedules. On the whole, this is an area for further development as the Initiative progresses. Districts need *systemic* approaches to improving student access, including interventions to prevent course failure and credit loss, in order to facilitate positive secondary and postsecondary outcomes for all students. In contrast, the efforts we have observed and described to support and promote student access to pathways thus far are occurring primarily at the individual pathway level.

PART II
LINKED LEARNING STUDENT OUTCOMES

Pathways are designed to engage students who do not initially view high school as valuable or directly relevant for their future success, in addition to deepening the educational experiences of those who do. The career theme can engage students in any and all of their core academic classes, making traditional academic content more directly relevant to students' lives and future goals. The small cohorts and student supports are designed to help students feel more connected to their school community.[18] In the first part of this report, we saw that students in mature pathways valued their integrated instruction, their project-based and work-based learning experiences, and the peer and teacher supports afforded by a small learning community. Now we turn to whether these experiences resulted in improved outcomes for Linked Learning students compared with their district peers.

In Part II of this report, we first discuss students' perceptions of what they are learning as a result of participating in the unique approach to high school education Linked Learning pathways strive to offer. For that chapter, we drew on student survey and focus group data to explore student views on their development of broadly applicable professional skills, their technical knowledge and exposure to industry expectations, and their ability to navigate their future career options. We then turn to the chapter that followers of this Initiative have long been awaiting—an initial and very preliminary analysis of student outcomes as measured by select indicators from student-level administrative data from four districts. The outcomes analyses examine pathway student results, specifically addressing whether Linked Learning students have stronger outcomes than their district peers in several domains:

- **Engagement with school**, as indicated by attendance and retention from grade 9 to grade 10;
- **Progress toward graduating from high school in 4 years**, as indicated by credits earned and course failures;
- **Progress toward completing the a-g course requirements** to be eligible for one of California's public 4-year university systems; and
- **Learning gains**, as measured by performance on state standardized tests (e.g., the California High School Exit Exam).

[18] Hoachlander, G., Stearns, R. J., & Studier, C. (2008). *Expanding pathways: Transforming high school education in California.* Berkeley, CA: ConnectEd.

Chapter 6: Perceptions of Skills Gained in Pathways

Key Findings

- Students gained broadly applicable skills and behaviors from their pathway experiences. These so-called "soft skills," including professionalism and collaboration, can transfer to multiple career or postsecondary education options.
- Students gained technical knowledge and exposure to field-specific professional standards from their pathway experiences.
- Pathways have opened students' eyes to the range of potential careers while equipping them to pursue their interests by familiarizing them with the job, interview, application, and selection process.

In previous chapters, we reported on students' experiences with the core components of the Linked Learning approach: pathway academic and technical curriculum, instruction, and assessment; opportunities for work-based learning; and support structures for students. These Linked Learning components are intended to help students develop a range of 21st century skills and knowledge that will prepare them for both college and career. This range of skills and knowledge, as aligned with Linked Learning's College and Career Readiness Framework, includes broadly applicable professional skills and behaviors (some often described colloquially as "soft skills"); concrete career-specific technical skills and knowledge; and career navigation skills.[19] In this chapter, we elaborate on student and staff perceptions of these three types of skills gained through students' pathway experiences, particularly through project-based learning and work-based learning opportunities.

Broadly Applicable Professional Skills

Linked Learning aims to provide students with the opportunity to develop the skills and behaviors they need to succeed in a wide range of career or postsecondary education options. We discuss two types of these skills: professional skills that students can bring to the workplace and interpersonal skills that students can use to collaborate with others in workplace settings.

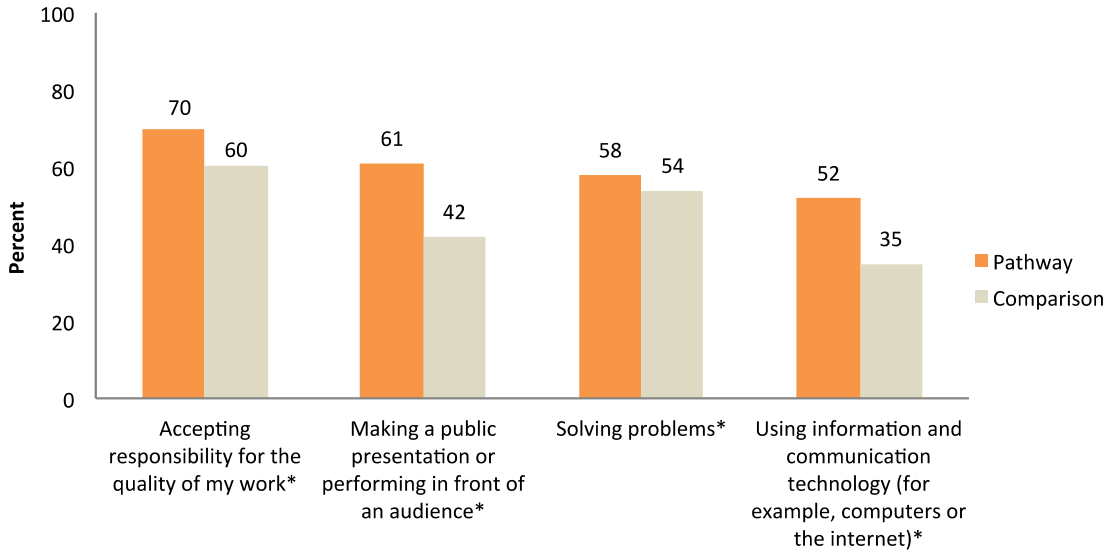
Pathway students reported that their high school experiences helped them develop broadly applicable professional skills.

In our student survey, pathway students were more likely than their peers to report that their high school experience was helping them improve upon many broadly applicable skills valued in college and across diverse career fields. These skills and behaviors include

[19] Stam, B., & Darche, S. (2012). *College and career readiness: What do we mean? A proposed framework.* Berkeley, CA: ConnectEd.

personal accountability, presenting information to an audience, problem solving, and using information technology (see Exhibit 6–1).

Exhibit 6–1
Students Reporting Improvements in Specific Professional Skills



* Difference between pathway and comparison students is statistically significant at $p < 0.05$.

For source and technical information, see Appendix B.

Pathway students who participated in focus groups spoke at length about the value of each of these newly acquired skills:

- **Personal accountability.** Pathway students explained how their experiences compelled them to become more accountable for their work. One student explained, "When you give someone more responsibility, they're kind of taken back a little because as teenagers, you know, you're used to having very little responsibility…you kind of step up to it because you want to prove yourself." Another elaborated, "I think I've matured a lot since I've been here…You know how there's groups? You can either sit back and let them do the work, or you can join and do the work. But if you sit back that backfires because you get fired…I think at other schools they would kind of let it slip. So it makes you more likely to do the work."
- **Presentation skills.** Students marveled at their increased comfort level with presentations and public speaking. As one pathway student shared, "Since ninth grade, I've always been kind of shy to talk in front of people…but all these projects, you're kind of forced to do that…Now I feel confident talking in front of people and in front of audiences."
- **Problem solving and critical thinking skills.** Teachers and administrators, as well as pathway students themselves, spoke effusively about students' improved critical thinking skills. For example, when comparing pathway students' presentations from 2011–12 relative to previous years, a central office administrator observed, "The area of the questions, questioning technique, depth of the questions, how much more research or information they've got to gather to answer those questions, the ways in which they

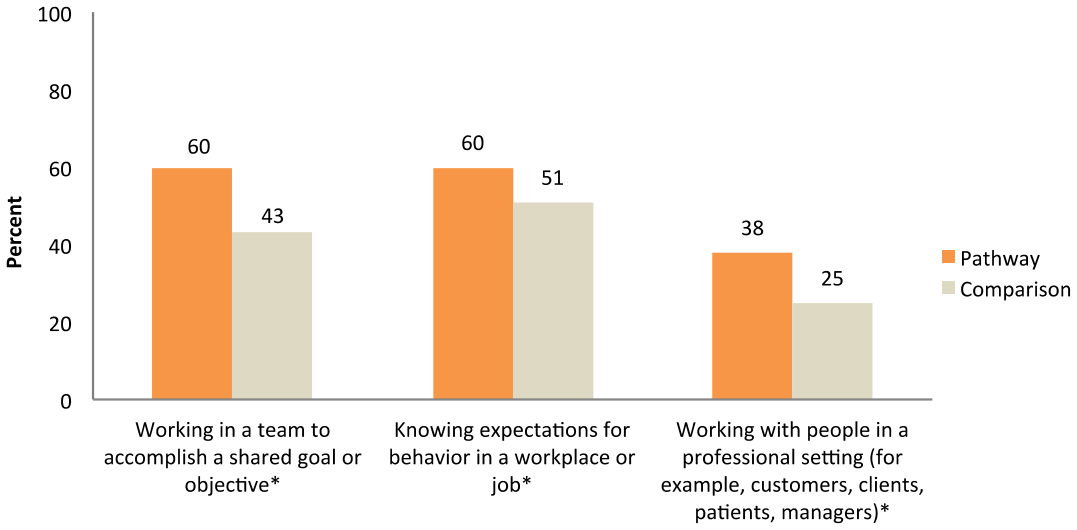
connect everything to a driving question—all of that to me indicates more rigorous work and thinking than I had seen last year."

- **Familiarity with information and communication technology.** Students discussed newly acquired familiarity with a range of information and communication tools (e.g., PowerPoint, Photoshop, miscellaneous video editing and web design software).

Pathway students reported that their high school experiences helped them develop the interpersonal and collaboration skills needed for the workplace.

Pathway students also were more likely than their peers to report that their high school experience was helping them improve their interpersonal and collaboration skills. These skills and behaviors include working with others towards a common objective, understanding workplace expectations for behavior, and working with others in a professional setting (see Exhibit 6–2).

Exhibit 6–2
Students Reporting Improvements in Workplace-Specific Collaboration Skills



* Difference between pathway and comparison students is statistically significant at $p < 0.05$.

For source and technical information, see Appendix B.

Through project- and work-based learning, pathway students receive many opportunities to learn and practice collaboration and other interpersonal skills and behaviors. In focus groups, students provided details about the associated skills they have developed:

- **Working with others towards a common goal**. Students reported that working in groups helped them learn valuable collaboration skills and social norms that would be relevant in college and the workplace. For example, a student explained that he had learned to compromise, whereas he had been "used to doing [things] my way," while another student simply said, "[Teamwork] prepares you for work when [you] have to work with someone you don't like." Other students explained how they learned to manage team dynamics productively. One pathway student articulated, "You learn different ways to deal with different situations and keep everyone on track. When there

is a conflict, you learn how to resolve it in an adult manner instead of just kind of pulling each other's hair and calling each other names."

> *You learn different ways to deal with different situations and keep everyone on track. When there is a conflict, you learn how to resolve it in an adult manner…*
>
> *–Pathway student*

- **Understanding of workplace expectations**. Students and teachers elaborated on how pathways were improving students' grasp of behavioral expectations for college and beyond. For example, teachers in one district worked explicitly with students on "dressing for success" prior to the year students were to begin their internships. As described by a pathway student, "We talked about dressing appropriately, for interviews and stuff, making sure you are wearing the right attire. Because someone could come in with maybe even more [skills] than you but be dressed like a bum…first impressions last a long time."

Both survey data and focus group data illustrate that students have been developing the broad skills and behaviors valued in college and the workplace through their pathway experiences. As one student summarized, "They're already teaching you what you're going to have to do in college… Like taking notes, doing presentations and taking them serious and dressing professional. They're maturing us… [The teachers] are saying, 'You know, we're trying to mature you for college and life.'"

Students in focus groups further elaborated on how they believe the skills they have gained in their pathway will be broadly transferable. For example, one student stated, "I really like [this pathway] because…it gives you a big skill set. My mother works for IBM so I'm encouraged to go into some technical field, but even if I don't, these skills can be used really wherever I go." Another student corroborated, "All four years, we've been prepared so much for careers… it's not just about learning about acting or computer arts or engineering, but it's a lot of focus on how to be successful and how to present yourself and be able to do what you want to do."

> *They're already teaching you what you're going to have to do in college… Like taking notes, doing presentations and taking them serious and dressing professional. They're maturing us. [The teachers] are saying, 'You know, we're trying to mature you for college and life…'*
>
> *–Pathway student*

Although some students enter pathways with a career choice in mind, many students need the duration of high school, if not beyond, to decide on their postsecondary plans. Equipping students with broadly applicable skills may lead to long-term postsecondary success and keep undecided students better engaged in high school.

Technical Knowledge and Exposure to Industry Expectations

In addition to broadly applicable professional skills, Linked Learning pathways aim to provide students with the opportunity to gain technical knowledge through real-world applications grounded in an industry theme. While pathways vary in the extent to which they have been able to implement integrated academic and technical curriculum and work-

based learning, teachers and students across multiple districts shared positive accounts of the technical content and skills they feel students have already started to gain.

Through their pathway experiences, students have received opportunities to apply technical knowledge and learn about field-specific professional standards.

In our student survey, the majority of pathway students (66%) reported that since starting high school, they have been able to get the types of experiences to learn career skills that they wanted as part of their school program.[20] In focus groups and interviews, students and staff across the districts enthusiastically described the concrete, industry-specific knowledge and exposure to industry standards that pathway students have gained and applied through a range of work-based learning opportunities.

For example, students in a media and technology pathway gained experience on their own high school campus by serving as photographers and videographers for sporting events, providing lighting and sound technology for various performances in the school auditorium, and creating media posters and brochures for school events. Elsewhere, a law pathway student described serving as a defense attorney during a mock trial activity, familiarizing herself with trial rules and learning how to state facts persuasively. She was then able to "apply everything we learned" at the state capital by lobbying on behalf of her school for public funds.

Students in another district's health pathway expressed gratitude for the opportunity to learn and use relevant skills both immediately as high school students and in the future, including one example of a life-or-death situation:

> I had just learned CPR. I was at home with my niece; [she] put a penny in her mouth. She was choking, was red, [and] my first instinct was to turn her around and do what I learned in CPR. [It] was just a reaction…because I had been taught that. What could have happened? I think that was life-changing for me.

Additionally, several pathway teachers described how they used industry-specific rubrics when assessing students, thereby exposing them to professional standards while they worked on projects within the school building. A CTE teacher explained how she constructs rubrics that align with the checklists she uses as a working professional:

> I like to [have students use] a checklist, which is what an animator would get from an art director. A studio gets something similar, what's expected of each person—duties and tasks. If you mark off [tasks as complete], that's how you get paid for a month… When I do freelance work, that's what I get.

Another pathway teacher explained how she requires her students to present projects as if they were proposals to a client:

> I'm always trying to make connections to the real world. [Students] have to make proposals on their bid when we do projects—how much will it cost? [And] I'm always pushing the presentation. I'm not going to select the bid that is not well presented.

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20 For source and technical information, see Appendix B.

Pathways that offer students current technical knowledge and industry-related skills ideally prepare students to leave high school ready to succeed in the workplace. Students who know or develop their career aspirations early on in high school plausibly stand to benefit the most from these types of experiences. However, for students who are not yet decided about their future plans, these opportunities to gain concrete industry-related skills and knowledge can also help illuminate their decision-making process regarding career options.

Career Navigation

Alongside equipping students with 21st century skills and knowledge for succeeding in their postsecondary plans, pathways also aim to provide students with opportunities to learn how to navigate through the collegiate and professional worlds. Pathway students illustrated how they have started to learn and apply these skills to select and gain entry to a career.

- **Career research skills.** Pathway students described career research projects that opened their eyes to a broader range of relevant career options or helped them to hone in on specific interests. As one student described, "Principles of Engineering was one of the first-year classes we took. [There] was a project where you had to research kinds of engineering careers, so it was good to get a feel for what to do in the future, and what classes to take if you wanted to be a different type of engineer." Another student illustrated, "In health, they're making us do research on our…entry careers and the five that we really want to do. So then…[we create a] brochure and then a PowerPoint so we know specifically what requirements we're going to need to get our job."
- **Comfort with job application process.** Pathway students developed comfort with various components of the job application process. In our student survey, a higher proportion of pathway students than comparison students (48% versus 32%) reported that their high school experience was helping them improve their communication skills in the context of the job application process.[21] When we spoke with students, they shared further insights into how they were learning to pursue career opportunities through their internship experiences. For example, one student explained, "We've learned about interviewing techniques and we've had mock interviews. We've been taught how to build resumes and cover letters and how to go out into the community and find these sorts of positions." Another student focused specifically on developing negotiation skills through her pathway: "They give you a lot of practice for that. So it helps definitely in the future when you have to negotiate… about maybe a position that you want, or that raise… it definitely helps having that confidence [to] just go out there and be assertive with what you want."

> *A higher proportion of pathway students than comparison students reported that their high school experience was helping them improve their communication skills in the context of the job application process.*

Developing students' career interests, along with the skills and knowledge that they will later apply in their future professions, is useful as long as students are also equipped to

[21] For source and technical information, see Appendix B.

handle the job-seeking process. Pathways recognize this need and have begun integrating career navigation into classwork and work-based learning experiences.

Implications

All of the skills and behaviors discussed in this chapter are necessary to equip not only students who choose pathways aligned with their ideal career, but also those students who have yet to decide on their postsecondary plans. In addition to teaching specific industry-aligned content or skills, many pathways' project-based and work-based learning opportunities teach students to work together, employ tools in hands-on activities, interact with professionals, and recognize the connection between school and life beyond classroom walls. These approaches can engage students in their high school experience where traditional academic instruction has not always succeeded. In order to attract and retain diverse student populations in pathways, districts might consider emphasizing not only how pathways prepare students for entry to a specific industry, but also how pathways offer opportunities to learn broadly applicable skills and behaviors in addition to specific career-specific technical skills.

For some Linked Learning districts, integrated academic and technical curriculum and work-based learning sequences remain works in progress. Even so, the Linked Learning approach to secondary school reform seems promising, given the student perspective on how their pathway experience prepares them for postsecondary success.

Chapter 7: Student Outcomes

Key Findings

- Data from one district suggests that Linked Learning students have fewer absences compared with similar peers in their district.
- Linked Learning students seem to be staying with their pathways beyond the freshman year of high school.
- Students in certified pathways have made greater-than-average progress toward high school graduation in terms of number of credits earned and, in two districts, toward a-g completion.
- Differences in results between pathway students and similar peers in their districts on important state tests (e.g., the California High School Exit Exam) were variable and inconclusive.

After just one to two years of enrollment in a Linked Learning pathway, do pathway students have better outcomes than their non-pathway peers with similar middle school achievement? We examined early student outcomes in four of the Linked Learning districts that had pathways certified by the 2010–11 school year.[22] The first set of outcomes relate to student engagement with school, specifically attendance and retention in school. The second set tracks the academic outcomes that this engagement should translate into—specifically, indicators of students' progress toward graduating in 4 years, progression towards successful completion of college entrance requirements, and standardized test scores. For most of these analyses, we use a value-added approach—described below—to estimate the contribution of the Linked Learning experience to these early student outcomes, adjusting for differences in initial student achievement and student characteristics.

These findings are preliminary, based on analyses of student outcomes in just four of nine Linked Learning districts during the early years of a complex initiative. Ultimate judgment on the effectiveness of Linked Learning must wait several years, both for the development of a full system of pathways, and for graduates of these pathways to move into postsecondary education and careers.

Estimating the Value–Added of Certified Pathways

Simple averages of important student outcomes, such as test scores and course completion, may provide misleading estimates of the contribution Linked Learning makes to student success. As described in Chapter 2, students enrolling in certified pathways tend to have higher middle school achievement and be from traditionally higher-achieving demographic

[22] We examined 9th grade outcomes from the class of 2013 (data from 2009–10) and class of 2014 (data from 2010–11) as well as 10th grade outcomes for the class of 2013 (data from 2010–11).

groups in comparison with students districtwide. Given their relatively high middle school achievement, it comes as no surprise that students in these pathways continued to have higher-than-average achievement at the end of 9th and 10th grade. Where possible, we explore a more interesting question: do students in certified pathways exceed predicted academic outcomes given their generally higher prior achievement and more privileged demographics?

To address this question, we developed value-added models. These models estimate the extent to which outcomes for students enrolling in a certified pathway differ from the district mean, controlling for students' demographics and middle school achievement.[23] A high value-added estimate indicates that, when enrolled in certified pathways, students exceeded the predicted outcome for an average student in the district—even controlling for the higher than average achievement of students upon entry into these pathways. For the sake of readability, we will refer to the value-added estimations as the predicted results for pathway students, as compared with similar non-pathway students. This phrasing is a reasonable approximation of the value-added estimates, as 85% to 92% of students in our analyses from each district are non-pathway students. Our estimates, if anything, are more conservative than this language would suggest, as the district means include some pathway students.

