

PATHWAYS TO POSTSECONDARY

Stories of Linked Learning Alumni



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Executive Summary

This research report illuminates the voices of Linked Learning alumni as they reflect upon their high school and postsecondary experiences. Based on interviews with Linked Learning high school graduates from the classes of 2014 and 2015, this report sheds light on how students experience the transition to postsecondary education and careers, and how their Linked Learning experience influenced postsecondary trajectories. Alumni also describe how the barriers they experience, both within postsecondary institutions and in their personal lives, undermine the intentions of students who identify as well-prepared for postsecondary education.

The goal of each Linked Learning pathway is to empower every student to successfully pursue a full range of postsecondary options—four-year college or university, community college, technical or certificate program, an apprenticeship, or on-the-job employment training—that lead to rewarding careers based on students' interests and goals. Linked Learning pathways also aim to provide every student with the knowledge and skills they need to succeed in their postsecondary pursuits.

Independent, multiyear evaluation of Linked Learning found consistently positive effects on high school achievement and graduation. Positive effects on college-going were also measured among participating Black students and students with low prior achievement. Overall, Linked Learning students enrolled in college, remained through the first year, and persisted into a second year at rates similar to those of their peers in traditional high schools (Caspary & Warner, 2020).

This suggests that, while Linked Learning helped more students attain their postsecondary aspirations, more must be done to ensure that high school gains continue into postsecondary.

The perspectives provided by Linked Learning alumni interviewed for this study open our eyes to a new imperative—and several specific opportunities—to infuse the advantages of Linked Learning across the educational domains of both high school *and* college.

The perspectives provided by Linked Learning alumni open our eyes to a new imperative to infuse the advantages of Linked Learning across the educational domains of both high school and college.

Sixteen alumni participated in this study. All participants graduated from a certified Linked Learning pathway within a district that was part of the California Linked Learning District Initiative. Interviewees were selected to represent diversity with regard to demographics, postsecondary trajectories, academic achievements based on self-reported high school grade point averages, and geography. Sample demographics reflected pathway enrollment within each participating district, where a majority of students enrolled are nonwhite, less privileged socioeconomically, and less likely to be from college-educated families than California high school students more generally.

KEY FINDINGS

Preparing for College, Career, and Life

Based on reflective interviews and aligned with previous studies on Linked Learning, we report:

- **Linked Learning experiences engaged students** in their learning and built a set of skills that helped them through high school and into their postsecondary futures.
- **Opportunities to build meaningful relationships** with caring adults allowed alumni to feel understood as unique individuals with distinct interests, backgrounds, and life circumstances.
- **Learning experiences provided alumni the opportunity to explore** a range of careers through exposure to professionals and work tools.
- **Pathways provided a supportive space** for alumni to investigate their curiosities, direct their learning, identify their many strengths and talents, and develop positive academic identities.

Postsecondary Decision-Making

When reflecting on the factors that influenced their postsecondary decision-making process, alumni shared:

- **Critical considerations, such as financial costs** associated with postsecondary education, legal status, and familial obligations, coupled with career interests and goals, influenced decision-making.
- **Students relied on caring adults**—teachers, counselors, mentors, and family members—to help make sense of their options and provide guidance on these life-changing decisions.
- **The high expectations held by staff members** shaped alumni decision-making.
- **Alumni's sense of readiness** for next steps influenced their decision-making.
- **Postsecondary options felt limited** for some, especially those who indicated that they needed time and space after high school graduation to continue to explore their career interests.

Postsecondary Advantages

Within postsecondary environments—four-year college or university, community college, technical or certificate program, an apprenticeship, or on-the-job employment training—alumni shared how they aimed to apply the knowledge, skills, and mindsets they had acquired in their Linked Learning pathways. We report:

- **Alumni felt confident in their ability to demonstrate professionalism and 21st century skills.** Alumni said they were prepared to successfully interact and communicate with employers, and they indicated that collaboration, critical thinking, and problem-solving skills were particularly useful as they aimed to navigate new work environments.
- **The public speaking, research, and writing skills** alumni developed through projects and presentations of their learning were especially useful to students in their postsecondary learning settings.

Challenges in Postsecondary

Alumni also identified a range of challenges that hampered their ability to navigate their postsecondary settings. In particular, alumni indicated that due to a lack of access to supports and resources within their learning environments, they felt alone in dealing with financial concerns, immigration status, and familial responsibilities. Although a few alumni reported that they were able to reach out for assistance and create supportive communities, others were forced to create alternative paths for themselves that veered from their original goals. Challenges were exacerbated by:

- **A sense of disconnectedness** within postsecondary learning environments where they felt alone in resolving financial and familial issues, as well as academic difficulties. Alumni also indicated that they had to work hard and independently to maintain and further develop the skills, interests, and strengths valued in their pathway setting.
- **A culture of competitiveness** that encouraged alumni to compete rather than collaborate and provide support to peers. Postsecondary learning environments, according to alumni, contrasted starkly with their pathway experiences in this sense, which eroded their confidence and worked to discourage rather than encourage the development of interests and strengths.

For many alumni, their secondary and postsecondary experiences felt siloed, with success in one segment not translating into success within the next segment. Alumni stories make clear that while Linked Learning transforms the high school experience, we must also pay attention to students' transition and postsecondary experiences.

RECOMMENDATIONS

Based on these stories, we share recommendations that aim to create the conditions and provide the supports that can keep young people on track to meet their postsecondary goals, including the attainment of a college degree or certificate. Recommendations also tap into our knowledge about what all young people need to thrive. Our recommendations include:

- **Provide additional opportunities for students to bridge and align secondary and postsecondary experiences.** Bridge programs, like dual enrollment or access to college-level courses, can provide students with a feel for collegiate academics, and continue to build students' confidence in their ability to access and succeed in college.
- **Ensure all pathway students are prepared for the challenges ahead and possess a solid understanding of postsecondary options.** Preparing young people for their postsecondary experiences should include detailed information about the potential implications of their decisions and challenges ahead. Arming students with this information can help them make informed decisions and prepare them to navigate obstacles within postsecondary.
- **Increase the readiness of postsecondary institutions to provide services and resources to students experiencing hardships.** Postsecondary learning institutions must examine and adopt practices that can improve students' access to services including health, counseling, access to emergency grants, faculty office hours, advising, mentorship, and opportunities for students to create and join supportive communities. Services such as these can help students feel connected to and supported within their postsecondary setting as they work to navigate challenging roadblocks.
- **Create continuity in terms of the practices that encourage creativity, agency, an exploration of interests, and meaningful and deep learning.** For many Linked Learning alumni, disconnections between their secondary and postsecondary learning experiences worked to discourage rather than encourage the development of students' strengths.
- **Broaden postsecondary instructional strategies and opportunities that can connect students' learning to career goals and exploration.** Courses that are directly linked to career through the integration of work-based learning deepen students' engagement and understanding of college material, refine students' collaboration skills, assist students in connecting college course-taking to their career goals, and prepare students for the workplace.

- **Develop opportunities for students to continue to identify their strengths and contribute to their communities.** Institutions of higher education must value the talents and strengths of students from all backgrounds and recognize the great value students from marginalized communities bring to their postsecondary environments.
- **Address resource disparities.** A lack of financial resources hinders the ability of postsecondary students to engage fully in their studies and disproportionately impacts students from low-income families.
- **Continue to learn from the experiences of young people.** Researchers, policymakers, and the public at large need visibility to what is working (and what is not) in public education, and for whom. We must expand our research efforts to ensure we understand the experiences of populations underrepresented in postsecondary institutions and first-generation college-going students, in particular.

The stories of Linked Learning alumni are a celebration of persistence and achievement. Approximately two-thirds of study participants have attained a degree or certificate five to six years beyond high school graduation, and those who have yet to achieve their postsecondary goals shared their determination to do so. Their stories, and the uncertain roads they traveled, also serve as a call to action toward more equitable postsecondary experiences and outcomes. The postsecondary trajectories of Linked Learning alumni illuminate that, for too many, the positive high school learning experiences, opportunities, and self-proclaimed preparedness for college and career do not easily translate into postsecondary success. In order to empower all students to successfully chart and pursue their course to rewarding postsecondary learning opportunities and careers, we must acknowledge the unequal realities and chances less-privileged students have to access and successfully navigate postsecondary settings. The perspectives of these young people remind us that the environments and supports found in Linked Learning pathways—those that nurture students' intellectual curiosity, engagement, confidence, and wellbeing—can and must be infused across the educational domains of high school and college.

In order to empower all students to pursue rewarding postsecondary opportunities and careers, we must acknowledge the unequal realities and chances less-privileged students have to access and successfully navigate postsecondary settings.

A PORTRAIT OF PERSISTENCE: ALBERTO GARCIA

In 2015 Alberto Garcia graduated from the Academy of Engineering, a Linked Learning pathway at Harmony Magnet Academy in Strathmore, California. Today, after graduating from a public, four-year university, Alberto works as an engineer. As he reflected upon his high school experience, Alberto credited his exposure to a wide range of career paths within the field of engineering—which he described as “taste tests” for his career choice as a petroleum engineer.

"My first class was Intro to Engineering Design and I remember [our teacher] ... had us design a mug. He said, "... Don't worry about the engineering logistics, just engineer." That was literally day one of high school. It exposed me to what an engineer does ... and the next four years were pretty much that ..."

In addition to Alberto's engineering classes, the opportunity to develop his professional skills through his pathway experience also assisted him through college to career. He was ready to present himself as a budding engineer, make connections and network, strengthen his resume, and attend career fairs. According to Alberto, “When I walked into college, I was ready ... my resume was ready.” Indeed, throughout his college career, Alberto pursued fellowships and internships that allowed him to develop professional relationships and gain field experience, which ultimately led to his current position.