These results come with some caveats.[24] Selection patterns of students within the district pose substantial challenges to obtaining an estimate of the value-added of the Linked Learning approach that represents the strength of the pathways themselves, rather than the students populating them. By including demographics and prior achievement in the value-added models, we attempt to adjust for the differential levels of academic preparation of students entering the certified pathways. However, students who choose to attend a pathway serving higher-achieving students may be different in unobservable ways (e.g., motivation, parental support) not captured by our controls for prior achievement. The value-added estimates in this chapter therefore improve upon a simple average of the outcome variables, but cannot provide a definitive answer as to whether or not the differences in achievement can be directly attributed to Linked Learning.

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23 The value-added models subtract the mean outcome for an "average" student in the district from the estimated outcome for "average" students enrolled in certified pathways. Average means that a student is average on all statistical controls (e.g. 8th grade CSTs). For the continuous outcomes (test scores and credits obtained), the mean outcome for all students in the sample is the same as the mean for the average student. All other outcomes are modeled slightly differently. For these outcomes the mean outcome is the predicted value for the average student, which may differ slightly from the simple district mean.

24 There are also some data limitations to this study. Each of the four districts –Antioch, Long Beach, Porterville, and Pasadena—had differing capacity to provide data for the analysis. Pasadena could provide no test scores prior to 2009–10, so did not have a measure of prior achievement to allow us to estimate a Linked Learning effect for the class of 2013. Porterville could only provide prior achievement for students who attended middle schools in the district, so effects are no estimated for the approximately 50% of high school students who entered the district in high school from feeder districts. Appendix A contains descriptives by district for all the 9th and 10th graders in the cohorts and for the samples used in the analysis that excluded cases with missing variables.

Indicators of Student Engagement

We use attendance and persistence in school as indicators of student engagement. Using student-level data from four districts, we looked at attendance (in Long Beach only) and retention from 9th to 10th grade (see Exhibit 7–1).

Exhibit 7–1
Direction of Value-Added Estimates for Certified Pathways Compared with District Average, Engagement Outcomes

	Antioch	Long Beach	Pasadena	Porterville
Days Absent, 9th Grade		–		
Days Absent,10th Grade		○		
Remains in District to 10th Grade	+	○		○

Key: + Positive effect; – Negative effect; ○ No statistically significant effect; ▭ Data unavailable

Exhibit Reads: The estimated number of days absent in Long Beach for 9th graders in certified pathways is significantly lower when compared with similar peers in their district.

Source: District-provided student data.

Students in certified pathways in Long Beach had better attendance in 9th grade compared with similar peers in their district.

Improved student attendance is one of the most immediate potential outcomes of the Linked Learning approach. While some circumstances that lead to student absences are out of the control of schools, student truancy due to boredom or apathy should decrease if pathways engage students more effectively than traditional comprehensive high schools.

Only one district, Long Beach, was able to provide attendance data for this first year of student outcomes analysis.[25] Adjusting for student background characteristics and prior achievement, the average 9th grader in Long Beach in 2010–11 was predicted to miss 5.4 days of school, while this same average student was predicted to miss only 4.6 days if enrolled in a certified pathway, a statistically significant difference. This value-added difference in predicted absences does not persist through 10th grade, but is an encouraging early indicator that pathways may be engaging students in schools in ways that translate into tangible behavioral change.

[25] We hope to receive data on student absences from other districts in future years to examine this indicator of engagement across the Initiative.

In one district, pathway students were more likely to remain in the district from 9th to 10th grade compared with similar peers districtwide.[26]

Students may drop out of school because they lose interest, do not see the value of delaying entry into the job market, or because of other family circumstances or personal reasons. They may also leave the district to attend private or charter schools, or because their families relocate. Although we are unable to determine the exact reasons students leave, we use retention in district as an indicator of engagement, as students are less likely to leave if they enjoy their classes, find their coursework relevant, and have meaningful relationships with students and staff in their school.

Between the 9th and 10th grades, retention rates were 93–95% for the average student in the three districts for which we have data, leaving little room for Linked Learning pathways to improve upon this already high metric. Despite the high baseline rates of retention, students in Antioch were more likely to remain in the district if enrolled in a certified pathway, controlling for prior achievement and demographics (Exhibit 7–1). In Long Beach and Porterville, the other two districts for which we were able to estimate these models, students enrolled in certified pathways in the 9th grade had rates of retention in the district no different from those of similar peers. Retention within the district will become an increasingly important indicator of student engagement in later grades, when students are at greater risk of dropping out.

Students appear to be persisting in their Linked Learning pathways.

While students may be less likely to drop out in earlier grades, we may see more movement across pathways in these grades, as students explore their interests and as new pathway options develop within their districts. Based on descriptive data from two of the four districts in our outcomes analysis (Long Beach and Antioch), at least 90% of 9th grade students from 2009–10 returned to the same pathway in the 10th grade (see Exhibit 7–2).[27]

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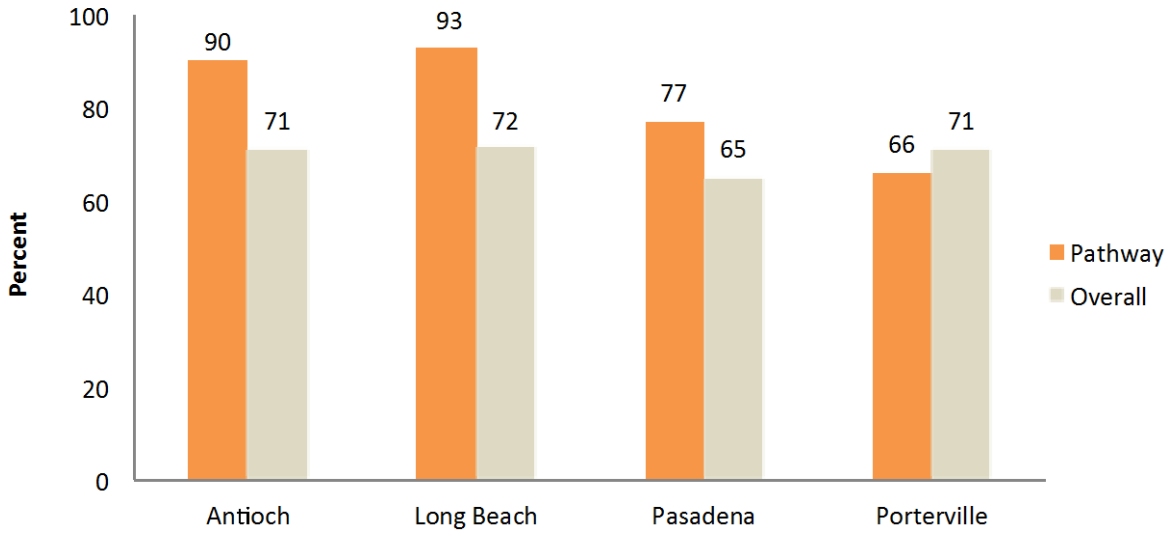
[26] These models were estimated only for the Class of 2013, based on enrollment in a certified pathway in the 9th grade.

[27] Retention is calculated for 9th graders in 2009–10. Between 86% and 91% of these 9th graders returned for 10th grade in each of these districts. The pattern remains the same if we use just 9th graders who remained in the district as the denominator.

Exhibit 7–2
Student Retention in Initial Academic Program from 9th to 10th Grade



Source: District-provided student data.

In all the districts except Porterville, students in certified pathways were more likely than students districtwide to remain in the specific program of study in which they began high school (for non-pathway students, this is defined by the school, or academic program within the school, where a student initially enrolled). In Porterville, the number of pathways available to students is growing, so cross-pathway movement by Linked Learning pathway students there may reflect the larger number of pathway options; however, this explanation seems incomplete given that no new pathways started in the 2010–11 school year, and students in Long Beach also have many pathway options. The high persistence rates of students in certified pathways is particularly striking in Pasadena, where we know the certified pathways serve a lower-achieving student population that might be expected to be more mobile than the district average. This preliminary evidence that students are remaining with their pathways at a greater rate than their peers does not take into account the systematically different characteristics of incoming pathway and comparison students. However, the evidence is nonetheless encouraging and bears further examination in future years of the evaluation.

Overall, the indicators of engagement show some positive, though weak, results. Students in certified pathways were less likely to be absent in Long Beach and more likely to remain in the district from 9th to 10th grade in Antioch compared with similar peers within those districts. In addition, students in Antioch, Long Beach and Pasadena tended to remain within their certified pathway from 9th to 10th grade.

To look for evidence that this student engagement translates into success in the classroom, we next turn to indicators of student achievement.

Indicators of Academic Achievement

Analysis of student achievement indicators suggests that pathway students are negotiating high school well—especially in Antioch and Long Beach, the two districts where there is also evidence of greater student engagement in certified pathways. We examined the following indicators of student achievement (see Exhibit 7–3):

- **Student credit accumulation and course failures**, two indicators that students are on-track to graduate high school.
- **Successful completion of a-g requirements**, the courses needed to enter a 4-year public college in California.
- **Performance on state standardized tests**, indicators of student learning.

These outcomes have important implications for students' chances of high school graduation.[28]

[28] The Consortium on Chicago School Research found that students in Chicago Public Schools who earned at least 25% of the credits necessary for high school graduation and failed no more than a single semester of an academic core course by the end of their freshman year of high school were 3.5 times more likely to graduate from high school than those who were not. (Allensworth, E. M., & Easton, J. Q. 2005, *The On-Track Indicator as a Predictor of High School Graduation.* Chicago, IL: Consortium on Chicago School Research.)

Exhibit 7–3
Direction of Value-Added Estimates for Certified Pathways Compared with District Average, Academic Achievement Outcomes

	Antioch	Long Beach	Pasadena	Porterville
Number of Credits, 9th Grade	+	+	+	+
Number of Credits,10th Grade	+	+		○
Number of F's, 9th Grade	+	○	○	○
Number of F's, 10th Grade	○	–		–
On Track for a-g, 9th Grade[a]	+	+	–	○
On Track for a-g, 10th Grade[a]	+	+		○
ELA CST, 9th Grade	+	+	○	○
ELA CST, 10th Grade	○	+		○
ELA CAHSEE	○	–		○
Math CAHSEE	○	○		+

Key: + Positive effect – Negative effect

○ No statistically significant effect ▭ Data unavailable

Exhibit Reads: The estimated number of credits accumulated in Antioch for 9th graders in certified pathways is significantly greater than that of similar non-pathway students.

a. The statistical models were unable to include one of LBUSD's four certified pathways from the a-g analysis as it lacked variation in the outcome variable. Students in the excluded pathway are high achievers and all in the analytic sample were on track to complete a-g requirements at the end of 9th and 10th grades.

Source: District-provided student data.

Students in certified pathways accumulated more credits by the end of the 9th and 10th grades compared with similar peers in their districts.

Students in certified pathways made greater progress toward on-time graduation compared with similar peers based on the number of credits they accumulated by the end of 9th and 10th grade. As seen in the first two rows of Exhibit 7–3, students tended to accumulate more credits in the 9th and 10th grades when enrolled in a certified pathway. These effects were small but meaningful, as the average credit accumulation in each district hovers around 55, roughly 25% of the credits needed to graduate by the end of 9th grade (see Exhibit 7–4). Extra credits may therefore provide pathway students with a buffer against later failures.

Exhibit 7–4
Estimated Credits Completed in 9th Grade, by District and Pathway Enrollment, Compared with Number Needed to Remain On Track to Graduate

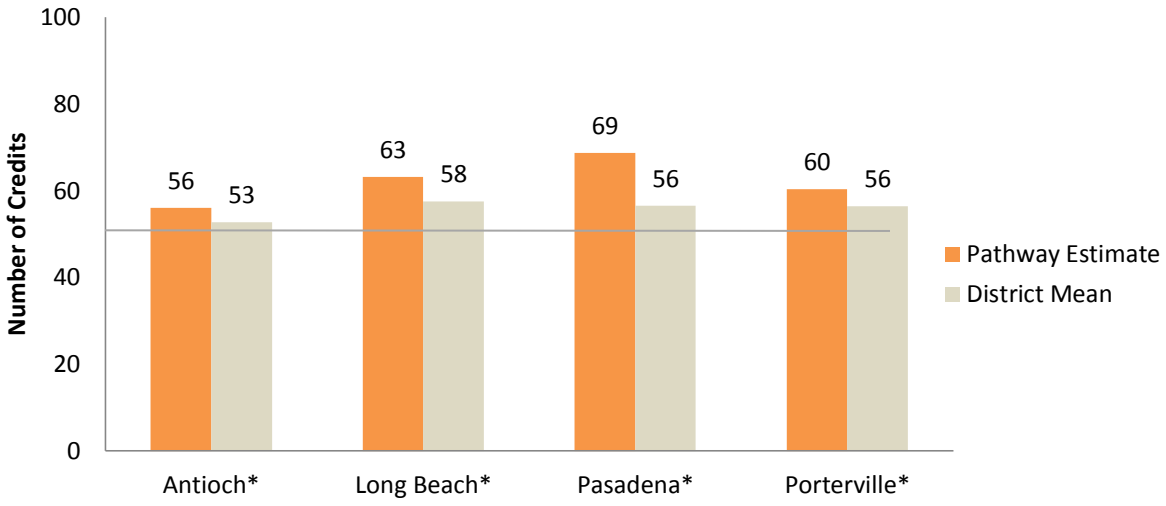


Exhibit Reads: The average student in Antioch tends to accumulate 53 credits by the end of the 9th grade, just under the number required to remain on track to graduate (55); these same students would tend to accumulate an extra 3 credits if enrolled in a certified pathway. The asterisk (*) indicates that the estimates for students in certified pathways are significantly different from the district average.

* Difference between pathway and comparison students is statistically significant at $p < 0.05$.

Source: District-provided student data.

Students in certified pathways failed similar numbers of courses in 9th grade compared with similar peers in their districts, but failed fewer courses in 10th grade compared with those peers.

Course failures are important indicators of student progression through high school. Course failure may force students to repeat required classes, putting them behind in graduation requirements. If students fail due to low attendance or incomplete assignments, then course failure may also be a sign of lack of student engagement. On the other hand, course failures may indicate that teachers hold students accountable to high academic standards.

Pathway and non-pathway 9th graders failed similar numbers of classes, adjusting for student background characteristics and prior achievement (Exhibit 7–3). These similar results are not surprising, since the average student in these districts was predicted to fail just over one class. The certified pathway in Antioch, where students were predicted to fail a quarter of a semester class more than the average 9th grade student in the district, is an exception to this trend. This pathway has a reputation for rigor, and, while students at this pathway tend of have higher prior achievement than the district average, the pathway has no requirements for a minimum level of middle school achievement. This pathway provides an example of a school where students are both given the opportunity to attend and held to high academic standards, regardless of prior achievement.

This pathway provides an example of a school where students are both given the opportunity to attend and held to high academic standards, regardless of prior achievement.

For 10th grade students, findings from two districts with available data suggest that Linked Learning students are predicted to fail over a quarter of a semester course less than the average student in the district. In other words, students in certified pathways in these two districts were slightly less likely to fail a class in the 10th grade. In Antioch, value-added results indicate that 10th grade students were no more or less likely than their district peers to fail a class when enrolled in a certified pathway.

In two of four districts, students in certified pathways were more likely to have completed the suggested entrance requirements for California public universities by the end of 9th and 10th grade compared with similar peers in their district.

We examined the extent to which students in certified pathways are completing the coursework necessary to enter the University of California or California State University system. Both 4-year college systems in California require students to complete a set number of courses across academic subjects and to earn a grade of C or better (these courses are collectively referred to as the "a-g requirements"). Given the importance of the a-g requirements for California high school students, we ask whether an average student in each district would be more or less likely to complete the suggested a-g coursework in each grade if enrolled in a certified pathway.[29]

In Antioch and Long Beach, students in certified pathways were more likely to complete the suggested a-g requirements by the end of 9th and 10th grade, adjusting for student background characteristics and prior achievement. This finding is a promising indicator that Linked Learning students will graduate high school college- and career-ready. Students in Porterville were equally likely to complete the grade specific a-g requirements by the end of

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[29] At the end of 9th grade, this means 2 semesters each of an English (b) and a math (c) class and 4 other semesters of a-g approved classes. Students must earn a grade of C or higher in each semester for the class to count towards a-g completion. At the end of 10th grade, a-g on track requires completion of 4 semesters of English, 4 semesters of math, and 6 other a-g approved semesters, each with a grade of C or above. Our a-g on track indicator does not include courses above the number required for UC admission (e.g., more than two semesters of "g" courses). We also exclude a-g courses taken in middle school and may, therefore, underestimate the propensity to be on track to complete a-g requirements if students who complete a math requirement in middle school do not successfully complete math in the 9th or 10th grade.

9th and 10th grade, regardless of pathway enrollment. In Pasadena, however, students in certified pathways were less likely than similar peers to complete the requirements by the end of 9th grade.

These varied findings could potentially be driven by pathway students having different patterns of enrollment in college preparatory classes and/or by a different likelihood of completing these classes with a grade of "C" or above. We next look at the average number of a-g classes taken and completed by pathway students to better understand the source of variation in these results.

Pathway students took more academic classes and were more likely to complete them with the grades necessary for college.

Analyses of descriptive data show that ninth grade students in three districts took and successfully completed (with a "C" or above) more a-g certified classes than the overall district averages, as seen in Exhibit 7–5. The numbers in this display do not control for prior achievement, but should still give some indication of the curriculum available to pathway students.[30] Pasadena is the only district where pathway students took and completed fewer a-g certified classes than the overall district mean, which may explain the negative result for the 9th grade value-added estimates for this district.

Exhibit 7–5
Mean a-g 9th grade Credits Attempted and Completed with Grade of C or Higher, by District and Pathway Status

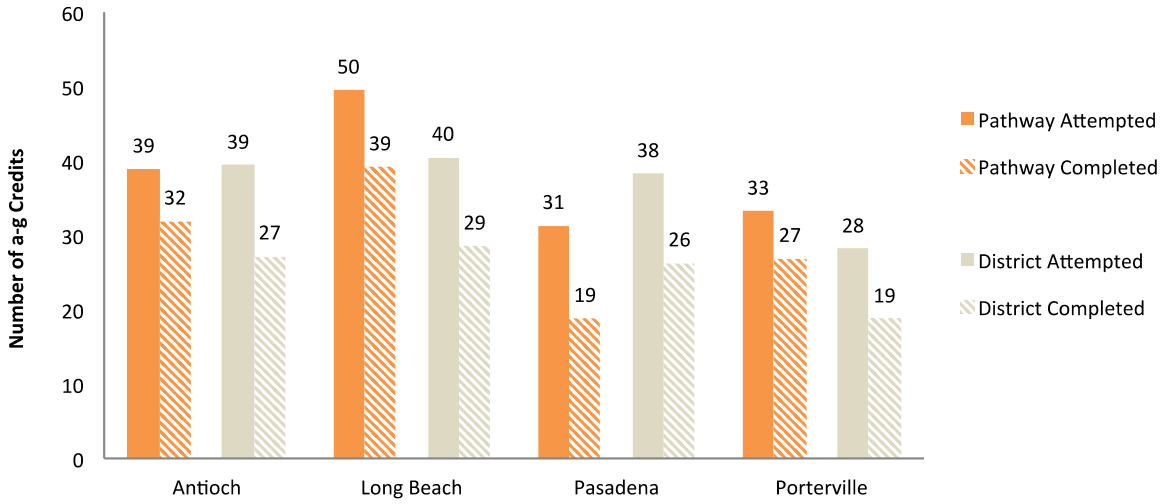

Exhibit Reads: In Antioch, 9th grade students in certified pathways attempted an average of 39 a-g certified credits and completed 32 of these credits with a grade of "C" or higher.

Note: These numbers are means for students included in the value-added estimates in Exhibit 7–3. They do not control for differences in prior achievement.

Source: District-provided student data.

30 The sample in this table is limited to the same students used in the value-added analysis for 9th grade outcomes (i.e., those in both cohorts with complete records for prior achievement), so as to allow for a more direct comparison with the value-added estimates for a-g completion.

On average, students in certified pathways took nearly five extra a-g certified credits (a full semester) and successfully completed 6.8 credits more of college preparatory academic subjects than the overall average. The differences in course taking were most stark in "e" (laboratory science) and "g" (academic elective) certified courses, where certified pathway students took roughly 2 and 3 extra units, respectively.

In two of four districts, students in certified pathways had higher 9th grade English language arts (ELA) test scores compared with similar peers in their district. In 10th grade, pathway students had similar ELA test scores and high school exit exam scores as similar peers in their district.[31]

After 1 year of enrollment in a certified pathway program, students in certified pathways in two of four districts (Antioch and Long Beach) had higher scores on the ELA California Standards Test (CST) than similar peers, controlling for student background characteristics and prior achievement (Exhibit 7–3). These results were small—roughly 3 or 4 points on an exam where the "basic" category ranges 50 points. Furthermore, these positive results persisted into the 10th grade only in Long Beach.

Positive results on the 9th grade ELA CST also do not consistently translate into higher 10th grade ELA California High School Exit Exam (CAHSEE) scores, despite these two exams testing similar content. In fact, students in certified pathways in Long Beach scored lower on the ELA CAHSEE than expected. Pathway students' performance on the mathematics section of the CAHSEE exceeded that of similar peers in one of three districts.

Overall, standardized test score results at this early stage are mixed, with positive results counterbalanced by null or even negative results within the same district. It may be that standardized test scores in math and ELA are not closely aligned with the areas in which Linked Learning has made progress. The greater number of credits seems to be driven more by science classes than English classes (which all 9th and 10th graders are likely to take). Additionally, it may be too early, both in terms of the development of pathways and students' time in them, to see significant effects on standardized test scores.

Implications

The Linked Learning approach aims to increase college and career readiness among high school students. In most districts, students in certified pathways accumulated more credits and were more likely to be on track to complete a-g requirements compared with non-pathway students within the district who began high school with similar levels of academic achievement. Students in certified pathways enrolled in college preparatory coursework (a-g certified classes) and completed these classes with a grade of C or higher more often than similar peers. These early results indicate that Linked Learning is providing the building blocks for greater student achievement. While test score results appear more mixed at the moment, to the extent that greater engagement and more rigorous coursework lead to improved standardized test scores, we may observe greater gains for pathway student scores in future years and cohorts.

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[31] Beginning in the 8th grade, math CST exams are specific to the class taken, meaning that students of different achievement levels are likely to take different exams. We therefore limit our CST analysis to ELA scores, as the same exam is given to all students within a grade level.

Chapter 8: Students' Post-High School Aspirations

Key Findings

- Pathways have helped students hone their career interests, with many students planning to go into a pathway-related industry occupation.
- Students have gained a better understanding of the wide range of career options available to them, within and outside of their pathway, and explained how their pathway experiences and curriculum are preparing them for their career aspirations.
- Pathway students typically planned to pursue postsecondary education and expressed appreciation for the preparation and support to pursue a college education they received from their pathways.

The Linked Learning approach is designed to improve the high school experience and outcomes for students. The previous chapter documented preliminary data showing that students in Linked Learning pathways may indeed be succeeding in reaching benchmarks that put them on a positive trajectory toward high school completion and college readiness—for example, enrolling in and earning credits for courses that meet the state's a-g requirements. This chapter describes what these students think about their post-high school plans and documents the contributions that pathway participation makes to students' long-term planning.

Students' Postsecondary Career Aspirations

Linked Learning pathways have helped students hone their career interests, with many students currently planning to go into a pathway-related industry occupation. Through their experiences, many students have realized that a given pathway theme encompasses a wide range of career options. This is an especially important lesson for students as they navigate their career path in the 21st century. Students' broad awareness of career options within specific industries also serves as a potent defense against the argument that pathways are merely a new form of old-style vocational education. Below, we share what students told us about their career aspirations.

Students gained a broader and clearer understanding of their career options as a result of their pathway experiences.

According to our student focus groups, students' pathway experiences have influenced their career aspirations over time—either reinforcing interests students came in with, focusing a vague interest in a theme, or expanding their idea of a field. These findings are corroborated by the results in our student survey: 71% of pathway students

71% of pathway students reported that their pathway experience had helped them become more interested in careers related to the pathway theme.

reported that their pathway experience had helped them become more interested in careers related to the pathway theme.[32]

In focus groups, several students told us they came into their pathway with an understanding of a narrow range of occupations, but their pathway has exposed them to more opportunities within their industry sector. Through this broad exposure to career options, many students have been able to hone in on their own interests. As a student in a health pathway said, "Coming in, I really didn't know what I wanted to do because I thought… you could [only] be a nurse or a doctor or surgeon. But then as I started going to the [pathway] classes, I realized how many specializations there were, and how many opportunities… I have so many decisions to make about what I want to do now." Numerous other students representing a range of pathway themes made similar points:

> *As I started going to the pathway classes, I realized how many specializations there were, and how many opportunities…I have so many decisions to make about what I want to do now.*
>
> *–Pathway student*

- "I had an interest in engineering but didn't know what kind. Taking all the engineering classes showed me different options." –Student in an engineering pathway
- "I came here because I like acting, but then I got into tech design. I really want to do that." –Student in a performing arts academy
- "I had some idea [coming into the academy] of what I wanted to do, but then—they give you so many options…fashion and design, graphic communications, you can go into illustration, culinary...There are just so many more things than I thought going into my academy." –Student in an arts and media pathway

Some students also gained a heightened sense of what they can accomplish as a result of their pathway experiences and their exposure to a wide range of career options. As a student in a business academy said, "When I was little I wanted to be a mechanic. But since [being in the academy], I also want to own a mechanic shop. [The business academy] shows how you have to be involved in each step."

In addition, students talked about how their pathways have prepared them for life after high school even if they are not planning to go into the pathway industry. A student from a health pathway observed, "The best thing is that [being in this pathway] helps me make decisions for what to do in life." Another student from an information technology pathway similarly reflected, "These skills let you be flexible with what you want to do...being familiar with different user interfaces, adapting to other user interfaces. Lots of things in jobs not centered around technology still use technology."

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[32] For source and technical information, see Appendix B.

Upper-grade pathway students conveyed more developed thinking about their postsecondary plans than students in the lower grades.

Looking across the grade levels, we found that 11th and 12th graders in the Linked Learning districts had a relatively clear sense of what they want to do after high school, with many planning to pursue a career in the field of their pathway. For example, a 12th grader in an engineering academy said, "In 8th grade I thought I'd work construction for my dad and [do] hard manual labor. I took the civil engineering course here and decided what I wanted to do. I applied civil engineering for all colleges, and [now I want to] open [my] own civil engineering firm."

As we might expect, many students in the 9th and 10th grades were not yet able to articulate concrete plans after high school; their career-related thinking was in earlier stages than the older students, who have had more time and experience in pathways. Still, a number of these younger students told us that they planned to go college (including several who stated that they had not previously planned to); that they were thinking more about specific career and college options than they had prior to entering their pathway; and that their teachers spoke frequently and specifically about college and career options.

In one district, for example, 9th graders explained that they were learning about jobs aligned with their pathways, including jobs that they had never heard of prior to pathway enrollment. They also reported that pathway staff encouraged them on a regular basis to think about what to do after high school and talked with them about how their high school experiences could help achieve their goals. Similarly, in another district, several 9th and 10th grade students talked about how their post-high school plans had either been reinforced or changed since they joined their pathway and described learning more about their professional options through the pathway. For example, a student in an education/family services academy said, "The social worker came and helped me understand how and what it takes to be a social worker, so I got interested in being that and not a pediatrician." Another student recounted learning that "You have to take at least four years of college and if you want to go above that and get your master's degree you have to continue going to school. And also if you want to be a therapist and a social worker, you have to take a therapy class and it depends on what kind of social worker you want to be…"

Students' Postsecondary Education Aspirations

While development of career aspirations is an important goal for Linked Learning, the message that most careers in the 21st century will require education beyond high school is even more important. In American education, it is typical for high school students to say that they intend to go to college, yet many students do not have any idea what it takes to get there. Linked Learning pathways are expected to address this challenge head-on, making sure that students take the courses they need and the steps that are required to ensure a smooth transition from secondary to postsecondary education. Students illustrated the ways their pathway experiences have started to help them prepare for this transition.

Many pathway students have gained courage, motivation, and support to attend postsecondary education.

In our student survey, 80% of pathway students reported that their experience in their pathway helped them decide that they want to continue their education or training beyond high school.[33] This finding is consistent with what we heard in our focus groups. For example, in one district where we spoke with graduating seniors in two of the pathways, the students appeared motivated to attend college and set their aim higher for postsecondary education. One student said that the pathway had "helped with the motivation to apply for colleges and not worry about the money. I would have been lazier with applications without [the pathway]." Another student said the pathway has "given me confidence…I would not have been so adamant about college if not for [the pathway]. Seeing other people pushed me." A student in a business academy in a different district said:

80% of pathway students reported that their experience in their pathway helped them decide that they want to continue their education or training beyond high school.

> [We] were so lucky. We get to see all these colleges. Last year, we went to see Fresno State. I had heard about Fresno State. I fell so in love with it and said, I'm going to go here. When I applied, I was nervous. It's a university. It's a big thing. When I was filling out the application, I knew I wanted to be pre-business. I was nervous to send it. It asks you, 'Are there any classes you're taking now that are related to your major?' I put all my [business academy] classes. In less than a week I had my application back saying I got accepted. A lot of what they saw, seeing what I was doing in [the business academy], of course they're going to get you in. I have [the business academy] to thank for everything.

On the whole, we found that students across the grade levels planned to pursue some sort of postsecondary education and felt that their pathways were preparing and supporting them well for these pursuits. Many 12th graders were awaiting news of pending college applications during our visits, while others had plans to attend their local community college.

Even younger students expressed awareness of the value of postsecondary education, indicating that these pathways are doing a good job of communicating with students about the options and opportunities available to them after high school. For example, a 9th grader in one pathway said, "I knew that the school would be…a great opportunity…and give us college opportunities and better opportunities than other high schools, because we have more attention at this school." Other students in the district noted that they were focused on going to college after high school because a college degree itself would give them a

I never thought about college before – or anything about being professional – in middle school, or even about coming to high school. Teachers here talk about it, and the projects that we do, fundraising for ourselves to go to college, it makes you think about it.

–9th grade pathway student

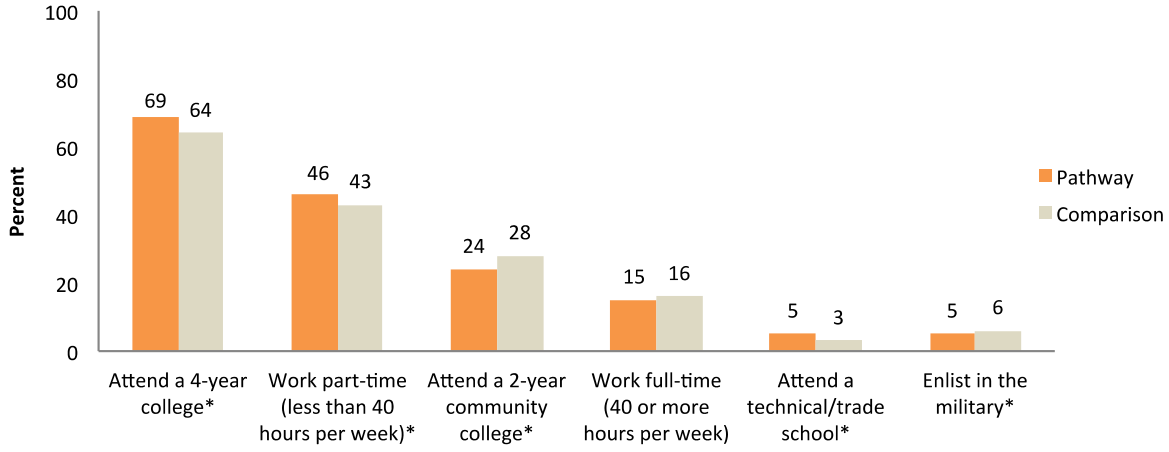
[33] For source and technical information, see Appendix B.

competitive advantage in the job market. For example, a student shared, "Nowadays usually [you need] a college degree or something to get certain jobs, so [college] would make sense." As a 9th grader in a different district said, "I never thought about college before—or anything about being professional—in middle school, or even about coming to high school. Teachers [here] talk about it, and the projects that we do, fundraising for ourselves to go to college, it makes you think about it."

Over two thirds of pathway students planned to attend a 4-year college, while another one fourth planned to attend a 2-year community college.

Consistent with student reports in our focus groups that they planned to enroll in postsecondary education, the vast majority of pathway students reported in our student survey that they plan to attend a 2- or 4-year college The differences between pathway and comparison students in their postsecondary plans were moderate, though statistically significant (see Exhibit 8–1). According to our survey findings, upon entering their pathway, slightly more pathway than comparison students planned to attend a 4-year college, work part-time, and/or attend a technical/trade school immediately after high school. Fewer pathway than comparison students planned to attend a 2-year community college or enlist in the military. Similar proportions of pathway and non-pathway students planned to work full-time.

Exhibit 8–1
Students' Post-High School Plans



* Difference between pathway and comparison students is statistically significant at $p < 0.05$.

For source and technical information, see Appendix B.

However, a higher proportion of pathway than comparison students (81% versus 74%) reported that the majority of the adults at their school encouraged them to continue their education after high school. These data are consistent with the focus group findings discussed in Chapter 5 that adults are talking to students about their postsecondary plans, especially college.

Implications

Students felt that their pathways have been helping to hone their career interests, while also giving them an understanding of the broad range of career options available to them within and outside of their pathway. They also believed that their pathways were preparing them for their postsecondary educational aspirations. At this point, there are only slight differences between pathway and comparison students in their postsecondary educational aspirations; this is not surprising, as high school students often report that they plan to attend a 2- or 4-year college. However, it is clear when talking to pathway students that their teachers have been actively encouraging them to continue their education beyond high school. Further, there is some evidence that upper-grade students have been receiving what they perceive to be an adequate level of support from their counselors. In the near future, we will be talking with and surveying more upper-grade students about college preparation—for example, asking juniors and seniors more specific questions about college applications and applications for student financial aid. Our expectation is that pathway staff will be more proactive in assisting students to accomplish these tasks—particularly students from groups underrepresented in postsecondary education—than is typical in American high schools.

Chapter 9: Conclusion

The early findings on student outcomes, while not conclusive, show signs of promise. Indeed, there are some initial positive findings regarding student progress towards graduation and college readiness, despite the fact that no student has yet experienced the full 4-year Linked Learning "treatment." Further, implementation results document development of the four core Linked Learning pillars (rigorous academics, a core sequence of technical courses, work-based learning opportunities, and adequate student supports). These encouraging signs should motivate districts and partners to persevere in their Linked Learning implementation efforts, understanding that it takes time to build *systemwide* quality experiences.

Still, at this early stage and given the scale of the Initiative, full implementation of Linked Learning understandably remains a work in progress. Even in districts that have years of experience with small learning communities and small, themed high schools, full implementation of the Linked Learning approach is a year or two away for the most mature pathways, and a longer-term goal for pathways that are only a year or two into the implementation process. Furthermore, districts are still working to expand the system of pathways with an eye towards providing all students with equitable access to pathways. While maintaining a firm commitment to and focus on the teaching and learning aspects of the Initiative, it will be important for ConnectEd, its partners, and the Foundation to acknowledge and communicate to key stakeholders that it may take years of sustained effort to achieve the desired pathway student outcomes.

As we head into the fourth year of the evaluation, it is instructive to think about the student data and the student opinions presented in this report in the context of where the districts are in developing Linked Learning curriculum, instruction, assessment, work-based learning, and student supports.

Curriculum, Instruction and Assessment

For the first two years of the Linked Learning District Initiative, the implementation story tended to be district-specific, with each district addressing ad hoc structural issues to bring its policies and procedures into line with the general outline of the Linked Learning strategies, and with districts proceeding on slightly different time frames. During Year 3, with strong urging from the Foundation and technical assistance providers, the focus of activities across the districts began to converge on the core concerns related to academic teaching and learning in the Linked Learning context—rigorous and relevant curriculum, varied instructional strategies including project-based learning, and performance-based assessments. The evaluation team found that implementation of Linked Learning during Year 3 became more intense—particularly at the pathway level, where pathway leads and teachers now must every day craft and deploy programs of study that move ever closer to the ideal of rigorous, relevant, and engaging curriculum and instruction.

This is the implementation context that students had in mind as they completed surveys and participated in focus groups during 2011–12. As we have reported here, students have responded very positively to pathway efforts to provide more classroom-based hands-on, relevant, and integrated curriculum and instruction, primarily through the introduction of project-based learning with attendant performance-based assessments that often use rubrics

to clarify what students should know and be able to do. From the student perspective, the more of this kind of classroom interaction, the better. As we indicated, Linked Learning leaders and teachers are well aware that there is much more work that can be done to integrate a pathway's theme seamlessly across the curriculum—namely, to make the curriculum relevant. However, enhancing the *rigor* of curriculum and instruction seems to be more difficult at the pathway level. Initiative and district leadership must focus their efforts on demonstrating what rigor means and how to incorporate it into curriculum and instruction.

Work-Based Learning Experiences

Students are as enthusiastic about their work-based learning experiences as they are about project-based learning. They would like more of these opportunities, especially experiences that expose them to actual workplaces. Most of the students we spoke with, and all that we surveyed, were 9th, 10th, or 11th graders. Generally speaking, pathways reserve the more intensive workplace placements (e.g., job shadows and internships) for 12th graders, so for this year's respondents, the best is yet to come.

Nevertheless, the student enthusiasm for work-based learning bumps up against a serious challenge for pathways. While many pathways are making progress in developing and sequencing work-based learning opportunities for their students, district and pathway staff are often stretched in their capacity to coordinate these opportunities given the substantial time and effort required. Further, the experiences offered are sometimes not well aligned with the academic and technical components of the pathway theme or are offered with no clear connection to the scope and sequence of the classroom curriculum. In some cases, pathway staff also remain confused about the activities that qualify as work-based learning for the purposes of Linked Learning certification.

Thus, as popular as the existing work-based learning experiences are with students, work-based learning continues to need attention and refinement at all levels of the Initiative. Technical assistance providers, district Linked Learning leaders, and pathway personnel all have a vested interest in strengthening the offerings to allow for the best possible assessment of work-based learning as an integral part of the Linked Learning approach.

Student Supports

Previous evaluation reports on implementation of Linked Learning have noted that participating districts, schools, and pathways have not actively addressed student supports as the fourth leg of the Linked Learning stool. In large part, the lack of attention seemed directly connected to the economic conditions and consequent district downsizing that has sometimes had draconian effects on central offices and student services such as guidance counseling. Given these observations about the status of support services, it is instructive to note that students in pathways seem to be finding that the adult support relationships that they have are adequate and normal. Younger pathway students turn to teachers; older students receive the bulk of the attention from those guidance staff who remain. While perhaps not an optimal situation, students are making do and apparently making out fine from their own perspectives.

We must caution, however, that in focus groups and on surveys, some student voices are underrepresented, namely populations such as special education students and English

language learners. Despite the logistical issues that need to be overcome, these groups must be given opportunities to participate in pathways—including the opportunity to choose the pathways in which they enroll. Once enrolled, they will almost certainly require enhanced supports in order to succeed. Success with the Linked Learning equity agenda may require more creative thinking about the use of scarce resources than has occurred so far.

Student Outcomes

As pleased as we are that this third annual evaluation report finally includes analyses on student outcomes, the evaluation team cannot emphasize too strongly the *preliminary* nature of the findings presented. The sample of pathways on which the findings are based is very restricted this year and is undoubtedly not representative of the universe of Linked Learning District Initiative pathways overall. Drawing firmer conclusions will require more patience as the pool of certified pathways gradually expands.

In spite of the cautionary note, preliminary evidence supports the claim that in comparison with similar peers in their districts, students in certified pathways:

- Earn more credits by the end of 9th and 10th grades.
- Are making greater progress toward high school graduation and a-g completion.

We can also hypothesize that outcome comparisons based on current state exams may not tell an especially positive story because the tests are not well aligned to what and how pathway students are taught. On the other hand, to the extent that the Linked Learning standards are deliberately aligned with the Common Core standards, the future Common Core assessments may offer a valid point of comparison between pathway and non-pathway students. Such an opportunity could be very important for Linked Learning's future in the state.

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On balance, and based on multiple sources of information about the student experience in Linked Learning pathways, we conclude that pathway students are having an above-average high school experience. In addition to the areas that we have highlighted above, students shared positive views on the "soft" skills that they are learning, which will transfer well to postsecondary education and the workplace, as well as on their comfort level in their small pathway communities. Another year of similarly positive results will certainly be something to share with a broader audience in the state and the nation.

Appendix A: Survey Methods and Response Rates

OVERVIEW

This report presents findings from the third-year evaluation activities of the California Linked Learning District Initiative, which focuses on implementation of the Initiative in nine districts: six districts that received implementation grants in June 2009 (cohort 1) and three districts that received implementation grants in March 2010 (cohort 2) (see Exhibit A-1). This was the third year of data collection in cohort 1 districts and the second year of data collection in cohort 2 districts.

Exhibit A-1
Linked Learning District Initiative Districts

Cohort 1	Cohort 2
Antioch Unified	Los Angeles Unified Local District 4
Long Beach Unified	Montebello Unified
Pasadena Unified	Oakland Unified
Porterville Unified	
Sacramento City	
West Contra Costa Unified	

This appendix details the design and procedures for the primary data collection methods and analyses used for the Year 3 Evaluation Report. Exhibit A-2 presents research questions by data collection activity.