Beyond the professional and technical skills and knowledge he developed at the Academy of Engineering, Alberto felt the school empowered him to pursue his dreams. The academy, according to Alberto, “fostered the empowerment of direction.” Being able to *do* the work of an engineer, rather than just learn about the work and its underlying concepts, allowed him to see himself in this field. In addition, with teachers, counselors, and mentors who “genuinely cared” about his wellbeing, his learning, and his future, Alberto began to believe that he could pursue the college and a career of his choosing.

As the son of migrant workers, Alberto was also committed to supporting his family financially and helping his four younger siblings make it to and through college. Alberto acknowledged that although his parents didn't “a hundred percent understand what I was doing, they knew I had the right intentions.” He continued, “They weren't able to [financially] support me to go to college at all, but were able to support themselves so that I wouldn't have to focus on their wellbeing, while also trying to take classes.” Alberto worked part time throughout college and acquired paid internships each summer to support himself while in school. He was motivated to concentrate on his studies and complete his degree as quickly as possible in order to begin full-time work and contribute to his family financially.

Although Alberto is enjoying a fulfilling career that is taking him across the country, he looks forward to his eventual return to his migrant community and to providing mentorship to other students as they pursue their dreams.

Introduction

A growing number of students across the country, like Alberto, are experiencing Linked Learning—a proven, systemic approach to education that helps students prepare for college and career, grow through real work experiences, and prepare to participate in civic life.

In recent years, Linked Learning has grown from a small pilot program to a broad-based movement involving educators, employers, policymakers, and community-based organizations. Today there are more than 620 Linked Learning pathways in place across more than 100 school districts in 20 states, engaging approximately 250,000 students nationwide in high-quality, integrated college and career preparation (Linked Learning Alliance, 2020).

HOW LINKED LEARNING WORKS

Linked Learning aims to increase the relevance of students' high school learning experience by bringing together a college preparatory curriculum, career and technical education, real-world learning experiences, and supports that remove barriers to students' learning.

The approach differs from the programs of yesterday that “tracked” some high school students—often students from low-income households or minoritized groups—directly into the workforce while other students were prepared for postsecondary education. Instead, Linked Learning emphasizes the integration of college *and* career readiness, not one over the other, to empower every student to successfully pursue a full range of postsecondary options—four-year college or university, community college, technical or certificate program, an apprenticeship, or on-the-job employment training—that lead to rewarding careers based on students' interests and goals.

The hallmark of the Linked Learning approach is the pathway: Pathways are organized around industry themes and can take the form of an autonomous small school, or a small learning community or academy within a larger comprehensive high school. A student in an engineering-themed Linked Learning pathway, for example, may complete an internship with an engineering firm or other work-based learning experience, in addition to taking both career technical education classes in engineering and rigorous classes in core academic content that integrate the engineering theme.

Pathways achieve Linked Learning Gold certification—the highest quality standard for college and career preparation—based on evidence of excellence in integrating the core components of Linked Learning. See Appendix B for details.



THE CALIFORNIA LINKED LEARNING DISTRICT INITIATIVE AND SRI INTERNATIONAL STUDY

To support schools in their transformation to Linked Learning pathways, The James Irvine Foundation launched the California Linked Learning District Initiative in 2009. Implemented in nine California districts, the Initiative focused on establishing systems-level support to both sustain and expand Linked Learning pathways within each district.

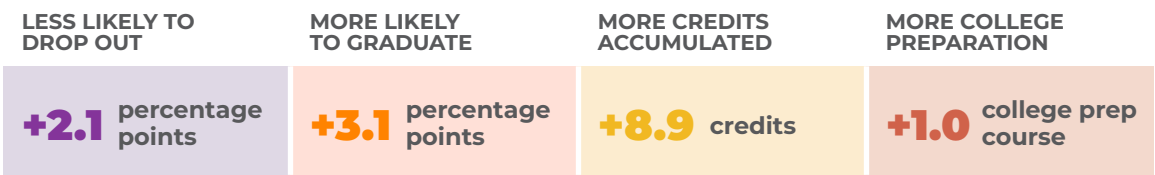
From 2009 to 2018, SRI International documented and evaluated the implementation and sustainability of district-wide systems of Linked Learning (Evaluation of the California Linked Learning District Initiative, n.d.). SRI captured the voices and perceptions of students, assessed the effect of pathway enrollment on students' high school outcomes, and examined the effects of Linked Learning as students transitioned to postsecondary education and careers. To understand the impact of participation in a high-quality college and career pathway in high school, SRI's evaluation focused on certified pathways.

All Linked Learning alumni who participated in the study featured in this report graduated from a certified Linked Learning pathway participating in the California Linked Learning District Initiative in 2014 or 2015—the same cohorts examined in SRI's quantitative analysis of student outcomes.

POSITIVE HIGH SCHOOL OUTCOMES, WITH PROMISING GAINS IN COLLEGE-GOING

The SRI study of the California Linked Learning District Initiative found consistently positive results related to high school success. Compared to their peers in traditional high schools, Linked Learning students had decreased dropout rates, higher graduation rates, more credits earned, and more college preparatory courses completed (Caspary & Warner, 2020). Linked Learning students were also more likely to report developing the 21st century skills and mindsets necessary for success in college and the workplace.

Figure 1: High School Academic Outcomes



SRI's evaluation found some promising and positive effects of Linked Learning on college-going. Compared with their peers in traditional high schools, Linked Learning students with low prior achievement were more likely to enroll in college, and participating Black students were more likely to enroll in a four-year rather than a two-year institution. The research also showed that, overall, Linked Learning students enrolled in college, remained through the first year, and persisted into a second year at rates similar to those of their peers in traditional high schools (Casparly & Warner, 2020).

Figure 2: Postsecondary Student Outcomes

	ENROLL IN COLLEGE AFTER HIGH SCHOOL	ENROLL IN A FOUR- YEAR INSTITUTION
Students with low prior achievement	+5.7 percentage points	+4.1 percentage points
Black students	equally likely as peers	+11.6 percentage points

While SRI's findings tell us that Linked Learning is helping many students attain their postsecondary aspirations, it also suggests a need to focus greater attention on the transition to and through postsecondary education. Given the upward trajectory Linked Learning students were on as they were graduating from high school, we might expect these young people would not only start ahead, but remain ahead in their pursuit of a postsecondary degree or credential. But there is more to the story, as we explore below.

KNOWN SYSTEMIC BARRIERS

For far too many students, postsecondary plans are waylaid by a range of systemic barriers, such as a lack of resources and supports. Ever rising postsecondary education costs, for example, along with growing income inequality have made it much more difficult for low-income families to foot the bill for college. As a result, an increasing number of students are juggling school, work, and familial responsibilities (Cahalan, et al., 2020; Dukakis, et al., 2014). Simultaneously, deepening inequalities in the postsecondary sector, both between and within institutions, better position students who are socioeconomically advantaged to obtain qualitatively different opportunities and levels of support (Stitch, 2018).¹

An increasing number of students are juggling school, work, and familial responsibilities.

¹ Research has identified a system of tracking within postsecondary institutions that largely mimics many of the inequality-inducing policies and practices of the secondary school system.

Nationwide, only three in five incoming freshmen enrolled in public colleges or universities will earn a college degree six years later (National Center for Education Statistics, 2020; Kirp, 2019).² For low-income, dependent, first-generation college-going students, approximately one in five will complete a degree six years later (Cahalan, et al., 2020). And problems begin early. More than one quarter of the 3.5 million students across the United States who enrolled in college for the first time in fall 2017 were unable to persist to their second year (National Student Clearinghouse Research Center, 2019). Black and Latinx students have the lowest persistence rates despite exhibiting high aspirations to obtain a college degree (National Student Clearinghouse Research Center, 2019; Pew Hispanic Center, 2009).

A CLOSER LOOK AT EXPERIENCES AFTER HIGH SCHOOL

This research report illuminates the voices of Linked Learning students as they reflect upon their high school and postsecondary experiences. Based on interviews with Linked Learning alumni—graduates from the classes of 2014 and 2015—this study sheds light on the transition from high school to postsecondary education and careers, and how students' Linked Learning experiences influence postsecondary trajectories. Alumni also describe how the barriers they experience, both within postsecondary institutions and in their personal lives, undermine the intentions of students who identify as well-prepared for postsecondary education.

Although the findings from this study and that conducted by SRI indicate that Linked Learning is providing students with meaningful high school experiences and preparing them for college and career opportunities, we need to dig deeper. Here we surface implications for the Linked Learning movement and reveal the need for further exploration and research to ensure the success of young people beyond high school.

These alumni perspectives, in the context of this moment, suggest an important opportunity to infuse some of the advantages of Linked Learning across the educational domains of both high school and college.

Alumni perspectives, in the context of this moment, suggest an important opportunity to infuse some of the advantages of Linked Learning across the educational domains of both high school and college.

This report shares the transition stories of Linked Learning alumni and helps us understand more deeply the findings of SRI's earlier quantitative analysis of these same student cohorts. The report details how the knowledge and skills these students acquired through Linked Learning pathways have assisted them in navigating their postsecondary paths, identifies the obstacles students face as they work to achieve their postsecondary goals, and outlines the supports that can assist students as they endeavor to persist and achieve their dreams.

² Statistics reported are for students seeking a bachelor's degree at a four-year institution who entered college in 2012.