Exhibit A-2
Research Questions by Data Source

Research Questions	Data Sources		
	Qualitative	Student Survey	Extant Student Data Analysis
1. What structures, policies, and supports facilitate the implementation and institutionalization of a district-wide system of high-quality pathway programs, and what challenges do districts face?	✓		
2. How do districts support the implementation of pathway programs, and what challenges do pathway programs face?	✓		
3. What are the educational experiences and outcomes for students participating in pathway programs?	✓	✓	✓

Note: Qualitative data collection includes observation of events hosted by ConnectEd, interviews both in person and by phone, and document collection.

Specific data collection activities included observation of events hosted by ConnectEd, document review, interviews, baseline and follow-up student surveys, and initial analysis of extant student data from four of the nine districts to assess student outcomes associated with pathway participation (see Exhibit A-3).

Exhibit A-3
Data Sources for the Year 3 Evaluation Report

Districts	Qualitative Data Collection		Extant Student Data[a]	Student Surveys	
	Phone Interviews	Site Visits		Baseline[b]	Follow-Up[c]
Cohort 1	Fall 2009 Fall 2010 Fall 2011	Spring 2010 Spring 2011 Spring 2012		Fall 2010	Spring 2012
Antioch	✓	✓	✓	9th graders	10th graders
Long Beach	✓	✓	✓	9th graders	10th graders
Pasadena	✓	✓	✓	9th graders	10th graders
Porterville	✓	✓	✓	9th graders	10th graders
Sacramento	✓	✓		9th & 10th graders	10th & 11th graders
West Contra Costa	✓	✓		10th graders	11th graders
Cohort 2	Fall 2010 Fall 2011	Spring 2011 Spring 2012		Fall 2011	Not applicable
Los Angeles LD4	✓	✓		Not applicable	
Montebello	✓	✓		9th graders	
Oakland	✓	✓		10th graders	

[a] Subsequent reports will include analysis of student outcomes in all nine districts.
[b] We did not conduct a baseline survey in Los Angeles District 4 in fall 2011 due to limited district capacity to meet our survey data collection window.
[c] We did not administer a follow-up survey to comparison students in WCC in spring 2012 because initial feedback from the district indicated greater than 50% attrition from the comparison sample. Follow-up surveys in the three cohort 2 districts were not part of the planned data collection for this evaluation.

QUALITATIVE METHODS

In order to understand implementation of Linked Learning pathways, as well as gather information on student experiences, researchers from SRI conducted a range of qualitative data collection activities in all nine districts receiving implementation grants. The qualitative data collection activities consisted of observations of ConnectEd events attended by district and pathway staff, reviews of district interim progress reports, pathway certification reports, and relevant news stories, phone interviews, and district site visits that included interviews and student focus groups. Below, we provide additional detail on these activities and analytic methods.

Observations of ConnectEd hosted events. Members of the SRI research team attended selected ConnectEd hosted events attended by district teams. These included the 2011 Summer Institute and November 2011 and March 2012 district leadership series residencies. Researchers took notes on these meetings and talked informally with district and pathway staff.

Document and news review. The research team reviewed district interim progress reports submitted to ConnectEd as part of their grant reporting requirements as they were made available. These provided information on district plans, progress, and challenges toward implementation. The team also reviewed pathway certification reports to understand the certification progress and challenges. In addition, the research team monitored local news for relevant stories to support understanding of state and district contexts.

Phone interviews and site visits. The research team conducted interviews in fall 2011 and spring 2012 to follow district implementation progress in all nine districts. Interview topics aimed at understanding district systems of supports and challenges around implementing a district-wide system of Linked Learning pathways. Interview topics focused primarily on the pathway certification process, policies and structures for supporting academic and technical curriculum, instruction and assessment, student supports, and student choice, selection and access, as well as any successes or challenges to implementation more generally. We developed semistructured interview protocols covering these topics or a subset of these topics for key respondent categories (e.g., district leader, pathway lead). We tailored protocols to a respondent's knowledge and role. Interviewers took notes and audio-recorded interviews for use during analysis.

In fall 2011, members of the research team conducted phone interviews with Linked Learning directors and other key district administrators (e.g., WBL coordinator) in each of the nine districts, as well as with ConnectEd district and pathway coaches. In addition, researchers also interviewed representatives from technical assistance providers to understand the nature and type of support provided to districts.

In spring 2011, a team of two or three researchers visited two to four pathways per district, focusing on those identified by districts as being furthest along in curriculum development, project-based learning and/or work-based learning, which totaled 32 pathways. During the site visits, researchers interviewed key district administrators, school and pathway staff, and selected technical assistance providers, and conducted focus groups of students from selected

pathways.[1] Researchers also conducted telephone interviews with ConnectEd district and pathway coaches assigned to each site. In addition, the research team conducted ten interviews with external technical assistance providers offering support across all of the districts, such as ConnectEd staff. In total, the team conducted 238 interviews and student focus groups across the nine districts during the spring 2012 visits, in addition to the 49 telephone interviews conducted in fall 2011. More detailed information on respondent interviews conducted during fall 2011 and spring 2012 data collection is presented in Exhibit A-4. If district or pathway staff had any available materials related to pathways (e.g., recruitment materials, course sequences), the research team collected these while on site.

Exhibit A-4
Interview Respondent Summary

Interview Type	Interview Counts	
	Fall 2011	Spring 2012
District leaders	24	36
School administrators	0	39
Pathway leads	0	34
Teachers (not pathway leads)	0	53
Guidance counselors	0	25
Linked Learning coaches	18	17
Technical assistance providers and external partners	7	5
Student focus groups	0	29
Total	**49**	**238**

Analysis

Using data collected from each district, the research team conducted within-case and cross-case analyses. For each district, researchers completed formal debriefing forms, sorting data collected from each site by topic areas (e.g., curriculum, leadership development) and synthesizing findings across sources within a given district. Cross-case analyses comparing and synthesizing findings across districts allowed the research team to identify broader patterns and themes. In addition, the research team incorporated information gathered through attendance of ConnectEd-sponsored events and interviews with technical assistance providers into the analytic process.

[1] Due to scheduling challenges, some interviews, particularly with technical assistance providers, were done by phone just prior or subsequent to the site visit.

SURVEY METHODS

Between fall 2010 and fall 2011, the research team administered a baseline survey in eight of nine districts to students in the initial year of a pathway (i.e., 9th or 10th grade) and a set of comparison students not enrolled in a Linked Learning pathway.[2] The purpose of that survey was to provide an initial profile of pathway students and highlight any differences between pathway and non-pathway students. It provided information on measures such as motivation, engagement in learning and aspirations for postsecondary education and/or careers. In spring 2012, we administered a follow-up survey in the Cohort 1 districts to pathway and comparison students sampled in 2010. The purpose of this follow-up survey was to provide an updated profile of pathway students and their non-pathway peers. It provided new information on various technical components of the pathway experience per students' perspectives, including integrated academic and career and technical education (CTE) and work-based learning (WBL) opportunities. This survey also provided information about school and/or pathway climate as well as college- and career-related supports.

Sample

At the time of the baseline survey, the research team worked with the Linked Learning director in each district to select the pathways most likely to engage in the early certification process (see Exhibit A-5):

[2] Cohort 1 districts were surveyed beginning in fall 2010 and Cohort 2 districts were surveyed beginning in fall 2011. Due to limited district capacity for meeting our survey data collection window, LAUSD-4 was unable to participate in the baseline survey.

Exhibit A-5
Pathways Surveyed at Baseline and Follow-Up

District	Pathways Surveyed Between 2010–12
Antioch	• Deer Valley Law Academy • Delta Academy for the Performing Arts • Dozier-Libbey Medical High School
Long Beach	• Architecture, Construction and Engineering Pathway • California Academy of Math and Science • COMPASS at Millikan HS • PEACE Academy at Millikan HS
Los Angeles LD-4	• Not applicable
Montebello	• CATS at Montebello HS • CHOP at Bell Gardens HS • DRIVEN at Montebello HS • iCARE at Bell Gardens HS
Oakland	• Education Academy • Environmental Sciences Academy • Life Academy of Health and Bioscience • Mandela Law and Public Service Academy • Media College Prep • Visual Arts and Academics Magnet Program
Pasadena	• Arts, Entertainment, and Media Pathway • Business and Entrepreneurship Academy • Engineering and Environmental Science
Porterville	• Digital Design and Communication • Engineering Academy • Multimedia and Technology Academy • Partnership Academy of Health Science[a]
Sacramento	• Johnson Corporate Business Academy • Education and Leadership Academy • Green Academy • Health Professions HS
West Contra Costa	• Engineering Partnership Academy • Health Academy • Law Academy • Multimedia Academy

[a] Porterville's Partnership Academy of Health Science was included in the baseline sample but not the follow-up sample.

We then sampled all students enrolled in the initial year of these pathways. We determined the number of comparison students to sample based on the number needed to achieve sufficient power (80%) to detect a difference in means of .30 standard deviations or a difference in proportion of .15 between pathway and comparison students. We sampled comparison students from the same school when there were sufficient numbers of students not enrolled in pathways. If not, the team selected comparison schools based on their similarity to the size, achievement level and demographics of the pathway schools. We avoided charter schools and schools with special themes or programs whenever possible. In cases where districts had implemented wall-

to-wall pathways in all schools, we selected pathways or SLCs for comparison that were in the earliest stages of development or least aligned with the Linked Learning approach.

The initial year of the pathway was 9th grade in most cases, but some pathways do begin in 10th grade (see Exhibit A-6).

Exhibit A-6
Grade Levels Surveyed at Baseline and Follow-Up

Districts	Student Surveys	
	Baseline[b]	Follow-Up[c]
Cohort 1	Fall 2010	Spring 2012
Antioch	9th graders	10th graders
Long Beach	9th graders	10th graders
Pasadena	9th graders	10th graders
Porterville	9th graders	10th graders
Sacramento	9th & 10th graders	10th & 11th graders
West Contra Costa	10th graders	11th graders
Cohort 2	Fall 2011	Not applicable
Los Angeles LD4	Not applicable	
Montebello	9th graders	
Oakland	10th graders	

We selected students in the same grade for comparison. Within comparison schools, we selected a sample of students that were academically similar to pathway students. Specifically, we identified classrooms of students in English courses that aligned with the proportions of honors or traditional English courses found in pathways.

For the follow-up survey, districts made great efforts to track down their baseline students. In order to meet our follow-up survey sampling criteria, pathway students had to have remained in their same pathway as of their baseline survey year, and comparison students had to have maintained their non-pathway status or to have since enrolled in a non-certified pathway at their same school. Districts found that over the past two years, a number of both pathway and comparison students had since changed schools, dropped out of school, or left the district.[3]

[3] We did not administer a follow-up survey to comparison students in WCC in spring 2012 because initial feedback from the district indicated greater than 50% attrition from the comparison sample.

Given that students had progressed upward by one grade level since the baseline survey, we most often surveyed 10th-graders as well 11th-graders at some schools.

Administration

For the baseline survey, we obtained rosters from each school to create a master list of students to be surveyed. For the follow-up survey, we asked each district to review their baseline survey sample roster and to document which students met or did not meet our follow-up survey sampling criteria. We used the final master roster to inform schools of which students to survey and to request additional follow-up if surveys were not received from individual students.

We worked with the Linked Learning director to identify district and/or school liaisons to assist with coordinating the survey administration. In fall 2011 and spring 2012, SRI researchers traveled to four of eight districts to administer the survey in person in order to reduce burden on school staff. In the remaining four districts we co-developed the administration process with the liaison(s). We conducted follow-up with schools whenever significant numbers of surveys were not completed. We monitored response rates and followed up directly or through the liaisons to ensure a high response rate in all districts.

Response Rate

In 2011–12, SRI surveyed 433 pathway and 922 comparison students across two Cohort 2 Linked Learning Districts, and 1,790 pathway and 916 comparison students across six Cohort 1 Linked Learning Districts. On the Cohort 2 baseline survey, we achieved an overall response rate of 92% of surveys fielded. On the Cohort 1 follow-up survey, we achieved an overall response rate of 86% of surveys fielded, or 55% of the original baseline sample.[4] Exhibit A-7 displays response rates for both pathway and comparison students in each district, as well as the overall response rate for each district.

[4] Follow-up response rates from the original baseline sample represent students who completed both the fall 2010 baseline survey and the spring 2012 follow-up survey.

Exhibit A-7
Student Survey Response Rate by District

	Baseline		Follow-Up[a]		
	Surveys Fielded	Response Rate (%)	Surveys Fielded	Response Rate from Surveys Fielded (%)	Response Rate from Baseline Sample (%)
Montebello Unified					
Pathway	104	97	N/A	N/A	N/A
Comparison	726	96	N/A	N/A	N/A
Total	830	96	N/A	N/A	N/A
Oakland Unified					
Pathway	329	85	N/A	N/A	N/A
Comparison	196	86	N/A	N/A	N/A
Total	525	86	N/A	N/A	N/A
Antioch Unified					
Pathway	322	90	235	96	70
Comparison	230	91	175	87	66
Total	552	90	410	92	68
Long Beach Unified					
Pathway	780	90	701	93	84
Comparison	323	85	256	78	62
Total	1103	88	957	89	77
Pasadena Unified					
Pathway	320	89	210	49	32
Comparison	177	78	130	93	68
Total	497	85	340	66	45
Porterville Unified					
Pathway	349	95	189	97	64
Comparison	204	92	164	88	71
Total	553	94	353	93	67

	Baseline		Follow-Up[a]		
	Surveys Fielded	Response Rate (%)	Surveys Fielded	Response Rate from Surveys Fielded (%)	Response Rate from Baseline Sample (%)
Sacramento City Unified					
Pathway	363	82	216	82	49
Comparison	287	83	191	83	55
Total	650	83	407	82	52
West Contra Costa Unified					
Pathway	314	76	239	86	65
Comparison	199	74	N/A	N/A	N/A
Total	513	75	239	86	65
Total (All Districts)	5160	88	2706	86	66

[a] Cohort 2 districts only participated in the baseline survey as of fall 2011 and thus were not part of the spring 2012 follow-up survey sample.
[b] The total and pathway "Response Rate from Baseline Sample %" in Porterville was calculated excluding their Partnership Academy of Health Science from the denominator, since this pathway was not part of the follow-up survey sample.
[c] The total "Response Rate from Baseline Sample %" for all Cohort 1 districts was calculated using a denominator of 3543, which represents a baseline sample excluding Porterville's Partnership Academy of Health Science and West Contra Costa's baseline comparison sample, both of which were dropped from the follow- up survey.

Analysis

Much of the analysis was comparative, examining the frequency with which pathway students reported certain activities contrasted with comparison students. We used a chi-squared test of independence to determine whether differences between pathway and comparison students in the survey sample represent true underlying differences in the population of pathway and comparison students (i.e., were statistically significant at the .05 level). We used univariate analysis such as frequencies and means when presenting responses for pathway students only. For overall means and frequencies that pooled data from across the districts, we weighted both pathway and comparison respondent so that the total number of respondents in each group equaled the number of pathway students surveyed at baseline in each district. This weighting was done to ensure that the number of comparison students by district was proportional to the number of pathway students in each district when calculating overall frequencies and means.

Extant Student Data Analysis

To estimate the effect of participation in Linked Learning pathways on students' engagement and achievement outcomes, researchers from SRI obtained student-level demographic, enrollment and achievement data for four Linked Learning districts: Antioch, Long Beach, Pasadena, and Porterville.[5] These data allow us to provide a detailed picture of the demographic characteristics and prior achievement levels of pathway students compared with the district as a whole, as presented in Chapter 2 of this report. They also allow us to examine 9th grade outcomes for the Classes of 2013 and 2014 and 10th grade outcomes for the class of 2013, adjusting for students' prior achievement and background characteristics.

In this section we describe the pathways and other academic programs available in each of these four districts, provide descriptive statistics for certified pathway enrollment and retention, and provide a detailed description of how we estimated the value added of certified pathway enrollment on students' engagement and achievement outcomes. We looked at two engagement indicators, students' absences and retention in district, and multiple achievement indicators: credit accumulation, course failures, a-g completion and standardized test scores.

Background and District Context

Each of the four districts provides students with a variety of academic options for school and pathway enrollment, including certified pathways, traditional high schools, alternative schools, and charter schools. To describe enrollment in these various academic options, we classified the available program types in each district, though we focused on the outcomes of students in certified pathways. We also excluded any schools deemed out of district control (e.g., charter schools, home school programs). All four districts had the following program types:

- Certified pathways: Because only one pathway across the six cohort 1 districts achieved certification in 2009–10, we consider students in the Class of 2013 to have participated in a certified pathway in 2009–10 if the pathway attained certification in the following school year.

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[5] The evaluation team received student-level data directly from Long Beach Unified School District. Data from the other three districts came through a third party, the Institute for Evidence-Based Change.

- Themed, Non-Certified Pathways: We considered any program having a career theme and small cohort to be a "themed, non-certified pathway." These programs shared some important features with the certified pathways, but varied in terms of how closely they align to or aim to replicate the full Linked Learning model. We included pathways deemed "in progress" towards certification in this category.
- Traditional high school: We included schools with neither an intentional cohort nor a career theme in this category.
- Alternative schools: We classified schools aimed at struggling students (e.g. credit recovery programs for students in need of credit recovery) or students with special needs (e.g. English Language Learners) into one group.

There were some additional program types that did not occur in all districts:

- Non-themed (Honors/IB) Pathways: Long Beach provides a small number of academic pathways that share a small cohort experience with the Linked Learning model, but do not have a strong career theme. These programs are also among the more academically rigorous in the district, with minimum recommended GPAs, and sometimes minimum test scores, middle school curriculum and/or recommendations, for entry.
- Non-Pathway at Wall-to-Wall Schools: All districts but Antioch have at least one high school where all students should be assigned a pathway designation (these schools are commonly referred to as "wall-to-wall schools"). We included any students at these wall-to-wall schools without a pathway designation in this group. We excluded these students from the outcomes analysis; they therefore do not appear in the analytic sample.
- Freshman Academies: In Long Beach, three high schools had freshman academies that enrolled students who had not yet selected a pathway. LBUSD has begun to phase out freshman academies at two high schools, but one school has decided to maintain a model where all students enroll in the freshman academy and all their pathways begin in 10th grade, after students have been exposed to each program and career theme.

Exhibit A-8
Number of Pathway in Each Program Type, by District

	Long Beach	Porterville	Antioch	Pasadena
Certified Pathways	4	2	1	3
Themed, Non-Certified Pathways	26	4	3	1
Non-Themed (Honors/IB) Pathways	6	NA	NA	NA
Traditional High School	1	4	2	3
Alternative Schools/Freshman Academies	3	3	4	3
Non-Pathway at Wall-to-Wall Schools	5	1	NA	1

Exhibit A-9
Certified Pathways, by District

District	Certified Pathway	High School	Year Certified	Grades Served
Long Beach	Architecture, Construction and Engineering Pathway	Jordan High School	Summer 2010	9th–12th
	California Academy of Mathematics and Science	California Academy of Mathematics and Science (regional magnet)	Spring 2011	9th–12th
	Personal success through Empowerment, Academic achievement, Conflict resolution, and Ethics in action	Millikan High School	Spring 2011	9th–12th
	Community of Musicians, Performers, Artists, and Social Scientists	Millikan High School	Spring 2011	9th–12th
Porterville	The Business and Finance Academy	Porterville High School	Fall 2010	9th–12th
	Engineering and Design	Harmony Magnet	Spring 2011	9th–12th
Antioch	Dozier-Libbey Medical High School	Dozier-Libbey Medical High School	Spring 2011	9th–12th
Pasadena	The Arts, Entertainment and Media Academy	John Muir High School	Spring 2011	9th–12th
	The Business and Entrepreneurship Academy	John Muir High School	Spring 2011	9th–12th
	Creative Arts, Media and Design Academy[a]	Pasadena High School	Spring 2011	10th–12th

[a] Because this pathway did not serve 9th graders, descriptive statistics for certified pathways based on students' 9th grade enrollments (demographics, prior achievement, and 9th grade outcomes) do not include students in this pathway.

Data Sources and Descriptive Statistics

The evaluation relied on student-level demographic and achievement data from four districts—Antioch, Long Beach, Pasadena, and Porterville—to conduct the student outcomes analysis. The evaluation team received student-level data directly from Long Beach Unified School District. Data for all the districts except Long Beach, which provided data directly to SRI, came through a third party, the Institute for Evidence-Based Change. The research team requested 7th through 10th grade data for the class of 2013 (students who started 9th grade in the 2009–10 school year) and 7th through 9th grade data for the class of 2014 (students who began high school in 2010–11).

In Exhibit A-10 we describe each data element used in the analysis.