Postsecondary Trajectories of Linked Learning Alumni

This study captures the diverse voices and experiences of a sample of Linked Learning alumni. Participants attended a total of 12 distinct Linked Learning pathways across five districts that participated in the California Linked Learning District Initiative: Los Angeles Unified, Oakland Unified, Pasadena Unified, Porterville Unified, and Sacramento City Unified. Although the pathways attended by alumni ranged in career theme offerings—including art, entertainment, media, education, business, health, bioscience, and engineering—each was a certified Linked Learning pathway, indicating that all of the core components of the Linked Learning approach were in place. As such, each participant experienced high-quality integrated rigorous academics, career technical education, work-based learning experiences, and comprehensive support services.

A total of 16 alumni from the graduating classes of 2014 and 2015 participated in this study. Interviewees were selected to represent diversity with regard to demographics, postsecondary trajectories (four-year institutions, community college, and workforce participation), academic achievements based on self-reported high school grade point averages, and geography (see Appendix A for more information on our methods and sample). Eleven alumni self-identified as Latinx, three as Asian American and Pacific Islander, one as White, and one as Black (see Table 1). Seven study participants self-identified as female and nine identified as male. Thirteen participants (more than 80 percent of the sample) shared that they were first-generation college-going students. Three participants indicated that they were identified as English learners while in high school. On average, students enrolled in Linked Learning pathways were less privileged socioeconomically and less likely to be from college-educated families than California high school students more generally (Caspary & Warner, 2020).⁴ Sample demographics reflected pathway enrollment within each district and across the state.

⁴ More than three quarters of high school students in each district participating in the California Linked Learning District Initiative were nonwhite; more than half were socioeconomically disadvantaged.

Table 1: Interviewee Demographic Information⁵

NAME	DISTRICT	PATHWAY	GRAD CLASS	GENDER	ETHNICITY	COLLEGE-GOING GEN STATUS ⁶	GPA (SELF-REPORTED)
Carlos	Los Angeles Unified	Los Angeles High School of the Arts	2014	M	Latino	First	3.0-4.0
Jonathan	Los Angeles Unified	New Media Academy at Hollywood High	2015	M	Latino	Unknown	2.0-3.0
Cassandra	Los Angeles Unified	STEM Academy of Hollywood	2015	F	Latina	First	3.0-4.0
Ana Karen	Los Angeles Unified	Los Angeles High School of the Arts	2015	F	Latina	First	3.0-4.0
Alejandro	Oakland Unified	Life Academy	2014	M	Latino	First	3.0-4.0
Andrea	Oakland Unified	Education & Community Health Pathway, Skyline High	2014	F	Latina	First	2.0-3.0
Daryl	Pasadena Unified	Arts, Entertainment, & Media Academy, John Muir High	2015	M	Black	First	2.0-3.0
Jorge	Pasadena Unified	Arts, Entertainment, & Media Academy, John Muir High	2015	M	Latino	First	3.0-4.0
Isaac	Pasadena Unified	Engineering & Environmental Science Academy, John Muir High	2015	M	Latino	First	2.0-3.0
Analyse	Porterville Unified	Partnership Academy of Business and Finance, Porterville High	2015	F	AAPI	First	3.0-4.0
Alberto	Porterville Unified	Academy of Engineering, Harmony Magnet Academy	2015	M	Latino	First	3.0-4.0
Jessica	Porterville Unified	Environmental Science Academy, Monache High	2015	F	AAPI	First	3.0-4.0
Ryan	Porterville Unified	Partnership Academy of Business and Finance, Porterville High	2014	M	White	Unknown	3.0-4.0
Michelle	Sacramento City Unified	School of Engineering and Sciences	2014	F	AAPI	Unknown	3.0-4.0
Lorena	Sacramento City Unified	Sacramento New Technology High	2015	F	Latina	First	3.0-4.0
Orlando	Sacramento City Unified	School of Engineering and Sciences	2014	M	Latino	First	3.0-4.0

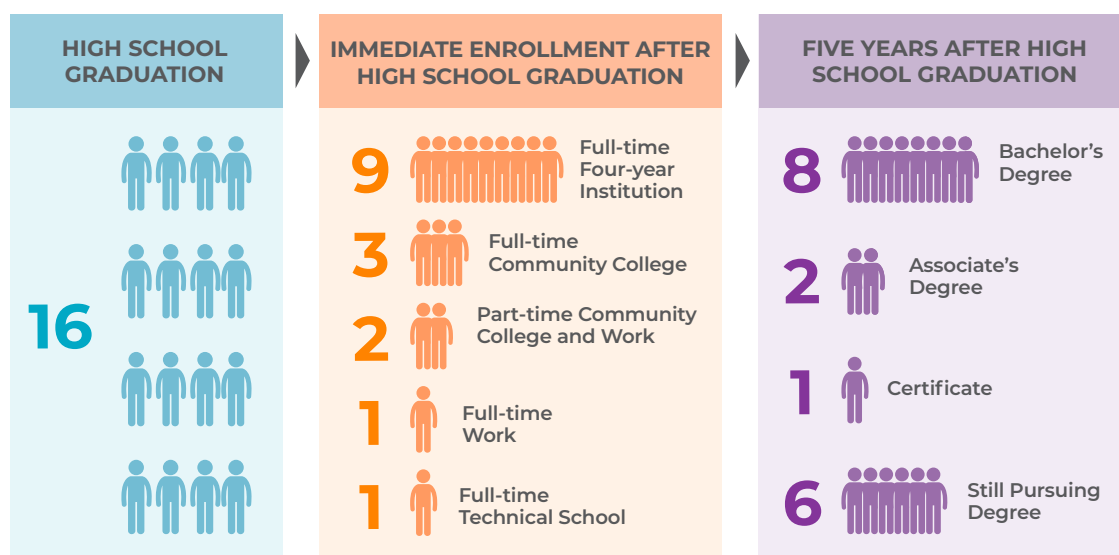
⁵ The names of participating alumni have been changed throughout the report to respect their confidentiality.

⁶ Alumni whose parents did not attend college are identified as a “first-generation college-going.” College-going generational status is shown as “unknown” for alumni who did not indicate educational level of their parents during the interview.

Within the total sample, nine Linked Learning alumni entered a four-year higher education institution immediately after high school graduation, three enrolled in a community college full-time, two students enrolled in a community college part-time and entered the workforce, one student enrolled in technical school, and one student entered the workforce full-time (see Figure 3). Students experienced a number of postsecondary transitions during the five or six years following high school graduation. Students who began their postsecondary education learning at a community college experienced a greater number of transitions than those who started at a four-year institution. Five students moved in and out of community college and the workforce, with either full- or part-time employment opportunities. Two students who began their postsecondary educational journey in a community college completed their associate's degree. One of these students transferred to a four-year institution. The other student completed their associate's degree five years after high school graduation. One student who enrolled at a private technical school completed her certificate program in three years and joined the workforce immediately after certificate completion. Students who enrolled in four-year institutions immediately after high school experienced fewer transitions, with two of nine students transferring from a four-year institution to enter the workforce and enroll at a community college.

During the focus period of this study—five or six years since participants graduated from high school—a total of 10 students (63 percent) earned a degree or certificate (see Figure 3). Eight students (50 percent of the sample) completed a bachelor's degree, two students completed an associate's degree (with one moving on to complete a bachelor's degree), and one student earned a certificate. Five alumni maintained their plans to continue their education beyond the study period. In spring 2020, a total of 13 alumni were in the workforce full-time. (See Table 2 for more information on individual trajectories.)

Figure 3: Postsecondary Trajectories of Linked Learning Alumni



Preparing For College, Career, and Life

As alumni reflected upon their Linked Learning pathway experiences, they described an engaging curriculum that included hands-on learning and field-based experiences that made their learning interesting and relevant to their postsecondary lives. Alumni also described a nurturing environment—a hallmark of certified Linked Learning pathways—where they established caring relationships with peers and adults, and where they fostered a positive sense of themselves as learners.

A STANDARD OF EXCELLENCE FOR COLLEGE AND CAREER PREPARATION

Linked Learning Certification is a process that establishes clear standards for implementing the Linked Learning approach with fidelity. Certified pathways demonstrate their dedication to continual improvement and ensuring real benefits for students. Pathways work through two certification levels—Silver and Gold—both with high standards developed and piloted by teachers, counselors, administrators, and pathway students, with input from technical assistance providers, educational equity experts, and industry and postsecondary partners. Standards emphasize cross-subject, student-centered learning with strong career and postsecondary integration, combined with student supports that ensure equitable opportunities for all students. Gold certification includes the following standards:

- Participating students are part of a pathway cohort class for at least 50 percent of their schedule.
- Core content and career technical education are built on a foundation of cross-subject and industry-infused curriculum and instructional design, giving students opportunities to make connections across academic content areas and between academic and career content.
- Assessments align with and are designed to measure pathway student outcomes and/or graduate profile.
- The pathway provides students with a work-based learning plan that includes a continuum of work-based learning experiences aligned with the program of study curriculum and pathway and/or graduate outcomes.
- The pathway program includes embedded learning opportunities that emphasize the development of social awareness, self-management, and a mindset of growth and self-efficacy for all students.
- The pathway team monitors student academic, personal, and social-emotional needs, and provides culturally responsive and timely interventions as necessary.

SRI International research shows quality is key to driving positive outcomes for students in certified Linked Learning pathways (Caspary & Warner, 2020). The positive effects measured were for students in certified Linked Learning pathways only; the evaluation found fewer benefits from participation in pathways that did not go through the quality review process.

Linked Learning Certification standards were originally developed by ConnectED: The National Center for College and Career to support the Linked Learning District Initiative. The alumni interviewed for this study participated in pathways certified by ConnectED. The Linked Learning Certification process is now managed and supported by the Linked Learning Alliance. Appendix B further describes Linked Learning Gold certification standards.