Exhibit A-10
Data Elements

Variable	Description
7th Grade Math CST	7th grade math CST Score
8th Grade Math CST	8th grade math CST Score
7th Grade ELA CST	7th grade ELA CST Score
8th Grade ELA CST	8th grade ELA CST Score
9th Grade ELA CST	9th grade ELA CST score
10th Grade ELA CST	10th grade ELA CST score
Proficient or Higher, 9th Grade ELA CST	Equal to 1 if a student scored proficient or higher on the 9th grade ELA CST. Equal to 0 if a student scored below proficency.
Proficient or Higher, 10th Grade ELA CST	Equal to 1 if a student scored proficient or higher on the 10th grade ELA CST. Equal to 0 if a student scored below proficency.
7th Grade Math CST: General Math	Equals 1 if student took the 7th grade general math CST test; equals 0 if student did not take 7th grade general math CST test and the value is non-missing
7th Grade Math CST: Algebra I	Equals 1 if student took the 7th grade algebra I CST test; equals 0 if student did not take 7th grade algebra I CST test and the value is non-missing
8th Grade Math CST: General Math	Equals 1 if student took the 8th grade general math CST test; equals 0 if student did not take 8th grade general math CST test and the value is non-missing
8th Grade Math CST: Algebra I	Equals 1 if student took the 8th grade algebra I CST test; equals 0 if student did not take 8th grade algebra I CST test and the value is non-missing
8th Grade Math CST: Geometry Test	Equals 1 if student took the 8th grade geometry CST test; equals 0 if student did not take 8th grade geometry CST test and the value is non-missing
Took Algebra or Higher in 8th grade	Equals 1 if student took the 8th grade math CST test for any of the following subjects: algebra I, intermediate math I, geometry, intermediate math II, algebra II, or intermediate math III; equal to 0 if student took the 8th grade math CST test in general math or summative high school math and value is non-missing
Class Fail Indicator, 7th Grade	Equals 1 if student failed a semester course in 7th grade; equals 0 if student did not fail any courses and value was non-missing
Class Fail Indicator, 8th Grade	Equals 1 if student failed a semester course in 8th grade; equals 0 if student did not fail any courses and value was non-missing
Number of F's Received in the 9th Grade	The number of semester F's received in the 9th grade

Variable	Description
Number of F's Received in the 10th Grade	The number of semester F's received in the 10th grade
Number of Credits Accumulated in the 9th Grade	Sum of credits for all classes students received a passing grade
Number of Credits Accumulated in the 10th Grade	Sum of credits for all classes students received a passing grade
7th Grade GPA	7th Grade Academic, unweighted GPA. Plusses or minuses are ignored
8th Grade GPA	8th Grade Academic, unweighted GPA. Plusses or minuses are ignored
9th Grade GPA	9th Grade Academic, unweighted GPA. Plusses or minuses are ignored
10th Grade GPA	10th Grade Academic, unweighted GPA. Plusses or minuses are ignored
On Track to Complete a-g Course Requirements in 9th Grade	This variable equals 1 if, in the 9th grade, a student has received a C or better in two semesters each of a "b" class and a "c" class and four additional courses that count towards any a-g requirement. Semesters are not counted past the number required to meet a-g requirements (i.e., only 2 "g" classes will count towards being on track to complete the a-g requirements)
On Track to Complete a-g Course Requirements in 10th Grade	This variable equals 1 if, in the 9th and 10th grade, a student has received a C or better in four semesters each of a"c" class and a "b" class and six additional semesters that count towards any a-g requirement. Semesters are not counted past the number required to meet a-g requirements (i.e., only 2 "g" classes will count towards being on track to complete the a-g requirements)
Days Absent in the 9th Grade	Number of days absent in 9th grade (only available in Long Beach)
Days Absent in the 10th Grade	Number of days absent in 10th grade (only availabe in Long Beach)
Remained in District From 9th to 10th Grade	Equal to 1 if evidence of student retained in district from 9th to 10th grade. Students are considered present in the district if they have a non-missing value for 10th grade ELA CST, 10th Grade GPA or 10th Grade school or pathway enrollment. This variable is only defined for students in the Class of 2013
California High School Exit Exam, ELA	ELA California High School Exit Exam score (CAHSEE)
Passed California High School Exit Exam, ELA	Equal to 1 if a student score 350 or above on the ELA CAHSEE. Equal to 0 if student scored below 350 on the ELA CAHSEE
California High School Exit Exam, Mathematics	Math CHASEE score
Passed California High School Exit Exam, Mathematics	Equal to 1 if a student score 350 or above on the Math CAHSEE. Equal to 0 if student scored below 350 on the math CAHSEE

Variable	Description
Passed California High School Exit Exam	Equal to 1 if student passed both the math and ELA CAHSEE; equal to zero if student took both exams but did not pass one or both
Female	Equal to 1 if student is female; equal to zero if student is male
Low SES	Equal to 1 if student is part of the National School Lunch Program or their parent's education level is not higher than high school graduate; equal to 0 if student is not part of the National School Lunch Program and their parent's education level is higher than a high school graduate and the value is non-missing
White	Equal to 1 if student is White, Non-Latino; equal to 0 if student is not White and the value is non-missing
Latino	Equal to 1 if student is Latino; equal to 0 if student is not Latino and the value is non-missing
African American	Equal to 1 if student is African American, Non-Latino; equal to 0 if student is not African American and the value is non-missing
Asian Group 1	Equal to 1 if student is of Chinese, Japanese, Korean, Vietnamese, Indian, or Filipino descent (groups with higher than national average high school graduation rates); equal to 0 if student is not from any of these ethnic groups and the value is non-missing
Asian Group 2	Equal to 1 if student is of Laotian, Cambodian, Hmong, Hawaiian, Guamanian, Samoan, or Tahitian descent (groups with lower than national average high school graduation rates); equal to 0 if student is not from any of these ethnic groups and the value is non-missing
Other Race/ Ethnicity	Equal to 1 if student is American Indian, Alaskan Native, or ethnicity unknown; equal to 0 if student's ethnicity is known and is not American Indian or Alaskan Native
GATE	Equal to 1 if student is gifted and talented; equal to 0 if student is not gifted and talented and the value is non-missing
SPED	Equal to 1 if student is in special education; equal to 0 if the student is not in special education and the value is non-missing
English Language Learner	Equal to 1 if student is classified as an English language learner; equal to 0 if student is not classified as an English language learner and the value is non-missing
Redesignated Fluent English Proficient	Equal to 1 if student is reclassified as proficient in English; equal to 0 if student is not classified as reclassified as proficient in English and the value is non-missing
Initially Fluent English Proficient	Equal to 1 if student has a home language other than English, but who is initially classified as proficient in English; equal to 0 if student was not initially classified as proficient in English and the value is non-missing
C13	A student in the 9th grade in the 2009–10 school year (Class of 2013 if graduates on time)

Providing all the specific data elements needed for the analysis posed a challenge for districts, which often house data elements in different data systems and are just beginning to develop systems for flagging and tracking pathway students. A number of gaps in the data mean that analysis based on student-level data was not possible in some cases or must be interpreted with caution

- Porterville could only provide prior achievement for students who attended middle schools in the district, so we could not include the approximately 50 percent of high school students who entered the district in high school from feeder districts in our student outcome analysis.
- Pasadena could not provide student achievement data prior to 2009–10. Without a measure of prior achievement, we could not perform the student outcomes analysis for the class of 2013 in this district, which precludes examination of 10th grade outcomes in Pasadena at this time.
- Antioch was not able to provide pathway flags for students in 2009–10 (i.e., 9th grade for the class of 2013). Because the only certified pathway in Antioch is a stand-alone school, we were still able to estimate a certified pathway effect in Antioch, but could not identify students enrolled in the one non-certified pathway in 2009–10.
- Because there were a large proportion of students with credits earned but a failing grade in the student data from Antioch, we calculated credits earned assuming that each class indicated five credits attempted, with these credits awarded when students earned a non-failing course grade.

In Exhibits A-11 and A-12, below, we display descriptive statistics of students in each district, both the overall mean for the district and the students enrolled in certified pathways. These tables present the sample sizes, means, and, for continuous variables, standard deviations for all students in the district, regardless of inclusion in the analytic sample. We provide these overall descriptive statistics to allow for an understanding of certified pathway enrollment in comparison to the district as a whole. The tables show student demographics, prior achievement, 9th grade and 10th grade outcome descriptives, respectively.

Exhibit A-11
Overall Demographics, by District

	Long Beach		Porterville		Antioch		Pasadena	
	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway
N	13,569	1,215	3,364	306	3,210	354	2,864	444
Class of 2013	51%	51%	51%	53%	49%	46%	52%	48%
Class of 2014	49%	49%	49%	47%	51%	54%	48%	52%
Female	50%	53%	47%	37%	50%	64%	49%	51%
Low SES	72%	60%	74%	64%	52%	47%	78%	92%
White	15%	22%	21%	24%	26%	25%	15%	5%
Latino	50%	47%	70%	66%	34%	38%	63%	64%
African American	16%	9%	1%	2%	26%	16%	21%	34%
Asian Group 1 [a]	6%	8%	2%	3%	8%	14%	4%	1%
Asian Group 2 [b]	8%	3%	2%	3%	4%	6%	1%	0%
Other Race/ Ethnicity	5%	11%	6%	13%	2%	1%	1%	0%
GATE	17%	10%	4%	7%	3%	3%	11%	3%
SPED	13%	7%	3%	0%	11%	6%	9%	11%
English Language Learner	17%	9%	18%	11%	10%	10%	15%	23%

[a] Asian with higher than national average high school graduation rates.
[b] Asian groups with lower than national average high school graduation rates.

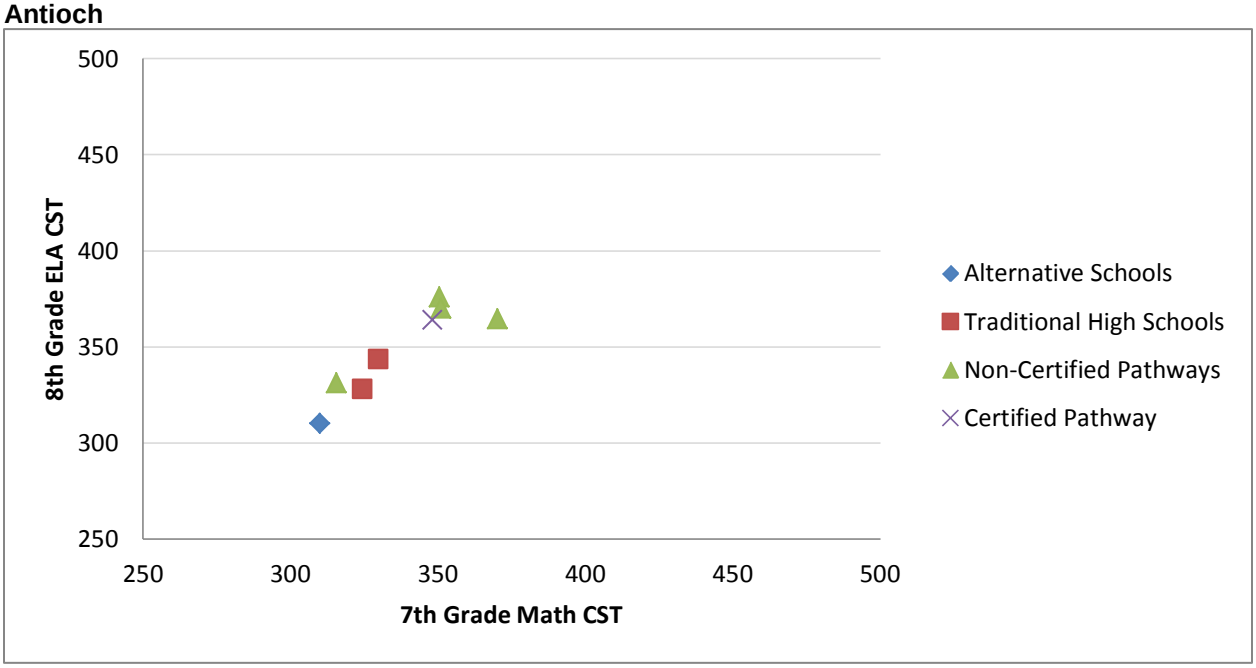
Exhibit A-12
Overall Prior Achievement, by District

	Long Beach		Porterville		Antioch		Pasadena	
	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway
N	13,569	1,215	3,364	306	3,210	354	2,864	444
7th Grade Math CST	349	375	361	396	332	348	317	0
sd	(69)	(58)	(69)	(74)	(59)	(57)	(0)	(0)
8th Grade ELA CST	349	372	342	370	342	364	345	326
sd	(61)	(47)	(52)	(52)	(57)	(55)	(61)	(57)
% Proficient or Higher, 8th Grade ELA CST	48%	67%	43%	62%	45%	58%	47%	32%
Number of F's Received in the 8th Grade	0.78	0.25	0.45	0.05	NA	NA	1.15	1.49
sd	(1.68)	(0.82)	(1.31)	(0.22)	NA	NA	(2.09)	(2.30)
Number of Credits Accumulated in the 8th Grade	60	65	49	56	NA	NA	58	58
sd	(14)	(12)	(12)	(11)	NA	NA	(12)	(12)
8th Grade GPA	2.57	2.94	2.49	3.02	NA	NA	2.12	1.78
sd	(0.96)	(0.74)	(0.88)	(0.63)	NA	NA	(0.92)	(0.82)
% Taking Algebra or Higher in 8th Grade	44%	65%	43%	39%	37%	49%	27%	29%

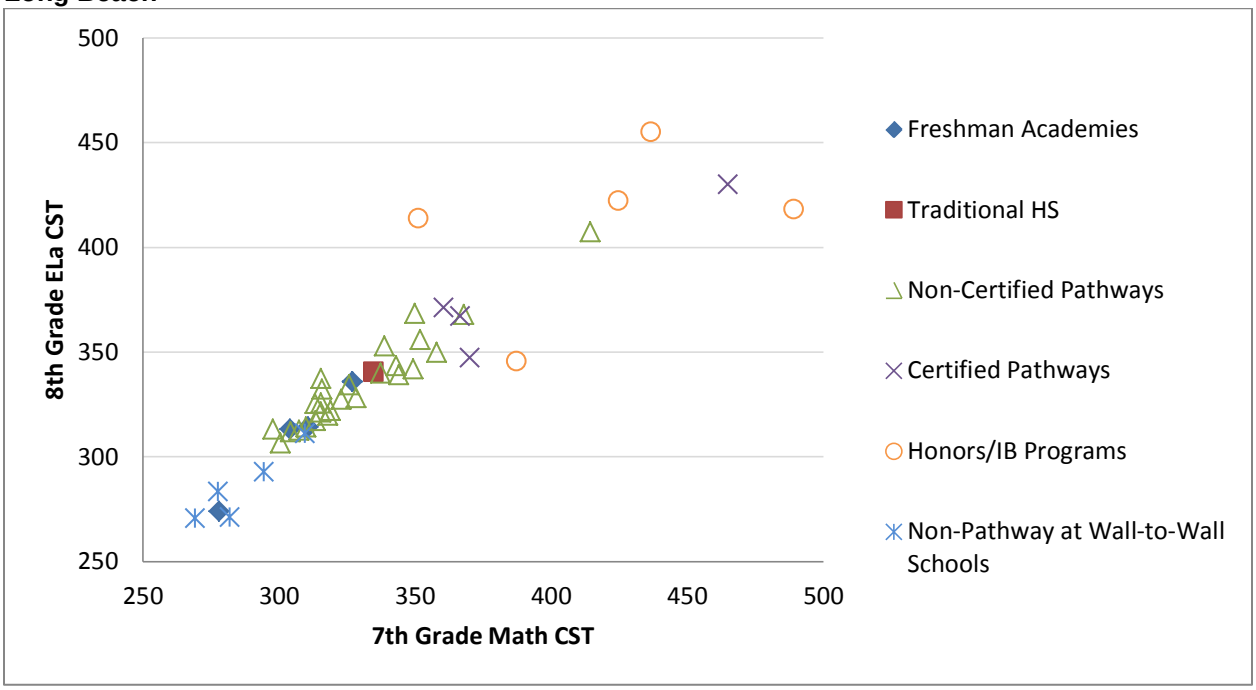
The scatterplots in Exhibits A-13-A16 provide the mean middle school achievement for each pathway in each district. Generally, this will be 8th grade ELA CST and 7th grade math CST (as students begin to take course, not grade, specific math CSTs in the 8th grade) though we replace the 7th grade math CST with another variable when 7th grade data is unavailable for the district.

Exhibits A-13 through A-16:
Average Middle School CST Scores by 9th Grade Pathway in Antioch, Long Beach, Pasadena, and Porterville

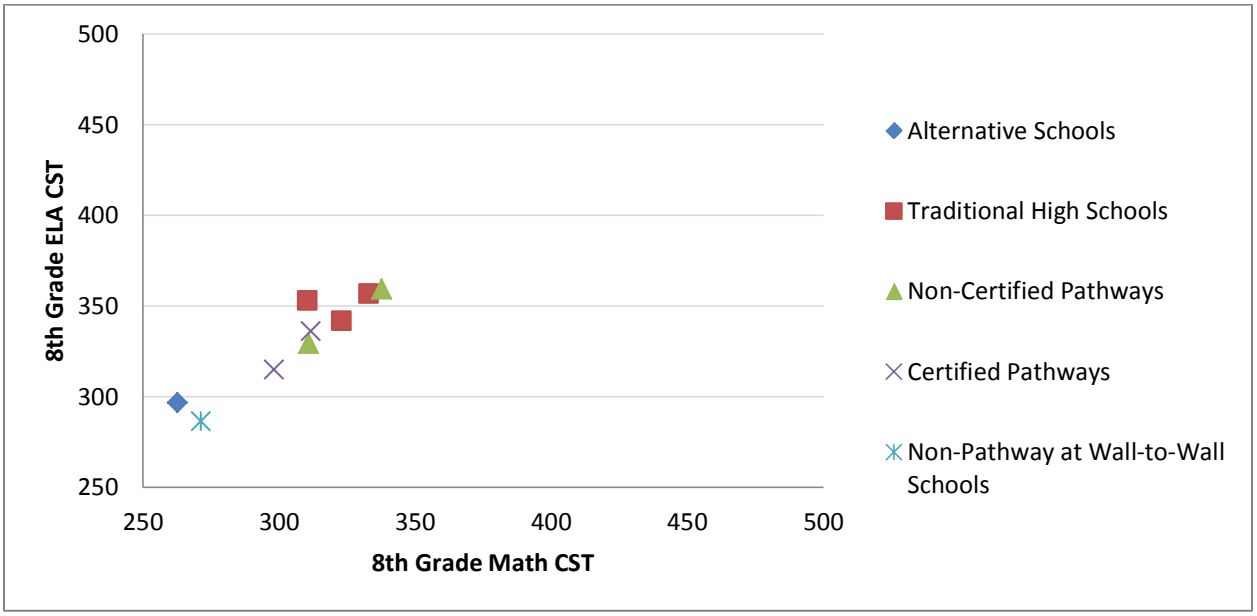
Antioch



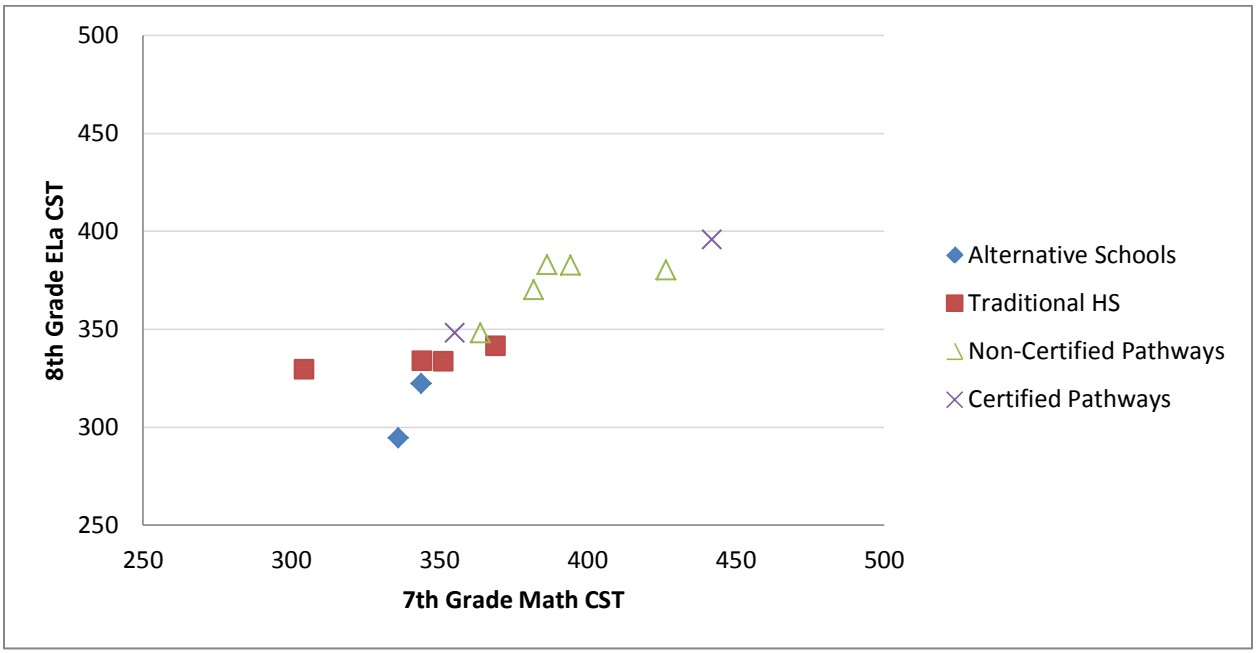
Long Beach



Pasadena



Porterville



In Exhibit A-17, we provide the retention within pathways for students. We provide the percent of students who enroll in the same pathway or school in the 9th and 10th grade in each district. The first set of numbers includes all 9th graders. The rows below exclude students who left the district in the 10th grade.

Exhibit A-17
Overall Retention in Pathways from 9th to 10th Grade, by District

	Long Beach		Porterville		Antioch		Pasadena	
	Overall	Certified Pathways	Overall	Certified Pathways	Overall	Certified Pathways	Overall	Certified Pathways
n	6,873	619	1,722	162	1,587	163	1,477	214
Out of 9th Grade Enrollment								
Remained in District	91%	95%	89%	98%	90%	98%	86%	89%
Remained in 9th Grade Pathway or School	72%	93%	71%	66%	71%	90%	65%	72%
Of Those Still in District								
Remained in 9th Grade Pathway or School	75%	93%	73%	66%	76%	90%	66%	74%

Methodology

In Chapter 8 we present value-added estimates of the certified pathway enrollment on students' absences, retention in district, credit accumulation, course failures, a-g completion and standardized test scores. These value-added results estimate the extent to which students who enroll in Linked Learning certified pathways perform differently on these outcomes, as compared to similar peers who enroll in other programs in the same district, accounting for the demographics and prior achievement of each student. In this section we describe the process by which we derived these estimates, beginning with how we determined the analytic sample of students for each outcome. We then present descriptive statistics on the demographics, prior achievement, and 9th and 10th grade outcomes for the analytic sample for one outcome, 9th grade CST scores. We then describe the methodology by which we estimated the value-added results and the estimates themselves.

Analytic Sample

The analytic sample is determined by the number of cases with non-missing values for all control variables and outcomes. Note that the analytic sample varies slightly among outcomes, even within the same district, for several reasons. When using retention in the district into the 10th grade as an outcome, the 10% or so of students who leave the district between 9th and 10th grade were included in this model, but not in any other 10th grade outcomes. Additionally, logistic models drop some pathways because of lack of variation in the outcome. Rather than exclude these pathways from all analyses, we chose to allow the sample size of the estimates to vary slightly between models. We additionally drop any pathways with fewer than 10 students, as we deem these pathways too small to accurately estimate a value added effect. We also drop any non-pathway students in a wall-to-wall school.

In Exhibits A-18 through A-21 we present the descriptive statistics for the analytic sample used to predict the 9th grade CST scores. Note that the loss of students missing prior achievement scores in either the 7th and/or 8th grade drove the most dramatic differences between the overall district

numbers and the analytic sample. The sample changed most dramatically in Porterville, where we do not have middle school achievement data for students attending any of the "feeder" districts outside of Porterville Unified. PUSD does not provide this middle school achievement data from other districts to IEBC.

Exhibit A-18
Demographics for Analytic Sample, by District

	Long Beach		Porterville		Antioch		Pasadena	
	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway
n	10,409	883	1,236	114	2,064	267	1,098	192
Class of 2013	51%	51%	51%	66%	48%	44%	0%	0%
Class of 2014	49%	49%	49%	34%	52%	56%	100%	100%
Female	51%	53%	50%	41%	50%	63%	51%	54%
Low SES	74%	64%	88%	82%	54%	51%	82%	92%
White	16%	25%	18%	11%	27%	21%	12%	3%
Hispanic	53%	57%	75%	72%	38%	42%	68%	70%
African American	15%	8%	1%	2%	20%	16%	19%	30%
Asian Group 1[a]	6%	6%	1%	3%	10%	14%	5%	1%
Asian Group 2[b]	9%	4%	3%	7%	4%	6%	0%	0%
Other Race/ Ethnicity	0%	0%	4%	7%	2%	2%	1%	1%
GATE	21%	13%	10%	18%	4%	4%	15%	5%
SPED	9%	8%	1%	1%	3%	2%	6%	9%
English Language Learner	15%	4%	13%	10%	10%	9%	15%	25%

[a] Asian groups with higher than national average high school graduation rates

[b] Asian groups with lower than national average high school graduation rates

Exhibit A-19
Prior Achievement for Analytic Sample, by District

	Long Beach		Porterville		Antioch		Pasadena	
	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway
N	10,409	883	1,236	114	2,064	267	1,098	192
7th Grade Math CST	353	376	365	396	337	350	NA	NA
sd	(69)	(58)	(67)	(75)	(58)	(56)	NA	NA
8th Grade ELA CST	354	372	346	371	348	366	347	325
sd	(59)	(47)	(50)	(53)	(56)	(55)	(60)	(55)
% Proficient or Higher, 8th Grade ELA CST	51%	67%	45%	61%	48%	60%	48%	32%
Number of F's Received in the 8th Grade	0.73	0.24	0.37	0.04	NA	NA	1.12	1.35
sd	(1.61)	(0.80)	(1.12)	(0.19)	NA	NA	(1.99)	(2.08)
Number of Credits Accumulated in the 8th Grade	61	65	51	57	NA	NA	58	58
sd	13	12	10	10	NA	NA	12	11
8th Grade GPA	2.61	2.95	2.56	3.05	NA	NA	2.12	1.84
sd	(0.95)	(0.73)	(0.84)	(0.64)	NA	NA	(0.92)	(0.80)
% Taking Algebra or Higher in 8th Grade	49%	66%	99%	100%	52%	62%	68%	64%

Exhibit A-20
9th Grade Outcomes for Analytic Sample, by District

	Long Beach		Porterville		Antioch		Pasadena	
	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway
n	10,409	883	1,236	114	2,064	267	1,098	192
ELA CST	353	374	353	374	359	376	351	330
sd	(58)	(46)	(49)	(52)	(55)	(49)	(58)	(51)
% Proficient or Higher	52%	69%	51%	61%	59%	74%	51%	39%
Number of F's Received in the 9th Grade	2.11	1.17	1.51	0.82	1.99	1.91	2.06	3.04
sd	(3.06)	(2.30)	(2.26)	(1.44)	(2.98)	(3.03)	(2.86)	(3.80)
Number of Credits Accumulated in the 9th Grade	58	67	56	62	53	59	56	66
sd	(16)	(13)	(14)	(9)	(18)	(17)	(17)	(21)
9th Grade GPA	2.14	2.41	2.08	2.51	2.10	2.39	2.03	1.89
sd	(1.10)	(1.00)	(0.96)	(0.91)	(1.17)	(1.13)	(1.05)	(1.03)
% On Track to Complete a-g Requirements	33%	51%	12%	25%	36%	56%	24%	10%
Days Absent	6.77	4.88	NA	NA	NA	NA	NA	NA
Retention from 9th to 10th Grade	93%	94%	94%	99%	92%	97%	NA	NA

Exhibit A-21
10th Grade Outcomes for Analytic Sample, by District

	Long Beach		Porterville		Antioch		Pasadena	
	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway	Overall	Certified Pathway
n	5,293	424	578	60	904	125	NA	NA
10th Grade ELA CST	339	358	341	363	344	363	NA	NA
sd	(57)	(47)	(49)	(51)	(52)	(45)	NA	NA
% Proficient or Higher, 10th Grade ELA CST	42%	55%	43%	62%	47%	62%	NA	NA
Number of F's Received in the 10th Grade	2.07	1.01	2.03	1.13	2.56	1.86	NA	NA
sd	(2.92)	(1.88)	(2.67)	(1.89)	(3.42)	(2.81)	NA	NA
Number of Credits Accumulated in the 10th Grade	57	66	59	65	51	60	NA	NA
sd	(16)	(11)	(16)	(10)	(20)	(17)	NA	NA
10th Grade GPA	2.16	2.53	1.93	2.35	1.91	2.44	NA	NA
sd	(1.05)	(0.85)	(1.01)	(0.99)	(1.14)	(1.00)	NA	NA
% On Track to Complete a-g Requirements	35%	51%	24%	45%	30%	51%	NA	NA
California High School Exit Exam, ELA	385	392	378	389	390	404	NA	NA
sd	(35)	(28)	(29)	(33)	(32)	(29)	NA	NA
Passing Rate on California High School Exit Exam, ELA	84%	95%	86%	93%	88%	96%	NA	NA
California High School Exit Exam, Mathematics	384	393	386	406	386	398	NA	NA
sd	(36)	(29)	(32)	(33)	(35)	(31)	NA	NA
Passing Rate on California High School Exit Exam, Mathematics	83%	95%	87%	97%	85%	96%	NA	NA
Passing Rate on California High School Exit Exam	77%	91%	81%	92%	82%	93%	NA	NA
Days Absent	7.60	6.54	NA	NA	NA	NA	NA	NA

Value-Added Analysis

Once we obtained the correct analytic sample for the models, we centered all control variables around the mean of the analytic sample (standardizing continuous variables, centering indicator variables). The availability of control variables varied by district (and sometimes by outcome), as we did not have all prior achievement variables for all districts and cohorts. Exhibit A-21 lists the control variables used in each model. We used quadratic and cubic terms for the middle school CST scores in models predicting continuous outcomes. We squared/ cubed the standardized terms, then re-centered then. This centering meant that we estimated outcomes for the student who is average on all control variables.

Exhibit A-21
Control Variables Used in Each Model

	Long Beach	Porterville	Antioch	Pasadena
Female	✓	✓	✓	✓
Low SES	✓	✓	✓	✓
Indicators, race/ethnicity	✓	✓	✓	✓
GATE	✓	✓	✓	✓
SPED	✓	✓	✓	✓
Indicators, EL Status	✓	✓	✓	✓
7th Grade GPA	✓			
8th Grade GPA	✓			✓
7th Grade Math CST	✓	✓	✓	
8th Grade Math CST	✓	✓	✓	✓
7th Grade ELA CST	✓	✓	✓	
8th Grade ELA CST	✓	✓	✓	✓
Indicators for 7th grade math CST test taken[a]	✓		✓	
Indicators for 8th grade math CST test taken[b]	✓		✓	✓
Models Predicting 9th Grade Outcomes Only				
Indicator, Class of 2013, for 9th grade outcomes only	✓	✓	✓	✓
Models Predicting Absences Only				
Indicators, Absences in 7th grade (splined into quartiles)	✓			
Indicators, Absences in 8th grade (splined into quartiles)	✓			
Models Predicting Failures Only				
Indicator, Failed one or more class in 7th grade	✓			
Indicator, Failed one or more class in 8th grade, for models predicting failures	✓			✓

[a] All CST scores were entered as linear, quadratic and cubic terms for OLS models (those predicting credit accumulation and standardized test scores).
[b] All students in the analytic sample in Porterville take the same math CST exam in the 8th grade.

We begin by explaining the procedure to estimate the value-added scores for models predicting continuous outcome variables (in this case the standardized test scores and credits accumulated), then explain the differences when estimating a fixed effect model for the other outcomes. To estimate the value-added scores for models predicting continuous outcome variables, we regressed the outcome variable (score Y for student i in pathway s) on a vector of centered control variables representing the demographics and prior achievement of student i (X_i). We used a vector of indicators for the student's pathway (η_s) to predict the fixed effects of each pathway:

$$Y_{is} = \beta + \boldsymbol{X_i\lambda} + \boldsymbol{\eta_s} + \mu_i$$

Next, we calculated the individual estimate for each pathway/ school by adding the individual fixed effect to the constant term (β). For each pathway s, $\beta + \eta_s$ predicts the average value of Y for a student with a value of zero for all other covariates. Since we centered the covariates at the sample means, this term predicts the test score for an "average" student in the sample.

To predict the overall district average, we weighted each pathway's predicted average outcome by the size of the pathway enrollment. We summed these weighted values, providing us with the predicted average outcome for an "average" student in the district, without regard to pathway or school enrollment.

To predict the outcomes for the certified pathways, we multiplied the individual estimates for the certified pathways by the percent of certified pathway students in the sample enrolled in that particular pathway. We summed these weighted values, giving us the predicted outcome for the average student in that district, if that student enrolls in a certified pathway.

Our final step in predicting the value-added score was to compare this predicted outcome for the average student in that district, if enrolled in a certified pathway, to the district average for this student. To do so, we subtracted the predicted district outcome from the predicted outcome for students in a certified pathway. We performed this test using the *lincom* command in Stata, which tests the outcome against zero. The null hypothesis in this case is that the average student in a district performs no differently in a certified pathway than they do without regard to pathway enrollment. We refer to this difference as the "value-added" score.

We made some modifications for models predicting binary (on track to complete a-g and retained in district to 10th grade) and count (number of F's, days absent) outcomes. We used logistic regression to predict binary outcomes. Although binary indicators for categories can provide biased estimates of fixed effects when predicted as dummy variables, the sample sizes of our pathways were large enough to preclude this problem.

For models predicting count data we began by testing the fit of a Poisson regression. The goodness-of-fit test was significant for this model ($p<.001$), however, indicating that this data exhibits overdispersion. We therefore used a negative binomial model, which models count data while allowing for an individual error term (Kennedy, 2003).For both types of models, we first transformed the estimates into probabilities or counts before combining the scores of different pathways or schools. Finally, we performed significance testing of these combined estimates using the *nlcom* command in Stata, for non-linear combinations of estimates.

We present all value-added estimates in Exhibits A-22 and-A-23.

Exhibits A-22
9th Grade Value Added Outcomes for Analytic Sample, by District[a]

	Long Beach		Porterville		Antioch		Pasadena	
English Language Arts CST (Standardized)								
VAM	0.06	***	-0.01		0.07	*	-0.02	
se	(0.02)		(0.05)		(0.03)		(0.04)	
n	10,242		1,190		1,906		1,072	
Predicted Value for Average Student in District	0.00		0.00		0.00		0.00	
Number of F's Received								
VAM	-0.08		-0.21		0.29	*	0.08	
se	(0.05)		(0.14)		(0.13)		(0.47)	
n	10,409		1,211		1,907		1,087	
Predicted Value for Average Student in District	1.10		1.10		1.26		1.11	
Number of Credits Accumulated (Standardized)								
VAM	0.34	***	0.27	***	0.19	***	0.71	***
se	(0.03)		(0.08)		(0.05)		(0.06)	
n	10,409		1,211		1,907		1,087	
Predicted Value for Average Student in District	0.00		0.00		0.00		0.00	
On Track to Complete a-g Course Requirements								
VAM	0.08	***	0.02		0.17	***	-0.05	*
se	(0.02)		(0.02)		(0.04)		(0.02)	
n	10,316		1,186		1,907		1,086	
Predicted Value for Average Student in District	0.19		0.05		0.28		0.13	
Days Absent								
VAM	-0.75	***	NA		NA		NA	
se	(0.16)		NA		NA		NA	
n	10,409		NA		NA		NA	
Predicted Value for Average Student in District	5.36		NA		NA		NA	
Remained in District from 9th to 10th Grade								
VAM	0.00		0.03		0.04	**	NA	
se	(0.01)		(0.02)		(0.02)		NA	
n	5,293		513		958		NA	
Predicted Value for Average Student in District	0.94		0.95		0.93		NA	

Note: *$p <$ .05, **$p <$ .01, ***$p <$ .001

[a] For continuous variables, the predicted value for the average student in the district is equivalent to zero because the control variables and the outcome variable were all centered around the sample mean.

Exhibits A-23
10th Grade Value Added Outcomes for Analytic Sample, by District[a]

	Long Beach		Porterville		Antioch		Pasadena
English Language Arts CST (Standardized)							
VAM	0.06	*	0.01		0.02		NA
se	(0.03)		(0.07)		(0.05)		NA
n	4658		524		815		NA
Predicted Value for Average Student in District	0.00		0.00		0.00		NA
Number of F's Received							
VAM	-0.29	***	-0.41	*	0.06		NA
se	(0.07)		(0.19)		(0.25)		NA
n	4791		536		814		NA
Predicted Value for Average Student in District	1.20		1.40		1.88		NA
Number of Credits Accumulated (Standardized)							
VAM	0.37	***	0.08		0.25	**	NA
se	(0.04)		(0.11)		(0.08)		NA
n	4791		536		814		NA
Predicted Value for Average Student in District	0.00		0.00		0.00		NA
On Track to Complete a-g Course Requirements							
VAM	0.08	**	0.12		0.14	**	NA
se	(0.03)		(0.07)		(0.05)		NA
n	4678		531		814		NA
Predicted Value for Average Student in District	0.29		0.17		0.21		NA
California High School Exit Exam, ELA (Standardized)							
VAM	-0.09	***	0.00		0.07		NA
se	(0.03)		(0.07)		(0.05)		NA
n	4739		518		841		NA
Predicted Value for Average Student in District	0.00		0.00		0.00		NA
California High School Exit Exam, Math (Standardized)							
VAM	-0.03		0.14	*	0.00		NA
se	(0.02)		(0.07)		(0.05)		NA
n	4729		521		847		NA
Predicted Value for Average Student in District	0.00		0.00		0.00		NA

	Long Beach	Porterville	Antioch	Pasadena	Long Beach	Porterville
Days Absent						
VAM	0.10		NA	NA	NA	
se	(0.31)		NA	NA	NA	
n	4791		NA	NA	NA	
Predicted Value for Average Student in District	6.19		NA	NA	NA	

Note: *$p < .05$, **$p < .01$, ***$p < .001$

[a] For continuous variables, the predicted value for the average student in the district is equivalent to zero because the control variables and the outcome variable were all centered around the sample mean.

References

Kennedy, Peter. 2003. *A Guide to Econometrics, Fifth Edition*. The MIT Press, Cambridge, MA

Appendix B: Statistical Survey Data

Overview

This appendix provides statistical detail for the survey frequencies referenced in the Year 3 Linked Learning evaluation report, including standard errors and unweighted and weighted n. For more information about the survey administration, response rates and weighting, please see Appendix A.

Exhibit B-1
Pathway Students' Responses to Fall 2010 and 2011Baseline Survey: How did you first learn about this academy, pathway, small learning community, or career/industry-themed school? (n=2534/weighted n=2887)

Initial Pathway Information Source		Pathway Recruitment Type		χ^2	*df*	*p*
		Informal	Formal			
Sibling	Percent	11	10	.47	1	0.49
	SE of Percent	(1.10)	(0.74)			
Friend	Percent	18	11	26.13	1	<0.0001
	SE of Percent	(1.35)	(0.75)			
Teacher or counselor at my previous school	Percent	7	16	36.04	1	<0.0001
	SE of Percent	(.92)	(0.89)			
Presentation at my previous school by students or staff in the academy/small learning community	Percent	9	20	52.91	1	<0.0001
	SE of Percent	(0.98)	(0.97)			
Information sent home from the school district or high school	Percent	4	9	23.85	1	<0.0001
	SE of Percent	(0.65)	(0.69)			
Parents	Percent	2	5	9.29	1	0.0023
	SE of Percent	(0.51)	(0.51)			
At this high school, after this school year began	Percent	8	5	12.03	1	0.0005
	SE of Percent	(0.95)	(0.50)			
Other	Percent	4	3	2.23	1	0.1357
	SE of Percent	(0.72)	(0.43)			
Don't recall	Percent	7	4	12.95	1	0.0003
	SE of Percent	(0.90)	(0.47)			

Source: SRI Baseline Survey of Students in Linked Learning Districts, Fall 2010 and 2011 (8 districts)

Exhibit B-2
Pathway Students' Responses to Fall 2010 and 2011Baseline Survey:
How important to you were each of the following reasons for attending this school?