(Linked Learning Alliance, 2020)

ALUMNI REFLECT ON AN ENGAGING CURRICULUM AND 21ST CENTURY SKILL ATTAINMENT

Interviews with Linked Learning alumni suggest that their Linked Learning experiences—in particular, hands-on learning in conjunction with an integrated curriculum—engaged them in their learning, developed their academic knowledge, and built a set of skills that helped them through high school and into their postsecondary futures. Consistent with SRI's findings, participants detailed how a range of learning experiences—such as collaborative, integrated projects that brought learning to life—enabled them to demonstrate their knowledge outside of standardized tests, and provided the opportunity to apply their learning through real-world experiences (Casparly & Warner, 2020). Alberto, a graduate of the Academy of Engineering in Porterville Unified, shared the following while reflecting on projects within his pathway:

Participants detailed how a range of learning experiences provided the opportunity to apply their learning through real-world experiences.

Maybe I am just biased, but I am thinking [everyone] loved [the integrated curriculum]. It was very hands-on, project-based. ... Students were able to see, literally, the fruits of their labor, the fruits of their learning, right away. It was applied learning ... I thought it was pretty fun. You'd learn while also applying stuff.

Even five years after his graduation from high school, Alberto grew excited as he described his learning experiences and the level of academic rigor involved. Alberto shared how he was challenged to apply math, science, and engineering principles to create solutions to real problems. In detail, Alberto explained how one of his projects involved trying to reduce the land space used for solar panels while maintaining the same production of energy in order to maximize agricultural area and output—a concern experienced by his neighbors within the San Joaquin Valley. Using solar panels, Alberto described designing a system—including the academic principles involved—that minimized the amount of space used by solar panels by 40 percent while maintaining 97 percent of the energy output. He also proudly shared how he and his team entered the project in an entrepreneurial challenge sponsored by Chevron and placed as a top entry.

Alberto acknowledged that his work would not have been possible without the critical academic and engineering knowledge that undergirded the project. Ana Karen, who attended the Los Angeles High School of the Arts, also shared how her pathway stressed academic skills, such as research and writing, while learning about the arts. Ana Karen described her academic learning:

Research was a big thing ... a lot of reading comprehension, a lot of written comprehension, just being prepared in terms of my writing for college. ... We were reading play after play after play and we had to annotate, we ha[d] to do all of the things that we were supposed to do in college. Those skills really traveled over [to college].

For Michelle, a graduate of the School of Engineering and Sciences in Sacramento, hands-on learning experiences helped her identify and apply her strengths and interests. Michelle is the youngest in her family, and her parents wanted to provide her with a different learning experience than her siblings who had attended large, traditional high schools. Initially assigned to taking on business tasks as part of her robotics team—an assignment she feels she received because of her gender—Michelle learned she didn't like being “behind the desk” and instead wanted to be part of the electrical, design, and programming teams. She discovered her eye for detail and her ability to convey her ideas in these roles. She also learned to speak out and advocate for herself. She shared, “Hey, this is my strong suit and this is what I actually love ... and somebody noticing that this is something you're good at [feels good].”

Alumni reflected on how they were required to demonstrate their learning through projects as well as defend their ideas and growth through performance assessments.

According to SRI's evaluation, Michelle's sense of self-efficacy and self-management is an outcome achieved by many Linked Learning students. Students in Linked Learning certified pathways were more likely than students enrolled in traditional schools to report that their high school experiences improved their productive behaviors and dispositions (Caspary & Warner, 2020).

Alumni reflected on how they were required to demonstrate their learning through projects as well as defend their ideas and growth through performance assessments, such as a senior defense or capstone project. Performance assessments—which can range from essays and open-ended problems on sit-down tests to classroom-based projects—allowed students to demonstrate skills such as research, collaboration, critical thinking, technology application, and written and oral communication. Such assessments provided students opportunities to engage in deep inquiry of

a real-life problem and apply the academic and technical knowledge and skills they acquired, demonstrating their readiness for postsecondary success. These types of authentic assessments of learning in certified Linked Learning pathways align with and are designed to measure pathway student outcomes and/or graduate profile competencies.

According to alumni, these assessments served as opportunities to demonstrate why and how they had achieved the expected competencies of their pathway, including technical and academic knowledge, communication, critical thinking, collaboration, citizenship, and more. Carlos, a graduate of the Los Angeles High School of the Arts and an English learner while in middle school, shared how his senior defense provided him with an opportunity to reflect on and share his growth with staff, family, and community members:

It was like reflecting about everything we had done for the past four years, and just picking moments, specific moments, and having evidence to show how we grew as students.

The experience, according to Carlos, allowed him to take stock of the skills and knowledge he had developed as a pathway student (including his mastery of English), and articulate how he would use these skills beyond graduation as the first in his family to attend college.

Another hallmark of high-quality Linked Learning pathways is a plan that includes a continuum of work-based learning experiences aligned with the program of study curriculum, and pathway and/or graduate outcomes. Linked Learning alumni discussed the opportunity to gain important skills through work-based learning opportunities. Alejandro, a graduate of Life Academy in Oakland Unified School District, described his participation in a three-year internship program—the Community Health & Adolescent Mentoring Program for Success (CHAMPS) at UCSF Benioff Children’s Hospital Oakland—as a highlight of his pathway experience. CHAMPS introduces historically underrepresented high school students to health professions and aims to equip them with the skills to succeed in these career pursuits. For Alejandro, a student who struggled with physical and mental health issues throughout his high school years, CHAMPS was empowering. According to Alejandro, these critical skills, such as how to communicate with adults, ask questions, and seek help, assisted him through high school. He credits CHAMPS for his school success and his selection as a Gates Millennium Scholar.

Linked Learning alumni discussed the opportunity to gain important skills through work-based learning opportunities.

Alumni discussed attaining a range of skills through their pathway experience, including organization, public speaking, problem-solving, job interview, and career navigation and exploration skills used to assess their likes and dislikes. The learning experiences and outcomes described by Linked Learning alumni correspond with the findings of SRI's evaluation that students enrolled in certified Linked Learning pathways were more likely than comparison students to report that high school helped them develop 21st century skills such as communication, collaboration, and career navigation (Caspary & Warner, 2020). Alumni said that the learning opportunities that enabled them to acquire these skills enriched their high school experience and engaged them in their learning.

ALUMNI REFLECT ON PATHWAYS AS A TRANSFORMATIVE LEARNING ENVIRONMENT

Linked Learning pathways contributed to a culture of confidence and care

Linked Learning alumni described the opportunity to build meaningful relationships—with peers and with adults—as particularly helpful as they navigated their way to their senior year of high school and beyond. Michelle from Sacramento described her high school as a “tight-knit” community due in large part to the school’s small learning environment. Typical to high-quality certified Linked Learning pathways, smaller cohorts provide an avenue for students to form deep and caring relationships with school staff and peers. Specifically, students in certified Linked Learning pathways are part of a cohort class for at least 50 percent of their schedule. According to Linked Learning alumni, these relationships played an especially important role in their engagement in the classroom. Alumni shared that adults—teachers, counselors, and mentors—made efforts to understand them as individuals with unique interests and life circumstances.

Alumni shared that adults made efforts to understand them as individuals with unique interests and life circumstances.

For example, Ana Karen, who attended the Los Angeles High School of the Arts, shared how her pathway teachers were her “greatest allies” who assisted her when she needed support. As a Deferred Action for Childhood Arrivals (DACA) recipient, Ana Karen experienced a range of challenges and felt that staff knew when she and other students were struggling—either at home or in school—and they worked to connect students to needed services whether those were academic tutoring, social programs, or just someone to talk to. According to Carlos, who attended the Los Angeles High School of the Arts, “I feel that with the guidance and the help that I was receiving, I was able to become the best student I could be.”

Along with feeling known, alumni indicated that relationships with adults and peers were a source of validation and helped them recognize their own strengths and talents and build their sense of confidence. As Lorena, a graduate of Sacramento New Technology High School and also a DACA student shared, “[Teachers] would always push you to give more, [but in a way that made you] believe you could do more.”

Lorena added that caring and supportive relationships allowed her to take risks and confidently try again when needed without a fear of failing. She shared that her counselor always encouraged her to identify and fix her mistakes, saying, “This is how you can improve for next time.” Carlos echoed these sentiments:

Alumni indicated that relationships with adults and peers were a source of validation and helped them build their sense of confidence.

I was constantly supported, I was constantly ... appreciated. I felt appreciated, I felt ... welcomed. I felt like I had a warm environment to study in and if I need[ed] support sometimes, I even had teachers that would meet like an hour or 30 minutes before school was officially open. There were countless opportunities to meet individuals [for assistance] and learn something.

Similarly, Orlando from the School of Engineering and Sciences in Sacramento shared that the culture of his pathway enabled him to ask questions and demonstrate his curiosities, even when he was feeling insecure and vulnerable. According to Orlando, because the support that he and his peers received was rooted in patience and understanding, he felt he could seek the assistance he needed:

There's a lot of support. No one's going to be upset at you because you don't understand something. You ask a question and you can get a response. That's something that has pretty much stuck with me. ... No one's going to get mad at you if you don't understand. Now, if you don't ask a question, maybe they would.

Orlando explained how his engineering teacher was especially skilled at providing students with the confidence to “try your best, [and] not to make you feel bad about trying.” His teacher often encouraged students by reminding them, “Hey, if you try, it might work. If you don't, you don't know.”

According to Ana Karen, an English learner, she knew she didn't have to hide her strengths or weaknesses, but could be her full self within her educational setting. For example, Ana Karen explained how she could “reach out” when she needed clarification on the vocabulary and language use unique to particular subject areas. Ana Karen routinely sought out her teachers during lunch or after school to get extra assistance with her English development throughout her high school years.

Students in certified Linked Learning pathways are supported by a pathway team of caring adults who monitor their academic, personal, and social-emotional needs, and provide culturally responsive and timely interventions as necessary. For some alumni, relationships with a team of caring adults contributed to their overall mental and emotional wellbeing. Jessica, a student from the Environmental Science Academy at Monache High School in Porterville Unified, described her environmental science teacher as someone that she could rely on to give her “life-lesson type of advice.” As someone who struggled with anxiety and depression and felt she could not burden her immigrant parents with these issues, Jessica acknowledged the need for such a support system.

Alumni did not view supports such as before- and after-school tutoring, office hours, counseling, or other services as separate from their everyday learning experiences.

In order to get through high school and focus on her goal of attending a four-year institution afterward, Jessica relied on adults within her high school setting. Jessica's story was not unique. Many of the alumni who participated in the study described the relationships they developed with caring adults as playing a critical role in supporting their overall wellbeing. When asked about the range of student supports provided by their pathway, alumni did not view supports such as before- and after-school tutoring, office hours, counseling, or other services as separate from their everyday learning experiences. Indeed, like Jessica, a number of alumni provided accounts of teachers, counselors, or mentors who provided the guidance and support needed to ensure students' career development, academic progress, and social and emotional health was integrated into their pathway experience.

A few alumni indicated that although they appreciated and benefited from relationships with caring adults, specialized services from professionals would have made a difference for them. According to Michelle, who attended the School of Engineering and Sciences in Sacramento, lack of critical resources was a systemwide issue:

I definitely wish that they had more resources for mental health at our school and I feel that goes for all schools. Definitely during high school kids are still finding themselves and figuring out where they're at ... I was lucky ... I was diagnosed at a young age and knew how to support myself and to trust people to talk to. ... High school is not the nicest place for kids who are going through a lot of things ...

Michelle's sentiments made clear that in addition to her relationships with caring teachers, mentors, and other adult staff, access to adults with specialized skills, such as in mental health, would have assisted her and other students through high school. Within our sample of Linked Learning alumni, a quarter shared that they struggled with depression, anxiety, or other mental health issues while in high school.

Certified Linked Learning pathways include embedded learning opportunities that emphasize the development of social awareness, self-management, and a mindset of growth and self-efficacy for all students. Jorge, a first-generation college-going student from the Arts, Entertainment, & Media Academy at John Muir High School in Pasadena, summarized his relationships with the adults in his pathway in this way: "... You're [not] just a number ... they treat you like a person." Alumni said that this humanizing approach helped them feel confident and prepared to go out into the real world after high school graduation. Research in the learning sciences reinforces the importance of the sort of caring relationships described by the Linked Learning alumni in this study (Darling-Hammond, et al., 2020). Positive adult relationships, especially when these relationships are culturally sensitive and responsive—enabling students to connect what happens in school to their experiences and backgrounds—can support student development and welfare, and reinforce their sense of value and belonging (Darling-Hammond, et al., 2020; Osher, et al., 2020; Hammond, 2016). Alumni indicated that when they were able to explore new classroom topics or career avenues, reach out for help, learn from their mistakes, and grow with the knowledge that they have love and support from caring adults to fall back on, they were able to develop new knowledge and skills that they could carry beyond high school.

Certified Linked Learning pathways include embedded learning opportunities that emphasize the development of social awareness, self-management, and a mindset of growth and self-efficacy for all students.

Linked Learning pathways provided access to opportunity

Rigorous academics, aligned to admissions requirements for state colleges and universities, is at the core of the Linked Learning approach. Through their pathway experiences, Linked Learning students are also provided accelerated college opportunities, such as dual enrollment, and can earn college credits while in high school, putting them on track to successfully enter and persist in college. Alumni reported that access to challenging coursework, opportunities to demonstrate their resolve through problem-solving and projects, and real-world work experiences prepared them for college and career. For instance, Orlando, who attended the School of Engineering and Sciences in Sacramento, explained that his engineering teacher provided him with access to college-level content that he felt most high school students do not get the chance to experience. Orlando described his transition to his community college as “seamless”—not only because he was comfortable with the content, but because early access to these concepts bolstered his confidence in his ability to succeed in the field.

Linked Learning students are provided accelerated college opportunities and can earn college credits while in high school, putting them on track to successfully enter and persist in college.

Similarly, Michelle, who attended the same school, completed three courses at her local community college while in high school. Michelle described the opportunity to enroll in these courses, especially a weekend college engineering course, as cementing her interests. Jorge, who studied at the Arts, Entertainment, & Media Academy at John Muir High School in Pasadena, described his high school advanced placement (AP) courses as preparing him academically for the “standard college curriculum” while his media and technical courses “hyper-motivated” him to pursue his interest in film.

Orlando, Michelle, and Jorge represented just a few of the Linked Learning alumni who indicated that opportunity to explore academic topics and a range of career opportunities within a particular industry sector directly influenced their college major and/or career aspirations. For Alberto, exposure to engineering early in his high school trajectory nurtured a love and passion for his pathway theme and ultimately assisted him in making the decision to pursue engineering as a career.

Individuals who chose to pursue a major or career outside the theme of their pathway indicated that they found value in exploring career paths within the pathway.

Alumni indicated that the opportunity to learn about a range of careers through the integration of the theme in content courses, technical courses, and work-based learning experiences was an opportunity to try new things and make connections between their learning and the world of work. In certified Linked Learning pathways, core academic content and career technical education are built on a foundation of cross-subject and industry-infused curriculum and instructional design, giving students opportunities to make connections across academic content areas and between academic and career content.

Linked Learning alumni indicated that opportunity to explore academic topics and a range of career opportunities within a particular industry sector directly influenced their college major and/or career aspirations.

Daryl, a graduate of Pasadena Unified’s Arts, Entertainment, & Media Academy who entered the workforce immediately after high school graduation, felt that he was prepared to excel in any work setting. Daryl shared how he obtained his job through a mentoring program at his high school, where he learned the importance of ensuring the best interests of the team. He said that his teachers helped him create a mindset in which he approached his work to confirm that “everybody’s on the same page and doing their job because everybody is aiming for one great end result.” As shared by Isaac, a graduate of the Engineering & Environmental Science Academy at John Muir High School, also within Pasadena Unified, his pathway was “like an open book, where it opened ideas” for students to investigate different paths. Isaac, who has been working since he was in high school to help contribute to his family, felt this encouragement was helpful as he explored a number of career options in community college.

QUALITY WORK-BASED LEARNING

Pathways represented in this study earned their certification by developing an integrated program of study, providing work-based learning opportunities, and ensuring access to integrated supports that meet students' social, emotional, and developmental needs.

Quality work-based learning is delivered through a continuum of meaningful experiences with work and real-world application of learning. Through Linked Learning, students are provided:

- Personalized work-based learning plan tied to pathway outcomes
- Equitable access to and completion of multiple experiences, including internships, apprenticeships, and certificate opportunities
- Self-assessment of experiences and growth
- Workplace readiness assessment of students by supervisors

(Linked Learning Alliance, 2020)

Work-based learning takes place along a continuum of experiences. Alumni told stories of field trips, professional speakers, job shadowing, and the opportunity to explore and tinker with the tools of the trade that were especially meaningful. Jonathan, a graduate of New Media Academy at Hollywood High School in Los Angeles Unified, for example, felt grateful to be granted the opportunity to work with professional film equipment. He shared:

Normally you wouldn't have students handling expensive equipment, but [in my pathway] they really trusted us with that. It was neat to be able to use professional programs, professional cameras, and get a foot in the door with just using skills that professionals use.

As a film major at California State University Northridge, Jonathan credited his pathway experience for providing him the access and training to flourish both in school and in his career. Orlando, who attended the School of Engineering and Sciences in Sacramento, shared a similar story:

I know for some people it's not accessible to be in an engineering lab or anything like that. At the school, everybody has access to all the machines and is able to learn and how to use everything even if they don't want to, they'll know ... I think being able to have that much access is very helpful. ... Being able to have access to people that know about that stuff and being able to do it, that's pretty good.

According to SRI's evaluation, Linked Learning students are more likely than comparison students to report that their pathway experiences helped them develop skills needed for success after high school, including professionalism (Guha, et al., 2014). Interviews with alumni revealed that access to the tools of the trade and to the individuals who use them in their everyday work increased students' exposure to new career paths, assured them in their ability to pursue these paths, and helped to demystify what the work entails.

Linked Learning pathways fostered the development of student agency

Many Linked Learning alumni discussed how their pathway experience enabled them to apply and integrate academic and technical knowledge and skills to further shape their own learning and trajectories.

For example, Carlos, who graduated from the Los Angeles High School of the Arts, was initially drawn to the pathway because of his interest in art. Early on, in an effort to improve his English skills in high school (Carlos self-identified as an English learner), he joined the debate team and immediately identified his passion for research and argument. According to Carlos, although projects were challenging, he loved them because he could assert his agency: He could choose a topic of interest and “create something and make a good point for it.” A project he conducted in his senior year, for example, where he investigated and argued for the provision of mental health services in high school and policies to support mental health, ignited a deep interest that he pursued beyond high school graduation. According to Carlos, through his pathway, he “learned how to trust [him]self and [his] voice and express ideas.” In 2019, Carlos graduated from the University of California, Irvine with a bachelor's degree in psychology.

Alumni discussed how their pathway experience enabled them to apply and integrate academic and technical knowledge and skills to further shape their own learning and trajectories.