Survey Item	Pathway Recruitment Type	Not at all important (%)	Somewhat important (%)	Very Important (%)	*n*	*Weighted n*	χ^2	*df*	*p*
a. It is close to my home.	Informal	20	57	24	816	1004	68.21	2	<0.0001
	SE of Percent	(1.39)	(1.74)	(1.50)					
	Formal	35	50	15	1706	1868			
	SE of Percent	(1.15)	(1.21)	(0.87)					
	Overall	29	52	18	2522	2873			
	SE of Percent	(.90)	(1.00)	(.78)					
b. It is easy to get to this school from where I live.	Informal	14	49	37	815	1003	44.22	2	<0.0001
	SE of Percent	(1.22)	(1.75)	(1.69)					
	Formal	24	50	26	1701	1863			
	SE of Percent	(1.03)	(1.21)	(1.07)					
	Overall	20	50	30	2516	2866			
	SE of Percent	(.80)	(1.00)	(.92)					
c. It is a safe school.	Informal	11	49	40	808	994	20.74	2	<0.0001
	SE of Percent	(1.12)	(1.76)	(1.72)					
	Formal	10	41	50	1675	1835			
	SE of Percent	(0.73)	(1.19)	(1.22					
	Overall	10	43	46	2483	2829			
	SE of Percent	(.62)	(1.00)	(1.00)					
d. It has a special theme/focus that interested me.	Informal	20	46	33	809	995	51.74	2	<0.0001
	SE of Percent	(1.42)	(1.76)	(1.66)					
	Formal	16	32	52	1699	1861			
	SE of Percent	(0.88)	(1.13)	(1.21)					
	Overall	17	37	46	2508	2856			
	SE of Percent	(.76)	(.97)	(1.00)					

Survey Item	Pathway Recruitment Type	Not at all important (%)	Somewhat important (%)	Very Important (%)	*n*	*Weighted n*	χ^2	*df*	*p*
e. It has a good athletic program.	Informal	31	43	26	811	998	13.10	2	0.0014
	SE of Percent	(1.63)	(1.74)	(1.54)					
	Formal	35	35	30	1701	1863			
	SE of Percent	(1.16)	(1.14)	(1.11)					
	Overall	34	38	28	2512	2861			
	SE of Percent	(.95)	(.97)	(.90)					

Source: SRI Baseline Survey of Students in Linked Learning Districts, Fall 2010 and 2011 (8 districts)

Exhibit B-2 [continued]
Pathway Students' Responses to Fall 2010 and 2011Baseline Survey:
How important to you were each of the following reasons for attending this school?

Survey Item	Pathway Recruitment Type	Not at all important (%)	Somewhat important (%)	Very Important (%)	*n*	*Weighted n*	χ^2	*df*	*p*
f. It has a strong academic reputation.	Informal	15	48	36	807	993	58.93	2	<0.0001
	SE of Percent	(1.28)	(1.76)	(1.69)					
	Formal	10	37	53	1699	1861			
	SE of Percent	(0.73)	(1.17)	(1.21)					
	Overall	12	41	47	2506	2853			
	SE of Percent	(.65)	(.99)	(1.00)					
g. It offers a job training program.	Informal	22	47	31	803	988	3	2	0.22
	SE of Percent	(1.46)	(1.77)	(1.63)					
	Formal	25	44	31	1688	1849			
	SE of Percent	(1.05)	(1.21)	(0.12					
	Overall	24	45	31	2491	2837			
	SE of Percent	(.86)	(1.00)	(.93)					
h. It was recommended by a counselor or teacher in my elementary or middle school.	Informal	51	36	13	808	994	6.52	2	0.03
	SE of Percent	(1.76)	(1.69)	(1.18)					
	Formal	49	34	17	1698	1860			
	SE of Percent	(1.21)	(1.15)	(0.91)					
	Overall	50	35	16	2506	2854			
	SE of Percent	(1.00)	(.95)	(.72)					
i. My friends and family members attend(ed) this high school.	Informal	35	36	29	809	995	35.31	2	<0.0001
	SE of Percent	(1.67)	(1.69)	(1.60)					
	Formal	47	28	25	1697	1859			
	SE of Percent	(1.21)	(1.09)	(1.05)					
	Overall	43	31	26	2506	2854			
	SE of Percent	(.99)	(.93)	(.88)					

Survey Item	Pathway Recruitment Type	Not at all important (%)	Somewhat important (%)	Very Important (%)	*n*	*Weighted n*	χ^2	*df*	*p*
j. My parents like this school.	Informal	26	49	25	811	998	19.27	2	<0.0001
	SE of Percent	(1.54)	(1.76)	(1.51)					
	Formal	24	43	34	1699	1861			
	SE of Percent	(1.03)	(1.20)	(1.15)					
	Overall	24	45	31	2510	2859			
	SE of Percent	(.86)	(1.00)	(.92)					

Source: SRI Baseline Survey of Students in Linked Learning Districts, Fall 2010 and 2011 (8 districts)

Exhibit B-3
Pathway Students' Responses to Survey of Students in Linked Learning Districts 2012, Question 7a–7c: Since the beginning of this school year (2011–12), how often have your teachers done the following?

		Never/ Once this year/ A few times this year	About once a month	At least once a week	*n*	*Weighted n*
a. Taught you how to apply what you are learning in class to the real world?	Percent	44	25	31	2093	4091
	SE of Percent	(1.45)	(1.24)	(1.33)		
b. Explained how what you learn in class could be applied to what you might do after school (college, career training, job, etc.)?	Pathway	43	31	27	2091	4083
	SE of Percent	(1.44)	(1.35)	(1.26)		
c. Explained how what you learn in one class relates to what you learn in other classes?	Pathway	45	27	28	2084	4074
	SE of Percent	(1.45)	(1.28)	(1.3)		

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012 (5 districts)

Exhibit B-4
Pathway Students' Responses to Survey of Students in Linked Learning Districts 2012, Question 7d and 7e
Since the beginning of this school year (2011–12), how often have your teachers done the following?

Survey Item	Never/Once this year (%)	A few times this year/ About once a month/ At least once a week (%)	Standard Error (%)	*n*	*Weighted n*
d. How many teachers given you an assignment that counted toward your grade in two or more classes?	46	54	1.44	2088	4079
e. How many teachers asked you to work on a project that lasted for 2 weeks or longer?	14	86	1.02	2082	4068

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012 (5 districts)

Exhibit B-5
Survey Data for Exhibit 4-1:
Pathway Students Participating in Any Work-Based Learning Activities in 2011–12

Pathway students who participated in at least one type of work-based learning activity	Percent	SE of Percent	*n*	*Weighted n*
Overall	80	1.16	2112	4142
Antioch	88	2.17	377	NA
Pasadena	86	3.38	224	NA
Long Beach	86	1.35	849	NA
Porterville	66	3.50	328	NA
Sacramento	66	3.56	334	NA
West Contra Costa	77	2.96	205	NA

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012, Question 13 (6 districts)

Note: Runs by district were not weighted

Exhibit B-6
Survey Data for Exhibit 4-2: Pathway and Comparison Students Participating in Specific Work-Based Learning Activities in 2011–12

During this school year, have you participated in any of the following work-related experiences as part of your school program?	Student Type	Percent (SE of Percent)	*n*	*Weighted n*	χ^2	*df*	*p*
a. Employment, internship, or job-shadowing an adult at a workplace outside of school for which you are paid or earn course credit	Pathway	15 (1.09)	2042	3973	0.78	1	0.38
	Comparison	14 (1.33)					
b. School-based student- or teacher-run business	Pathway	12 (0.97)	2040	3971	0.44	1	0.51
	Comparison	11 (1.17)					
c. Career-related student competitions (for example, marketing campaign or fundraiser)	Pathway	25 (1.26)	2043	3973	8.3052	1	0.004
	Comparison	20 (1.50)					
d. Community service or service learning opportunities	Pathway	55 (1.46)	2046	3976	7.1735	1	0.01
	Comparison	48 (1.90)					
e. Mentoring from a professional role model/industry representative	Pathway	19 (1.17)	2038	3964	6.03	1	0.01
	Comparison	14 (1.35)					
f. Listening to guest speakers from a particular industry or profession	Pathway	64 (1.40)	2045	3977	81.70	1	<0.0001
	Comparison	43 (1.99)					
g. Participating in company tours, field trips, or visits for a particular industry or profession	Pathway	51 (1.46)	2043	3971	76.50	1	<0.0001
	Comparison	30 (1.74)					

During this school year, have you participated in any of the following work-related experiences as part of your school program?	Student Type	Percent (SE of Percent)	*n*	*Weighted n*	χ^2	*df*	*p*
h. Mentoring or tutoring another student on a regular basis	Pathway	15 (1.08)	2042	3973	0.50	1	0.48
	Comparison	17 (1.44)					

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012, Question 13 (5 districts)

Exhibit B-7
Pathway Students' Responses to Survey of Students in Linked Learning Districts 2012, Question 16: How satisfied are you with the work-related experience(s) you participated in during this school year (2011–12)?

Not at all satisfied/ Somewhat satisfied (%)	Satisfied/ Very satisfied (%)	SE of Percent	*n*	*Weighted n*
44	56	1.67	1426	2685

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012 (5 districts)

Exhibit B-8
Survey Data for Exhibit 5-1:
Students Reporting Ways in Which Majority of School Staff Are Supportive

During this school year, teachers, counselors, or other staff at my school:	None/ Fewer than half/ Half (%)	More than half/ All (%)	SE of Percent	*n*	*Weighted n*
a. Treat me with respect.	14	86	1.01	2097	4116
b. Know what's going on in my life.	93	7	0.88	2091	4107
c. Encourage me to continue my education after high school.	19	81	1.17	2093	4109
d. Make sure students know how they can get help if they fall behind.	29	71	1.33	2092	4106
e. Care about how well I am doing in school.	34	66	1.38	2091	4104
f. Expect me to do my best all the time.	16	84	1.10	2091	4103

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012, Question 1 (5 districts)

Exhibit B-9

Pathway Students Reporting Ways in Which More than Half or All of School Staff Are Supportive

During this school year, teachers, counselors, or other staff at my school:	Antioch		Long Beack		Pasadena		Porterville		Sacramento		West Contra Costa	
	Percent (SE of Percent)	*n*	Percent (SE of Percent)	*n*	Percent (SE of Percent)	*n*	Percent (SE of Percent)	*N*	Percent (SE of Percent)	*n*	Percent (SE of Percent)	*n*
a. Treat me with respect.	85 (2.39)	377	87 (1.33)	838	85 (3.51)	223	90 (2.23)	325	84 (2.80)	334	72 (3.14)	203
b. Know what's going on in my life.	5 (1.44)	377	7 (1.01)	833	13 (3.31)	223	6 (1.70)	325	7 (1.97)	333	11 (2.19)	203
c. Encourage me to continue my education after high school.	80 (2.76)	375	86 (1.38)	837	76 (4.23)	224	87 (2.48)	324	74 (3.31)	333	69 (3.24)	203
d. Make sure students know how they can get help if they fall behind.	59 (3.29)	374	77 (1.68)	838	71 (4.52)	223	80 (2.99)	324	63 (3.65)	333	63 (3.42)	201
e. Care about how well I am doing in school.	53 (3.35)	375	71 (1.79)	838	67 (4.68)	222	69 (3.44)	324	63 (3.66)	332	59 (3.46)	203
f. Expect me to do my best all the time.	78 (2.76)	375	87 (1.34)	836	80 (3.94)	222	92 (1.99)	325	78 (3.12)	333	68 (3.27)	203

Note: Data reported represent percent of students selecting either “More than half” or “All” rather than “None”, “Fewer than half”, or “About half”

Exhibit B-10
Survey Data for Exhibit 5-2:
Students Reporting Positive Relationships with Peers

Survey Item	Student Type	None/ Fewer than half/ Half (%) (SE of Percent)	More than half/ All (%) (SE of Percent)	*n*	*Weighted n*	χ^2	*df*	*p*
a. Students in my classes treat each other with respect.	Pathway	48 (1.46)	52 (1.46)	2097	4126	12.25	1	<0.001
	Comparison	57 (1.86)	43 (1.86)					
b. Students in my classes see high school as useful preparation for the future	Pathway	52 (1.45)	48 (1.45)	2095	4113	12.40	1	<0.001
	Comparison	61 (1.85)	39 (1.85)					
c. Students in my classes think it is important to get good grades in school.	Pathway	44 (1.45)	56 (1.45)	2092	4105	13.65	1	<0.001
	Comparison	53 (1.87)	47 (1.87)					
d. Students in my classes help each other with school work.	Pathway	52 (1.45)	48 (1.45)	2096	4114	9.06	1	0.003
	Comparison	60 (1.85)	40 (1.85)					

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012, Question 2 (5 districts)

Exhibit B-11
Survey Data for Exhibits 6-1 and 6-2:
Students Reporting improvements in Work Related Skills

To what extent do you think high school is helping you improve the following skills?	Student Type	Not at all/A little/ Somewhat/ Don't know (%) (SE of Percent)	A lot (%) (SE of Percent)	*n*	*Weighted n*	χ^2	*df*	*p*
a. Speaking and listening in a job interview	Pathway	52 (1.47)	48 (1.47)	2029	3936	42.55	1	<0.0001
	Comparison	68 (1.77)	32 (1.77)					
b. Using information and communication technology (for example, computers or the Internet)	Pathway	48 (1.47)	52 (1.47)	2030	3939	54.40	1	<0.0001
	Comparison	65 (1.81)	35 (1.81)					
c. Making a public presentation or performing in front of an audience	Pathway	39 (1.45)	61 (1.45)	2025	3927	58.82	1	<0.0001
	Comparison	58 (1.88)	42 (1.88)					
d. Making decisions	Pathway	45 (1.46)	55 (1.46)	2031	3941	1.65	1	0.20
	Comparison	48 (1.90)	52 (1.90)					
e. Solving problems	Pathway	42 (1.45)	58 (1.45)	2031	3940	1.82	1	0.18
	Comparison	46 (1.90)	54 (1.90)					
f. Getting along with people from different backgrounds	Pathway	35 (1.41)	65 (1.41)	2025	3932	3.85	1	0.05
	Comparison	39 (1.86)	61 (1.86)					
g. Writing a letter to apply for a job or creating a resume	Pathway	62 (1.43)	38 (1.43)	2026	3929	33.72	1	<0.0001
	Comparison	75 (1.66)	25 (1.66)					

To what extent do you think high school is helping you improve the following skills?	Student Type	Not at all/A little/ Somewhat/ Don't know (%) (SE of Percent)	A lot (%) (SE of Percent)	*n*	*Weighted n*	χ^2	*df*	*p*
h. Working in a team to accomplish a shared goal or objective	Pathway	40 (1.44)	60 (1.44)	2028	3939	46.80	1	<0.0001
	Comparison	57 (1.88)	43 (1.88)					
i. Accepting responsibility for the quality of my work	Pathway	30 (1.36)	70 (1.36)	2025	3930	16.85	1	<0.0001
	Comparison	40 (1.87)	60 (1.87)					
j. Knowing expectations for behavior in a workplace or at a job	Pathway	40 (1.44)	60 (1.44)	2030	3939	14.87	1	<0.001
	Comparison	49 (1.90)	51 (1.90)					
k. Working with people in a professional setting (for example, customers, clients, patients, managers)	Pathway	69 (1.36)	31 (1.36)	2033	3946	0.08	1	0.78
	Comparison	69 (1.77)	32 (1.77)					

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012, Question 20 (5 districts)

Exhibit B-12
Pathway Students' Responses to Survey of Students in Linked Learning Districts 2012, Question 19: Since you started high school, have you been able to get the types of experiences to learn career skills that you wanted as part of your school program (either in or outside of school)?

Yes (%)	No (%)	N/A I am not interested in gaining career skills as part of my high school program. (%)	SE of Percent	*n*	*Weighted n*
66	28	5	0.65	1996	3869

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012 (5 districts)

Exhibit B-13
Pathway Students' Responses to Survey of Students in Linked Learning Districts 2012, Question 9: To what extent do you feel your experience in a pathway, academy, small learning community, or career-themed school has influenced your goals?

My experience in this pathway, academy, small learning community, or career-themed school has helped me:	Not at all/ A little (%)	Somewhat/ A lot (%)	SE of Percent	*n*	*Weighted n*
a. Know that I want to continue my education or training beyond high school.	20	80	1.28	1435	2668
b. Become more interested in careers related to its theme.	29	71	1.45	1435	2667

Source: SRI Follow-up Survey of Students in Linked Learning Districts 2012 (5 districts)

Exhibit B-14
Survey Data for Exhibit 8-1:
Students' Post-High School Plans

Which of the following do you plan to do immediately after high school?	Student Type	Percent (SE of Percent)	*n*	*Weighted n*	χ^2	*df*	*p*
Work full-time (40 hours or more per week)	Pathway	15 (0.98)	4533	5648	0.81	1	0.37
	Comparison	16 (0.71)					
Work part-time (less than 40 hours per week)	Pathway	46 (1.33)	4533	5648	2.80	1	0.09
	Comparison	43 (1.00)					
Attend a 2-year community college	Pathway	24 (1.21)	4533	5648	7.86	1	0.005
	Comparison	28 (0.86)					
Attend a 4-year college	Pathway	69 (1.29)	4533	5648	9.12	1	0.003
	Comparison	64 (0.94)					
Attend a technical/trade school	Pathway	5 (0.41)	4533	5648	11.86	1	<0.001
	Comparison	3 (0.43)					
Enlist in the military	Pathway	5 (0.63)	4533	5648	2.73	1	0.10
	Comparison	6 (0.43)					
Other	Pathway	4 (0.57)	4533	5648	1.22	1	0.27
	Comparison	5 (0.39)					

Which of the following do you plan to do immediately after high school?	Student Type	Percent (SE of Percent)	*n*	*Weighted n*	χ^2	*df*	*p*
None of the above	Pathway	1 (0.32)	4533	5648	0.01	1	0.91
	Comparison	1 (0.239)					

Source: SRI Baseline Survey of Students in Linked Learning Districts, Fall 2010 and 2011 (8 districts)

Appendix C: Survey Instruments

Cohort 2 Baseline Survey Instrument

Fall 2011

Survey of Students in Linked Learning Districts 2011-12

Important note:
Please use a BLACK pen. Blue or red pens and pencil cannot be read by our scanners.
When asked to mark boxes, make an "X" through the box.

Sample: ☒ Right ☑ Wrong

Use block printing when you complete any text or numeric responses.
If you wish to change a response, please mark the correct response and CIRCLE it. ⊠

Please write student's ID here ↓

ID:

Print student's name here ↓

Please write today's date here: ☐☐ / ☐☐ / 2011

Month *Day* *Year*

CHOOSING A HIGH SCHOOL AND PROGRAM OF STUDY

1. How important to you were each of the following reasons for attending this school?
Mark (X) one box for each row.

	Not at all important	Somewhat important	Very important
a. It is close to my home.	☐	☐	☐
b. It is easy to get to this school from where I live.	☐	☐	☐
c. It is a safe school.	☐	☐	☐
d. It has a special theme/focus that interested me.	☐	☐	☐
e. It has a good athletic program.	☐	☐	☐
f. It has a strong academic reputation.	☐	☐	☐
g. It offers a job training program.	☐	☐	☐
h. It was recommended by a counselor or teacher in my elementary or middle school.	☐	☐	☐
i. My friends and family members attend(ed) this high school.	☐	☐	☐
j. My parents like this school.	☐	☐	☐

2. How did you come to attend this school? *Mark (X) only one box.*

☐ I chose which school to attend, and this was my first choice.

☐ I chose which school to attend, and this was NOT my first choice.

☐ My parents decided I would attend this school.

☐ I was assigned this school by the school district.

3. Did you or your parents participate in any of the following activities to get ready to attend this school? You may have participated in all, some, or none of these activities.
Mark (X) ALL that apply.

☐ Met with a counselor LAST YEAR to discuss my schedule for this year

☐ Met with a counselor THIS YEAR to discuss my schedule for this year

☐ Met with a counselor this year to discuss a FOUR-YEAR COURSE OF STUDY

☐ Summer school or summer bridge activities

☐ School orientation for students

☐ School orientation for parents

4. **Are you enrolled in an academy, pathway, small learning community or school that has a career or industry theme?** *(For example, arts, media, and entertainment; business and finance; building and environmental design; biomedical and health sciences; engineering; information technology; or manufacturing, or any other career or industry theme.)*

☐ No ▶ SKIP to Question 8

☐ Yes

5. **What is the full name of the academy, pathway, small learning community, or career/industry-themed school in which you are enrolled?** *(Please print.)*

6. **How did you come to participate in this academy, pathway, small learning community, or career/industry-themed school?** *Mark (X) only one box.*

☐ I chose to participate in an academy, pathway, small learning community, or career/industry-themed school and this was my first choice.

☐ I chose to participate in an academy, pathway, small learning community, or career/industry-themed school and this was NOT my first choice.

☐ My parents selected this academy, pathway, small learning community, or career/industry-themed school.

☐ I was assigned to this academy, pathway, small learning community, or career/industry-themed school by the school or district.