Alberto detailed a similar experience in his engineering pathway. Although Alberto was very focused on and interested in developing his enthusiasm for engineering, he perceived that many of his peers did not share his level of interest. Nevertheless, according to Alberto, “Students were able to get as creative as they wanted.” He recalled that students who “design[ed] some of the coolest things” were often those who weren't necessarily excited about the theme of the pathway but excelled “because they [could be] super creative ... they were able to design something that they themselves thought of.”

Having the opportunity to guide and be in control of their learning allowed students to try new things and engage in a way that was meaningful to them. Isaac from Pasadena was one of those students who acknowledged that he didn't connect with the theme of his engineering pathway. Isaac shared, however, how pathway projects got him excited for class and got his "mind going":

They give you control over [your learning] ... They're not telling you what to do. It's on you. That's the way I like to learn. I like to do my own thinking and have my own freedom ... I really liked that ... It's just a whole bunch of students working together in class. Every time you needed help the teacher was there. It was really cool.

Alumni also described feeling trusted to pursue and develop their interests by engaging in off-site learning experiences that they often secured on their own. According to Alejandro from Oakland, his participation in an internship (CHAMPS) enabled him to explore his interests and steer his own learning: He had the opportunity to "work independently" and deeply engage in areas of study that were of particular interest to him. An independent senior capstone project that all students were required to complete and present enabled Alejandro to build off of his internship experience and deepen his interests even further.

Alejandro felt strongly that these off-site and independent experiences were important in balancing the lack of agency he often felt in his small pathway where limited class offerings felt restrictive. According to Alejandro, because the school was small, students needed more options:

More agency would have looked like getting a say in what classes I would get to take, and I understand it's a small school but again ... [We needed] something where we [could get] more of a say in what we were doing ...

Providing a supportive space for students to explore their likes and dislikes, investigate their curiosities, and direct their learning opens the door for them to identify their many strengths and talents, and feel capable and confident in setting and pursuing their postsecondary goals.

ALUMNI REFLECT ON POSITIVE ACADEMIC IDENTITIES

Linked Learning alumni indicated that through supportive relationships, encouragement to try and fail, and access to new learning opportunities, they felt confident in their ability to excel within their pathway and pursue their postsecondary aspirations. Many alumni viewed themselves as “insecure” before entering their high school pathway and felt that if it had not been for their high school, they might not have the confidence they have today. Having to “prove” to themselves or to others that they are knowledgeable and can relay information about their topics through project presentations was especially crucial in developing their self-confidence and academic identities (Darling-Hammond, et al., 2020; Osher, et al., 2020; Steele & Cohn-Vargas, 2013).⁷ Carlos, a graduate of the Los Angeles High School of the Arts, shared:

Being introduced to this idea where I could create an argument and also being in an [English learner program] ... to be able to express my ideas and thoughts, it was great. It was life-changing. I was like, “You know what? I could do this ...”

As noted previously, alumni felt that their pathway setting allowed them to develop deep, authentic relationships grounded in care and asset-building, and provided an environment where they could identify and develop their many strengths and talents. Carlos, for example, shared that he felt nervous having to present his film to a group of industry professionals at the Egyptian Theatre in Los Angeles. He worried, especially as an English learner, that his project would not meet the standards of expert professionals who judged the presentations. After the presentation, Carlos described feeling a huge sense of accomplishment for completing the task at hand and for sharing his story and voice with others. According to Carlos, “I saw more potential in myself.”

For many alumni, dispelling the notion that students from their communities were unable to access and thrive in particular fields—such as health, art, and engineering—was particularly important. Alumni shared that early on in their educational careers they had received negative messages about themselves and their communities, which their pathways helped them recognize and reject. For example, Analyse, who attended the Partnership Academy of Business and Finance in Porterville, shared that from a very young age she had experienced a lot of challenges in her low-income community, including crime and violence. Analyse indicated that, prior to joining her Linked Learning pathway, these realities translated into a culture of low expectations in her educational community, where she was told by an educator that half of her peers would either “drop out or get pregnant.” Analyse, a first-generation college-going student, felt her pathway worked hard to help her overcome these perceptions.

⁷ These findings are supported by recent research that finds macro- and micro-contexts—including poverty, racism, families, communities, schools, and peers—can support or undermine students’ healthy development including identity formation. Additional contextual factors, such as chronic stress, institutionalized racism, and stereotype threat, have also been shown to influence students’ identity development. Insights from the science of learning suggest that practices where students are affirmed and equitably supported can make a substantial difference in outcomes.

Alberto, also from Porterville, explained how his pathway assisted in shattering stereotypes about the Latinx community:

[We are] a strong, strong culture ... And very disciplined. So to me, it means that there's a lot of potential to harness. I'm motivated to get more Latinos into STEM because I know their potential, I know their backgrounds... For me it's empowering people with similar backgrounds like me. I think that's what it means to be Latino, to succeed and to lift others with you. To bring others up.

Alberto attributed this understanding to his pathway community—including a host of mentors—that exposed him to other Latinx professionals in the field of engineering and made it apparent that he could pursue his postsecondary goals. Alberto shared how his pathway helped him view his background as an asset, a source of strength, and “empowering.” Ana Karen, who attended the Los Angeles High School of the Arts, shared that her pathway worked to impart these important lessons throughout the community by involving parents and community members in the learning experience:

[Our pathway] want[ed] to make sure that education is more accessible for everyone, including our parents, including our immediate communities, not just the students themselves.

Ana Karen described how her pathway aimed to include families and community members in students’ learning by encouraging them to attend presentations, such as the seniors’ portfolio defense, and by providing services such as adult English classes, exercise classes, and health fairs for community members.

Alumni also shared that their pathway experience helped them dismantle gender stereotypes. Michelle, a graduate of Sacramento City Unified’s School of Engineering and Sciences, sought to counter the narrative that dictates engineering as a field best suited for men. Michelle was encouraged by her pathway to reject the many influences that suggested she “find something that’s easier” or to “marry an engineer” versus becoming an engineer herself. Instead, Michelle felt her pathway provided her with the tools to prove she was capable of learning engineering. She shared:

I wanted to prove to whoever made those comments and I also wanted to prove to myself ... I proved to myself that no, this isn't just a male-dominated career. I mean, it's a male-dominant career, but it's not just for men. If I apply myself, I can be just as good as them. I proved to myself that I was doing better than the boys.

Michelle joined programs offered by her pathway and used group projects to demonstrate her intellectual abilities. She was encouraged to join an architecture, construction, and engineering mentorship program and robotics team—resources offered by her pathway. These experiences, according to Michelle, were critical in developing her identity as a smart, inventive individual capable of changing the landscape of the field. Michelle's pride in shattering expectations was visible when she said:

I ended up one of the top girls in my class. Which I was really happy about because I started off struggling so much—not even wanting to be there—to being excited [and] engaged in the class.

By providing students with opportunities such as access to college-level content, the tools of the trade, public demonstrations of learning, and extracurricular programs (e.g., robotics and engineering clubs), Linked Learning helped students develop the positive academic identity instrumental in their motivation and sense of empowerment to continue in the learning process.



A PORTRAIT OF PERSISTENCE: ANA KAREN AMARO

As a DACA student and English learner, Ana Karen Amaro understood the importance of a supportive and caring school staff, an engaging and meaningful curriculum, and a small learning environment where she could be known. This is the learning environment Ana Karen described when reflecting upon her attendance at the Los Angeles High School of the Arts where she studied acting. A once shy student, Ana Karen described her high school experience as transformative:

I'm able to walk in the world a little better. There are [many] factors that make it difficult to do so, but having that experience [in my pathway], helps [me] stand a little taller.

Being “vulnerable” in front of her classmates was not easy, but having a small cohort of students to rely on to build trusting relationships made for a safe space where she could tap into her emotions as an actor. Acting also served as a therapeutic outlet where she could “escape into theater,” especially when her family was experiencing financial instability and homelessness. Because Ana Karen had to learn to “open up as an actress,” she found herself more comfortable and confident in using her voice both inside and outside of the classroom.

Ana Karen also described the “passion” of her high school teachers inspiring her own excitement in learning. She said:

Being able to be so engaged in my learning, not just getting information drilled into my head, was interesting for me ... That was really something special. But all the support I got in school trickled down to my personal life and that's why I was so engaged in it because I knew that I had the support.

These pathway experiences helped shape Ana Karen into an “artist” and “academic”—two identities that influenced her college career at the University of California, Santa Barbara, and shaped her future aspirations. Ana Karen described her goal to provide students in postsecondary settings with the encouragement, care, and support she received at the Los Angeles High School of the Arts. Ana Karen shared how important it was to be seen as her full self in high school, and how she wants to pass that on to students at the college level:

I got interested in doing research on cultural guardians and how Chicana feminist thought practice finds ground in the classroom. [I am] basing it off of my own experience with teachers. I thought they were such big allies of ours. I wanted to delve into that but at the college [level].

Ana Karen stated that she will be able to use what she learned in high school for “the rest of my life.” She continued, “I think I've been using what I learned in the real world, especially in terms of the way I present myself to people, it [provided me with] the basic skills that [I] need to be out in the world.”

Ana Karen graduated from University of California, Santa Barbara and has applied to graduate school to pursue her career goals in higher education administration.

Linked Learning alumni recalled pathway experiences that encouraged them as capable and confident learners within a caring and nurturing environment, enabled them to gain critical academic and technical knowledge and skills through an engaging and relevant curriculum, and assisted them in exploring their many strengths and talents. In the next section of this report, we shed light on the reflections of Linked Learning alumni as they discussed their senior year of high school and their preparations for life beyond high school. As we detail, alumni shared an array of influences and factors that played a role in their significant decisions to pursue their particular postsecondary pathway.