7. **How did you <u>first</u> learn about this academy, pathway, small learning community, or career/industry-themed school?** *Mark (X) only one box.*

☐ Sibling

☐ Friend

☐ Teacher or counselor at my previous school

☐ Presentation at my previous school by students or staff in the academy/small learning community

☐ Information sent home from the school district or high school

☐ Parents

☐ At this high school, after this school year began

☐ Other (please specify):

or

☐ Don't recall

8. Which of the following programs or activities do you plan to participate in during high school? *Mark (X) ALL that apply.*

- ☐ Advanced Placement (AP) courses
- ☐ International Baccalaureate (IB) courses
- ☐ A sequence of classes related to an academy or pathway theme (for example, performing and visual arts; business and marketing; construction technology; biotechnology; graphic design; fashion design; computer science, or any other career or industry theme)
- ☐ A series of work-based learning experiences (for example, workplace tours, job shadows, mentoring from professionals, internships, service learning, or other career-related opportunities that are part of your high school coursework)

ACADEMIC AND LIFE SKILLS

9. How often do you do the following? *Mark (X) one box for each row.*

	Never	Rarely	Sometimes	Most of the time	Always
a. Turn in my homework on time.	☐	☐	☐	☐	☐
b. Prioritize school commitments over non-school activities such as sports, socializing (in person or online), family, or online gaming.	☐	☐	☐	☐	☐
c. Complete assignments no matter how challenging they are.	☐	☐	☐	☐	☐
d. Try to do well on my schoolwork even when it isn't interesting to me.	☐	☐	☐	☐	☐
e. Ask for help when my schoolwork becomes difficult.	☐	☐	☐	☐	☐

10. To what extent do you agree with the following statements? *Mark (X) one box for each row.*

	Strongly disagree	Disagree	Agree	Strongly agree
a. I believe it is important to do well in school.	☐	☐	☐	☐
b. I believe I am responsible for what happens in my future.	☐	☐	☐	☐
c. I believe it is important to work hard in high school because it matters for success in college.	☐	☐	☐	☐
d. I believe it is important to work hard in high school because it matters for success in future employment.	☐	☐	☐	☐
e. I believe experiences in high school will help me know whether I want to continue my education or training beyond high school.	☐	☐	☐	☐

11. To what extent do you think high school will help you improve the following skills?
Mark (X) one box for each row.

	Not at all	A little	Somewhat	A lot	Don't know
a. Speaking and listening	☐	☐	☐	☐	☐ DK
b. Using information and communication technology (e.g., computers or the Internet)	☐	☐	☐	☐	☐ DK
c. Working with tools, machines, or my hands	☐	☐	☐	☐	☐ DK
d. Making a public presentation or performing in front of an audience	☐	☐	☐	☐	☐ DK
e. Making decisions	☐	☐	☐	☐	☐ DK
f. Solving problems	☐	☐	☐	☐	☐ DK
g. Getting along with people from different backgrounds	☐	☐	☐	☐	☐ DK
h. Working with adults	☐	☐	☐	☐	☐ DK
i. Working with others my own age	☐	☐	☐	☐	☐ DK
j. Dealing with people (e.g., customers, clients)	☐	☐	☐	☐	☐ DK
k. Working in a team to accomplish a shared goal or objective	☐	☐	☐	☐	☐ DK
l. Accepting responsibility for the quality of my work	☐	☐	☐	☐	☐ DK
m. Knowing expectations for behavior at work	☐	☐	☐	☐	☐ DK

12. For which of the following activities do you think high school will prepare you?
Mark (X) ALL that apply.

☐ College
☐ Job or career of my choice
☐ Parenthood
☐ Citizenship in the community
☐ Military
☐ Other (please specify): _____

13. By the end of high school, do you think you will complete the high school A through G courses required to enter the University of California and California State University systems?

☐ No ☐ Yes ☐ Don't know

PLANS AFTER HIGH SCHOOL

14. Do you plan to complete any kind of technical or trade school? *(For example, automotive school, culinary school, information and technology (IT) school, etc.)*

☐ No ☐ Yes

15. What is the highest level of education you think you will complete? *Mark (X) only one box.*

☐ Less than high school

☐ High school diploma

☐ Degree from a 2-year community college (e.g., Associate's degree)

☐ Degree from a 4-year college (e.g., Bachelor's degree)

☐ Graduate degree (e.g., Master's degree, Doctoral degree, law degree, medical degree, business degree)

16. What do your parent(s)/guardian(s) expect you to do after you graduate from high school? *Mark (X) ALL that apply.*

☐ Attend college

☐ Attend technical/trade school

☐ Obtain a job

☐ Pursue a career that I enjoy

☐ Other (please specify): _____

17. Which of the following do you plan to do <u>immediately</u> after high school? *Mark (X) ALL that apply.*

☐ Work full-time (40 hours or more per week)

☐ Work part-time (less than 40 hours per week)

☐ Attend a 2-year community college

☐ Attend a 4-year college

☐ Attend a technical/trade school

☐ Enlist in the military

☐ Other (please specify): _____

or

☐ None of the above

18. Do you know what job or career you want to have in the future?

☐ No ▶ SKIP to Question 22

☐ Yes

19. Is the job or career of your choice related to the pathway, academy, small learning community, or career/industry-themed school in which you participate? If you do not participate in a pathway, academy, small learning community, or career/industry-themed school, please mark the third box below.

- ☐ Yes
- ☐ No
- ☐ I DO NOT participate in a pathway, academy, small learning community, or career/industry-themed school.

20. In order to be successful in the job or career of your choice, will you need to complete technical or trade school? *(For example, automotive school, culinary school, information and technology (IT) school, etc.)*

☐ Yes ☐ No

21. In order to be successful in the job or career of your choice, what is the highest level of education you will need to complete? *Mark (X) only one box.*

- ☐ Less than high school
- ☐ High school diploma
- ☐ Degree from a 2-year community college (e.g., Associate's degree)
- ☐ Degree from a 4-year college (e.g., Bachelor's degree)
- ☐ Graduate degree (e.g., Master's degree, Doctoral degree, law degree, medical degree, business degree)

DEMOGRAPHICS

22. What grade are you in? *Mark (X) only one box.*

☐ Grade 9 ☐ Grade 10 ☐ Grade 11 ☐ Grade 12

23. In what grade did you first enroll at your current high school? *Mark (X) only one box.*

☐ Grade 9 ☐ Grade 10 ☐ Grade 11 ☐ Grade 12

24. Are you female or male?

☐ Female ☐ Male

25. What is your race/ethnicity? *Mark (X) ALL that apply.*

- ☐ Filipino
- ☐ Pacific Islander
- ☐ Asian
- ☐ Latino or Hispanic
- ☐ African American or Black
- ☐ American Indian
- ☐ White
- ☐ Other (please specify): _____

26. What month and year were you born?

☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

Year ☐☐☐☐

27. What is the highest level of schooling your mother/female guardian completed?
Mark (X) one box only.

☐ Did not graduate from high school

☐ Graduated from high school

☐ Went to college, but did not graduate

☐ Graduated from a 2-year college or technical/trade school

☐ Graduated from a 4-year college

☐ Earned graduate degree (e.g., MD, MA, PhD, MBA, JD)

☐ Don't know

28. What is the highest level of schooling your father/male guardian completed?
Mark (X) one box only.

☐ Did not graduate from high school

☐ Graduated from high school

☐ Went to college, but did not graduate

☐ Graduated from a 2-year college or technical/trade school

☐ Graduated from a 4-year college

☐ Earned graduate degree (e.g., MD, MA, PhD, MBA, JD)

☐ Don't know

THANK YOU VERY MUCH FOR COMPLETING THIS SURVEY.

Cohort 1 Follow-Up Survey Instrument

Spring 2012

Survey of Students in Linked Learning Districts
Spring 2012

Important note:
Please use a BLACK pen. Blue and red ink and pencil cannot be read by our scanners.
When asked to mark boxes, make an "X" through the box.

Sample: ☒ Right ☑ Wrong

Use block printing when you complete any text or numeric responses.
If you wish to change a response, please mark the correct response and CIRCLE it. ⊠

ID: **7777777777**

* 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 *

Please write today's date here: ☐☐ / ☐☐ / 2012
Month *Day* *Year*

ABOUT MY SCHOOL

1. During this school year (2011-12), how many of your <u>teachers, guidance counselors, or other school staff</u> do the following? *Mark (X) one box for each row.*

	None	Fewer than half	About half	More than half	All
a. During this school year, teachers, counselors, or other staff at my school treat me with respect.	☐	☐	☐	☐	☐
b. During this school year, teachers, counselors, or other staff at my school know what's going on in my life.	☐	☐	☐	☐	☐
c. During this school year, teachers, counselors, or other staff at my school encourage me to continue my education after high school.	☐	☐	☐	☐	☐
d. During this school year, teachers, counselors, or other staff at my school make sure students know how they can get help if they fall behind.	☐	☐	☐	☐	☐
e. During this school year, teachers, counselors, or other staff at my school care about how well I am doing in school.	☐	☐	☐	☐	☐
f. During this school year, teachers, counselors, or other staff at my school expect me to do my best all the time.	☐	☐	☐	☐	☐

2. How many of the <u>students in your current classes</u> do the following? *Mark (X) one box for each row.*

	None	Fewer than half	About half	More than half	All
a. Students in my classes treat each other with respect.	☐	☐	☐	☐	☐
b. Students in my classes see high school as useful preparation for the future.	☐	☐	☐	☐	☐
c. Students in my classes think it is important to get good grades in school.	☐	☐	☐	☐	☐
d. Students in my classes help each other with school work.	☐	☐	☐	☐	☐

MY ACADEMIC APPROACH AND STUDENT SUPPORTS AT MY SCHOOL

3. How often do you do the following (either in or outside school)? *Mark (X) one box for each row.*

	Never	Rarely	About half the time	Most of the time	Always
a. Set aside enough time to do my homework and study so that I am prepared for class	☐	☐	☐	☐	☐
b. Give extra effort to challenging assignments	☐	☐	☐	☐	☐
c. Try to do well on my schoolwork even when it isn't interesting to me	☐	☐	☐	☐	☐
d. Find a way to get help when my schoolwork becomes difficult	☐	☐	☐	☐	☐

4. To what extent do you agree with the following statements? *Mark (X) one box for each row.*

	Strongly disagree	Disagree	Agree	Strongly agree
a. I believe it is important to do well in school.	☐	☐	☐	☐
b. I believe I am responsible for what happens in my future.	☐	☐	☐	☐
c. I believe it is important to work hard in high school because it matters for my future success.	☐	☐	☐	☐

5. Since the beginning of this school year (2011-12), have any of your <u>teachers, guidance counselors, or other school staff</u> helped you understand the following? *Mark (X) one box for each row.*

a. This year, teachers, counselors, or other school staff have helped me understand high school graduation requirements.	☐ No	☐ Yes
b. This year, teachers, counselors, or other school staff have helped me understand what I want to do after I graduate from high school.	☐ No	☐ Yes
c. This year, teachers, counselors, or other school staff have helped me understand what kind of education or training I will need after high school to help me prepare for my possible career.	☐ No	☐ Yes
d. This year, teachers, counselors, or other school staff have helped me understand what high school courses I will need to get into college or career training after high school.	☐ No	☐ Yes
e. This year, teachers, counselors, or other school staff have helped me understand how to choose a career training program / trade school (such as automotive school, cooking school, beauty school, information and technology (IT) school).	☐ No	☐ Yes
f. This year, teachers, counselors, or other school staff have helped me understand how to choose a 2- or 4-year college.	☐ No	☐ Yes

ABOUT MY CLASSES AND PROGRAM OF STUDY

6. Since the beginning of this school year (2011-12), how many of the classes you have taken (including current classes) would you describe in the following ways? *Mark (X) one box for each row.*

	None	A few	About half	Most	All
a. The classes I have taken this year are interesting.	☐	☐	☐	☐	☐
b. The classes I have taken this year are challenging.	☐	☐	☐	☐	☐

7. Since the beginning of this school year (2011-12), how often have your <u>teachers</u> done the following?
Mark (X) one box for each row.

	Never	Once this year	A few times this year	About once a month	At least once a week
a. During this school year, how often have your teachers taught you how to apply what you are learning in class to the real world?	☐	☐	☐	☐	☐
b. During this school year, how often have your teachers explained how what you learn in class could be applied to what you might do after school (college, career training, job, etc.)?	☐	☐	☐	☐	☐
c. During this school year, how often have your teachers explained how what you learn in one class relates to what you learn in other classes?	☐	☐	☐	☐	☐
d. During this school year, how often have your teachers given you an assignment that counted toward your grade in two or more classes?	☐	☐	☐	☐	☐
e. During this school year, how often have your teachers asked you to work on a project that lasted for 2 weeks or longer?	☐	☐	☐	☐	☐

8. Are you in an academy, pathway, small learning community, or career-themed school?
(for example, arts, media, and entertainment; business and finance; building and environmental design; biomedical and health sciences; engineering; information technology; manufacturing; public services; etc.)

☐ No ▶ **SKIP TO QUESTION 11**

☐ Yes ▶ **IF ANSWER IS YES**, please print full name of the academy, pathway, small learning community, or career-themed school you are in:

9. To what extent do you feel your experience in a pathway, academy, small learning community, or career-themed school has influenced your goals?
Mark (X) one box for each row.

	Not at all	A little	Somewhat	A lot
a. My experience in this pathway, academy, small learning community, or career-themed school has helped me know that I want to continue my education or training beyond high school.	☐	☐	☐	☐
b. My experience in this pathway, academy, small learning community, or career-themed school has helped me become more interested in careers related to its theme.	☐	☐	☐	☐
c. My experience in this pathway, academy, small learning community, or career-themed school has helped me understand that I am **NOT** interested in careers related to its theme.	☐	☐	☐	☐

10. What grade were you in when you started your pathway, academy, small learning community, or career-themed school? *Mark (X) only one box.*

☐ Grade 9

☐ Grade 10

☐ Grade 11

☐ Grade 12

PLEASE ANSWER THE FOLLOWING QUESTIONS EVEN IF YOU ARE NOT IN A PATHWAY, ACADEMY, SMALL LEARNING COMMUNITY, OR CAREER-THEMED SCHOOL.

11. Since you started 9th grade, how many career-themed classes have you taken (including current classes) that are all related to one career theme? *(for example, performing and visual arts; business and marketing; construction technology; biotechnology; graphic design; fashion design; computer science; law; etc.) Mark (X) only one box.*

- ☐ 0 classes ▶ **SKIP TO QUESTION 13**
- ☐ 1 class
- ☐ 2 classes
- ☐ 3 classes
- ☐ 4 or more classes

12. Since the beginning of this school year (2011-2012), how often have you done the following in your career-themed classes? *Mark (X) one box for each row.*

	Never	Once this year	A few times this year	About once a month	At least once a week
a. In your career-themed class(es), how often have you discussed how to apply what you are learning to a current or future job situation?	☐	☐	☐	☐	☐
b. In your career-themed class(es), how often have you practiced hands-on skills working with tools, machines, or computers?	☐	☐	☐	☐	☐
c. In your career-themed class(es), how often have you worked in a team to accomplish a shared goal or objective?	☐	☐	☐	☐	☐

SCHOOL-RELATED WORK EXPERIENCES

13. During this school year (2011-12), have you participated in any of the following work-related experiences as part of your school program (including pathway, academy, small learning community, or career-themed school), either on or off campus? *(If you have a job that is not related to school in any way, please do not include it in your answers. If you have not participated in ANY work-related school experiences, please mark "No" for each item.) Mark (X) one box for each row.*

a. Employment, internship, or job-shadowing an adult at a workplace outside of school for which you are paid or earn course credit	☐ No	☐ Yes
b. School-based student- or teacher-run business	☐ No	☐ Yes
c. Career-related student competitions (for example, marketing campaign or fundraiser)	☐ No	☐ Yes
d. Community service or service learning opportunities	☐ No	☐ Yes
e. Mentoring from a professional role model/industry representative	☐ No	☐ Yes
f. Listening to guest speakers from a particular industry or profession	☐ No	☐ Yes
g. Participating in company tours, field trips, or visits for a particular industry or profession	☐ No	☐ Yes
h. Mentoring or tutoring another student on a regular basis	☐ No	☐ Yes

IF YOU ANSWERED "NO" TO ALL THE OPTIONS IN QUESTION 13, THEN SKIP AHEAD TO QUESTION 19.

14. Does your performance or participation in any of the career-themed experiences in Question 13 affect your grade in <u>at least one</u> of your high school classes?

☐ No

☐ Yes

15. Thinking about your work-related experience(s) <u>from Question 13</u>, how often have you done the following during this school year (2011-12)?
Mark (X) one box for each row.

	Never	Rarely	Sometimes	Most of the time	Always
a. During this school year, how often have you tied your work-related experience back to a school project or other classwork?	☐	☐	☐	☐	☐
b. In your work-related experiences this school year, how often have you practiced hands-on skills working with tools, machines, or computers?	☐	☐	☐	☐	☐
c. In your work-related experiences this school year, how often have you worked with customers, clients, patients, managers?	☐	☐	☐	☐	☐
d. In your work-related experiences this school year, how often have you worked with people of all ages?	☐	☐	☐	☐	☐
e. In your work-related experiences this school year, how often have you worked in a team to accomplish a shared goal or objective?	☐	☐	☐	☐	☐

16. How satisfied are you with the work-related experience(s) you participated in during this school year (2011-12)? *Mark (X) only one box.*

☐ Not at all satisfied

☐ Somewhat satisfied

☐ Satisfied

☐ Very satisfied

17. Were any of the work-based learning experiences in <u>Question 13</u> based off campus?
Mark (X) only one box.

☐ No ▶ **SKIP TO QUESTION 19**

☐ Yes

18. Thinking about the <u>off-campus</u> work-related experience(s) <u>from Question 13</u>, how often have you done the following during this school year (2011-12)? *Mark (X) one box for each row.*

	Never	Rarely	Sometimes	Most of the time	Always
a. In your off-campus work-related experience(s) this year, how often has a teacher or other school staff member visited your workplace and/or talked with your manager?	☐	☐	☐	☐	☐
b. In your off-campus work-related experience(s) this year, how often have adults in your workplace talked to you about what you might do after high school?	☐	☐	☐	☐	☐

19. Since you started high school, have you been able to get the types of experiences to learn career skills that you wanted as part of your school program (either in or outside of school)? *Mark (X) only one box.*

☐ No

☐ Yes

☐ N/A I am not interested in gaining career skills as part of my high school program.

20. To what extent do you think high school is helping you improve the following skills? *Mark (X) one box for each row.*

	Not at all	A little	Somewhat	A lot	Don't know
a. Speaking and listening in a job interview	☐	☐	☐	☐	☐ DK
b. Using information and communication technology (for example, computers or the Internet)	☐	☐	☐	☐	☐ DK
c. Making a public presentation or performing in front of an audience	☐	☐	☐	☐	☐ DK
d. Making decisions	☐	☐	☐	☐	☐ DK
e. Solving problems	☐	☐	☐	☐	☐ DK
f. Getting along with people from different backgrounds	☐	☐	☐	☐	☐ DK
g. Working with people in a professional setting (for example, customers, clients, patients, managers)	☐	☐	☐	☐	☐ DK
h. Working in a team to accomplish a shared goal or objective	☐	☐	☐	☐	☐ DK
i. Accepting responsibility for the quality of my work	☐	☐	☐	☐	☐ DK
j. Knowing expectations for behavior in a workplace or at a job	☐	☐	☐	☐	☐ DK
k. Writing a letter to apply for a job or creating a resume	☐	☐	☐	☐	☐ DK

21. For which of the following activities do you think high school will prepare you?
Mark (X) ALL that apply.

- ☐ College
- ☐ Job or career of my choice
- ☐ Parenthood
- ☐ Citizenship in the community
- ☐ Military
- ☐ Other (please specify):

22. By the end of high school, do you think you will meet the college entrance requirements for the University of California and California State University system?

- ☐ No
- ☐ Yes
- ☐ Don't know

23. Since you started high school, how many of the following types of classes have you taken? *(Count all classes you are taking or have taken, even those that have ended already.)*
Mark (X) one box for each row.

	0 classes	1 class	2 classes	3 classes	4 or more
a. Number of AP classes	☐	☐	☐	☐	☐
b. Number of honors classes	☐	☐	☐	☐	☐
c. Number of classes that give you credits that can transfer to college (including classes taken at a community college or university but NOT including AP classes)	☐	☐	☐	☐	☐

PLANS AFTER HIGH SCHOOL

24. What level(s) of education do you think you will complete? *Mark (X) ALL that apply.*

- ☐ Less than high school
- ☐ High school graduate
- ☐ Some college
- ☐ Technical/trade school (for example, automotive school, cooking school, beauty school, information and technology (IT) school)
- ☐ Degree from a 2-year community college (for example, Associate's degree)
- ☐ Degree from a 4-year college (for example, Bachelor's degree)
- ☐ Graduate degree (for example, MA, PhD, JD, MD, or MBA degree)

25. Do you know what job or career you want to have in the future?

- ☐ No ▶ **SKIP TO QUESTION 27**
- ☐ Yes

26. In order to be successful in the job or career of your choice, which of the following will you need to complete? *Mark (X) ALL that apply.*

- ☐ High school
- ☐ Technical or trade school (for example, automotive school, cooking school, beauty school, information and technology (IT) school)
- ☐ 2-year community college
- ☐ 4-year college
- ☐ Graduate school (to earn an MD, MA, PhD, MBA, or JD degree)

DEMOGRAPHICS

27. What grade are you in? *Mark (X) only one box.*

- ☐ Grade 9
- ☐ Grade 10
- ☐ Grade 11
- ☐ Grade 12

28. In what grade did you first enroll at your current high school? *Mark (X) only one box.*

- ☐ Grade 9
- ☐ Grade 10
- ☐ Grade 11
- ☐ Grade 12

THANK YOU FOR TAKING THIS SURVEY.