Postsecondary Decision-Making

All students consider a range of factors when deciding their next steps beyond high school. In addition to their career goals and interests, students from less-advantaged backgrounds must consider financial costs associated with postsecondary education, legal status, and familial obligations. Through interviews with Linked Learning alumni, we found that many of the same conditions that assisted them in getting through high school played a role in their postsecondary decision-making process. Alumni indicated that they depended on caring adults—teachers, counselors, mentors, and family members—to make sense of their options and guide these life-changing decisions. The high expectations held by staff members, and students' exposure to a range of postsecondary options, also influenced their decision-making. Ana Karen, who attended the Los Angeles High School of the Arts, shared:

... I had really high grades [in high school] ... but I didn't have a strong drive to go into college at first. I'm a DACA student, so that was one of the [challenges]. We were still struggling with [the AB540] process and I didn't think I would get financial aid, didn't think I would even get in, and if I did, I was limited to places in California. So, I had a lot of limits ... but the college counselor really drove me to get [applications] done even if I didn't want to go. ... She helped every single student in my class apply for college ...

This section explores the decision-making process of Linked Learning alumni as they reached their senior year of high school. Of the 16 alumni who participated in this study, 11 indicated that they applied to four-year institutions and had committed to enroll in the fall immediately following their senior year. Nine participants ultimately enrolled in a four-year institution in the fall following their high school graduation. Four alumni discussed their decision to continue their education at a community college after graduation. One student chose to enter the workforce directly after high school graduation.

THE INFLUENCE OF PATHWAY LEARNING ENVIRONMENTS

Adult guidance and relationships influenced decision-making

According to the SRI evaluation, Linked Learning students are more likely than comparison students to report receiving guidance from adults regarding postsecondary planning (Guha, et al., 2014). Alumni who participated in this study brought these findings to life. For many of the alumni, especially those who were first-generation college-going students, relationships with supportive adults assisted them in identifying and understanding their postsecondary options and navigating the paths before them. As Lorena, who attended Sacramento New Technology High School, shared:

My high school experience helped me a lot with navigating my process. ... No one from my family has ever really gone to college, and especially not a four-year college, so everything was super new to me. ... When [my mom] saw that I enjoyed going to school, she supported me. But she couldn't support me in filling out the application. I'm grateful that my counselors, and my office manager helped us fill out any document. ... They were very open to helping you succeed in life.

Ryan, an alumnus from the Partnership Academy of Business and Finance in Porterville, appreciated the assistance his teachers and counselors provided him in figuring out what should come next. He shared that his teachers were very supportive and opened the door to a range of career choices—even those that fell outside the theme of the school. Ryan, who loved the integration of the business theme into all aspects of his learning, decided he would pursue an associate's degree in finance at his local community college. Attending the local community college would allow him to simultaneously work part-time and gain on-the-job experience while pursuing his degree. Ryan felt supported and knew he could reach out to his teachers with “any questions on what I needed to do career wise, or anything else ... they were there to tell you what you need to do and the steps you need to take.”

Strong relationships also allowed adults in the pathway to understand students' unique circumstances and provide guidance and counseling accordingly. For Ryan, for example, staff understood that financial considerations alongside the family's wariness regarding college were critical in his decision-making process.

Daryl, who graduated from the Arts, Entertainment, & Media Academy in Pasadena Unified, also took his family's financial circumstances into consideration. Given his indecisiveness regarding his future career goals, Daryl decided to explore his career interests by entering the workforce immediately after graduation rather than invest

his hard-to-come-by financial resources in postsecondary learning. However, according to Daryl, teachers made sure he knew about and was connected to his local community college. A year after his high school graduation, when Daryl decided to enroll in college, he was prepared to make the transition. Five years after high school graduation, Daryl has completed his associate's degree and is applying to four-year universities.

Orlando, who attended the School of Engineering and Sciences in Sacramento, felt that his teachers encouraged him to apply to the “best college” given his career interests, but knew that his family circumstances would probably keep him close to home. He said teachers encouraged students to “Apply to the best college you can possibly think of... but always have some sort of a backup plan.” For Orlando, who chose to begin his postsecondary studies at his local community college, this level of understanding helped him feel confident about his decision. He knew it was the best decision for him and his family and appreciated his teachers' support.

Many alumni indicated that their teachers encouraged them to think about what the commitment might yield and asked them to take a long-term vision into account.

Relationships with caring adults also assisted students in weighing their options. As one student shared, teachers were very honest with the many challenges they would face as they entered college and/or the workforce. According to one alumnus, teachers, counselors, and mentors acknowledged that the decision-making process is challenging, and committing to additional years of education versus immediately entering the workforce can come at a high cost. Many alumni indicated that their teachers encouraged them to think about what the commitment might yield and asked them to take a long-term vision into account. According to Daryl from Pasadena:

Teachers would always say, “I know this part may seem hard, but it’s all going to pay off in the end.” I just try my best to get through the hard times. Because I know I’m going to be rewarded for it in the end.

Because alumni felt known and understood by adults in their pathway, they valued and trusted their words, guidance, and mentorship as they made postsecondary decisions.

High expectations maintained by adults influenced decision-making

Most alumni indicated that the pursuit of four-year college or university was universally encouraged. According to Jorge from Pasadena, high expectations, coupled with support and guidance, played a major role in his decision to apply to and attend a four-year institution:

All these different teachers wanted me to go to such and such schools, so they would help me out with the applications. I was always planning on going to college because my parents wanted me to as well. I didn't really want to take a break or anything, so that was my choice as well. Everyone pretty much motivated me to go straight to [four-year] college.

Another alumnus, Alejandro, who attended Life Academy in Oakland, shared a similar reflection:

That was one of the things that they always tried to push ... "We're going to try our best to get you into a four-year. Regardless of what you do ... you will be eligible for a four-year ..." I was always like, "Okay, I'm going to get into a four-year because that's what my teachers told me, that's what my parents told me."

Students confirmed high expectations regardless of their chosen path beyond high school graduation. Orlando, who attended a community college after graduation, indicated that teachers encouraged him to "go for it" and apply to a range of colleges and universities but were understanding in terms of the numerous factors to be considered when making this decision. Two alumni—Cassandra, who attended the STEM Academy of Hollywood in Los Angeles, and Jessica, who attended Porterville's Environmental Science Academy at Monache High School—indicated that high expectations led them to apply to four-year colleges. While both decided not to enroll after being admitted to a four-year university, they indicated that they appreciated the support of their pathway community in setting this expectation and in boosting their confidence.

Cassandra and Jessica, both first-generation college-going students, entered community college with a sense of ownership of their decision-making process. Cassandra transferred to a four-year university and has completed her bachelor's degree. Jessica has yet to complete her degree.

THE INFLUENCE OF COLLEGE AND CAREER READINESS

California's college and career readiness landscape has evolved since the California Linked Learning District Initiative launched in 2009. In 2014 and 2015—the years the young people in this study graduated from high school—California had yet to establish a “college and career ready” indicator as part of the California Dashboard.⁸ A few districts, such as Los Angeles Unified School District and Oakland Unified School District, had passed district-wide resolutions requiring all students to complete a series of college preparatory courses that enable them to qualify for entry into California's four-year public university system (known as the A-G course requirements) to ensure students' readiness.⁹ The graduating classes of 2014 and 2015, however, were not required to meet these requirements. Although districts participating in the California Linked Learning District Initiative were moving toward integrating a rigorous academic curriculum that met the A-G course requirements with career and technical education, pathways varied regarding how and to what extent this integration was taking place. We keep these policy variations in mind as we learn from Linked Learning alumni how they contemplated decisions regarding their postsecondary trajectories and to what extent their college and career readiness influenced their decision-making.

Perceptions of college preparedness influenced decision-making

In addition to fulfilling the entrance requirements for entry into California's four-year public institutions, many alumni indicated that they felt academically prepared for the transition to college. A few alumni credited taking college-level classes, including dual enrollment or AP courses, with helping them feel prepared to continue their education. Such opportunities for earning accelerated college credit are features of a high-quality Linked Learning pathway. Michelle from Sacramento, who completed a number of courses at the local community college, remembered thinking, “I am already a [community college] student... I feel like I'm ready and I could definitely do this.” Alberto from Porterville shared how he felt his AP courses, projects, and the academic pace of his engineering pathway set him “light years ahead” in terms of his preparation for university.

⁸ The College and Career Ready indicator on the California School Dashboard is meant to show “whether high school students are prepared for likely success after graduation.” The state currently defines and measures college or career readiness through the completion of rigorous coursework, passing challenging exams, or receiving a state seal. The following measures are approved as indicating college or career readiness: Career Technical Education Pathway Completion; Grade 11 Smarter Balanced Summative Assessments in ELA and mathematics; Advanced Placement Exams; International Baccalaureate Exams; College Credit Course (formerly called Dual Enrollment); A-G Completion; State Seal of Biliteracy; and Military Science/Leadership. For more information see California Department of Education, College/Career Readiness Calculation, available at: <https://www.cde.ca.gov/ta/ac/cm/ccical.asp>

⁹ A-G courses are a sequence of courses required for admission to the University of California (UC) or California State University (CSU) system. To be considered for admission, high school students must complete all A-G courses with grades of C or higher. The A-G course sequence includes 30 semesters of UC-approved college preparatory coursework in seven subject areas. Several public school districts, including those in San Diego, Los Angeles, San Francisco, Santa Ana, and Oakland, have adopted graduation policies requiring that students complete these courses to obtain a high school diploma.

Other alumni, however, did not possess this same level of confidence. Andrea, for example, a first-generation college-going student who graduated from the Education & Community Health Pathway at Skyline High School in Oakland, made it to her senior year of high school without fulfilling the A-G requirements. Andrea chose to attend a technical school after high school graduation. She said she felt that “it was too late” for her to apply to four-year colleges but acknowledged that changes were made at her high school to ensure that her younger peers would be ready to access a range of postsecondary options. Andrea shared:

Our senior year we got to go into a freshman classroom and taught them the requirements [for] getting into a four-year college. But at that time, I felt it was too late for me. I was missing some classes. I think that’s one of the challenges that I had applying to schools.

Andrea believed that had she entered high school and graduated a year or two later, she may have made a different decision for herself. She viewed technical school as an opportunity to continue her education in the medical field. Andrea obtained a technical certificate and has been employed as a medical assistant since 2017.

Career-focused knowledge and experiences influenced decision-making

For most alumni, the pathway’s career theme enabled them to understand the role postsecondary education played in pursuing their ultimate career goals. Jorge’s experience at the Arts, Entertainment, & Media Academy at John Muir High School in Pasadena exemplified how a career theme can inform the decision to attend a four-year college:

My pathway influenced my choice of career because I had a lot of fun doing that stuff in high school. ... During high school I would look up different film departments at different colleges and stuff, try to see what they’re about. Try to see which ones suited me best.

Jonathan, also a film student, shared how the New Media Academy at Hollywood High School in Los Angeles influenced his decision-making process and indicated that he would be “lost” without his pathway experience:

[My pathway] helped me decide what I wanted to do today and to study in college. I was lost essentially before I moved to [my pathway]. I just didn’t know what I wanted to become, but it has shaped me. ... The projects we worked on, the people they brought [in], all the equipment that was there, it just helped shape me.

Alejandro, who attended Life Academy in Oakland, also shared how his pathway's career focus enabled him to figure out his career goals. In particular, he attributed his work-based learning experiences as helping him shape his plans to attend college to pursue a career in the health sciences. He said:

Definitely going to a school of health and bioscience influenced me to become or want to pursue being a doctor. CHAMPS [internship program] was also trying to tell me to be a doctor but at the same time showing me all these other alternative pathways, such as public health, which actually did end up helping me a lot. ... The experience learning about public health really did help me out and they kind of changed me internally without thinking about it.

Having career interests and goals helped many alumni in planning out their postsecondary trajectories, including the type of postsecondary institution that would be most helpful to them in the pursuit of their chosen career. Andrea shared how the Education & Community Health Pathway introduced her to the field of psychology. As she approached her senior year, she began doing research on what it would take to become a psychologist or psychiatrist. She shared:

I got the chance to ask [a psychiatrist], "What does it take to be in the position that you're at right now?" And when they mentioned eight years of school, I was like, "Holy moly, that's a lot." ... I started to analyze, "Is this really what you want to do? That's a lot of time, money, investment. I started to lean more towards the medicine side ... I like helping, so I went into that field.

Andrea acknowledged her exposure to a range of health-related careers in her pathway for her decision to choose a postsecondary pathway that led to a two-year certificate program and a career as a medical assistant.

For Ryan, who attended a business pathway, his career interests ultimately guided him to the workplace after one semester at community college. Ryan said he felt that on-the-job training would be more beneficial than a degree in finance (feelings that were reinforced by family members). Ryan secured his license in real estate and has applied many of the skills he learned in his pathway to navigate the field. He shared how he is using his finance skills to help individuals "make the biggest purchase of their lives."

A few alumni indicated that their pathway experience increased their understanding of the many skills that are required to gain entry to a particular field and succeed in the workplace. This knowledge also influenced

A few alumni indicated that their pathway experience increased their understanding of skills required to gain entry and succeed in the workplace.

their decision-making. According to Alberto from Porterville Unified, for example, his pathway experience “made me realize that college wasn’t always about the knowledge. It is also about who you know, [and] what connections you have.” For Alberto, this understanding propelled him to attend a four-year institution where he would be able to meet professors, make connections, and attend career fairs to begin exploring and developing career opportunities. Ryan, who decided to pursue a career in real estate, felt strongly that the personal connections he made in the community and the opportunities to develop these relationships would pay off as he worked to attain his license. Ryan indicated that the professional development he had done in his pathway assisted him in fostering relationships and networking, leading him to further develop these skills through on-the-job experiences.

Linked Learning alumni acknowledged that the opportunities they were afforded in their pathways to learn about and experience a range of career fields influenced their postsecondary decision-making. For most alumni, their career interests helped them to pursue and ultimately attend a postsecondary institution. These findings correspond to SRI’s evaluation, which found Linked Learning students who go on to college are more likely than comparison students to rate high school influences as important to their choice of postsecondary goals and plans (Warner, et al., 2016).



BARRIERS TO COLLEGE-GOING

Alumni recognized limited options to a full range of postsecondary opportunities

Most alumni discussed how their particular circumstances coupled with adult guidance, relationships, and sense of readiness for next steps assisted them in making sense of their many options and guided their decision-making. For one alumna, this was not the case. As described, Andrea from Oakland indicated that during her senior year she discovered that four-year university was not an option for her because she fell short of meeting the eligibility requirements to attend one of California's four-year public universities. According to Andrea:

Back then I had envisioned going to a four-year college and graduating. Doing what everyone else is doing. But because I was having some challenges with not knowing [the requirements] ... that's one of the things that set me back into being eligible to apply to certain places. ... At that point I was like, "Oh my God. What am I going to do?"

This limitation shaped her postsecondary decision-making. Andrea shared that with few options she "just wanted to hurry up and do it." A technical school where she could immediately pursue a certificate as a medical assistant seemed like a good choice. To what extent the decision-making process of other alumni was influenced by similar limitations—not meeting entrance requirements for California's public four-year universities—is unclear.

A few alumni, however, indicated that they felt pressured in high school to disregard options outside of four-year universities. Alejandro from Oakland shared that, although he appreciated that the pathway encouraged "four-year college-for-all," it was not the best strategy for some students, and he believed community college should have been elevated as a good choice:

There was never any other option that I saw as viable, which I see as a bit of a problem. ... We have a very low college graduation rate. I think a lot of students drop out after their first year because they're not necessarily prepared for what college is going to bring them. ... Realistically they should have kind of pushed community college as a more viable option or shown that there's things that don't require too much school if that's not what people need.

Upon reflection, Alejandro shared that his challenging trajectory (and perhaps that of his peers) may have been different had he started his postsecondary education at a community college versus a four-year institution. Although the postsecondary trajectories of our sample, and national data, suggest that students who begin their journey in a four-year college experience a more direct route to degree completion, Alejandro regrets that community college was not presented to him as an option.¹⁰ He struggled his first few years at his four-year university and required a fifth year to obtain his degree.

Although students who begin their journey in a four-year college experience a more direct route to degree completion, some students regret that community college was not presented as an option.

Cassandra from Los Angeles applied to and was accepted at a four-year institution but ultimately attended a community college. She expressed a similar concern. In particular, Cassandra felt that her teachers and counselors should have been “more realistic as to what college really is about.” Cassandra felt that her pathway did not provide students with adequate information regarding the full range of options, and as a result, did not sufficiently dispel the myths many students held about community college. According to Cassandra:

I think one of the things that I noticed was that they would make community college seem so bad, like “You can’t [go to a community college] because you have good grades. Why are you going there? That’s not being smart.” But I think ... everyone should have that option.

Ana Karen, also from Los Angeles, indicated that while she was not actively discouraged to consider community college, she felt there was a “stigma” associated with that decision. Like Alejandro, Cassandra and Ana Karen felt strongly that students needed to feel encouraged to explore all postsecondary options.

Alumni did not always view postsecondary institutions as an avenue for career exploration

Alumni shared that their need to continue to explore career interests and opportunities beyond high school graduation influenced their decision-making process. Without well-defined career goals, some alumni indicated that they hesitated to commit to four-year institutions. Career uncertainty coupled with financial and

¹⁰ Nationally, 13 percent of all students who started at a community college in fall 2010 had completed a bachelor’s degree at any four-year institution within six years. The bachelor’s completion rate of students who started at community colleges with a primarily academic focus was higher than those who started at institutions with a primarily occupational focus (15 percent vs. 12 percent). See National Student Clearinghouse Research Center, (2019). Tracking Transfer. Available at: <https://nscresearchcenter.org/signaturereport13/#:~:text=For%20the%20U.S.%20overall%2C%2013.3,year%20institution%20within%20six%20years>. (Accessed July 30, 2020)

familial considerations heightened alumni's concerns about choosing to attend a four-year institution immediately after high school. Cassandra, a graduate of STEM Academy of Hollywood, for example, explained why she decided to attend a community college versus a four-year university:

Because I didn't know what I wanted to do. I feel one thing that could have been a flaw on part of the school was encouraging us on going to a four-year, but never really informing us [with] regards to the money and stuff. That was one of the realities that I faced after I got accepted. I was like, "Okay, I'm not going to make my parents give me money, or try to find money for me to go to a four-year" ... because at that time ... I didn't even know what I wanted to major in.

Daryl from Pasadena, who entered the workforce directly after graduation and indicated his family's financial situation was always "iffy," shared a similar concern:

I had absolutely no idea what I wanted to do after I graduated [from] high school. I ended up working for a year before going to college. It wasn't until a couple of part-time semesters in college where I kind of figured out what I wanted to do. And since I figured it out now, I'm sticking with [college].

Cassandra and Daryl, along with other alumni, discussed the challenges involved in making decisions regarding their futures without discovering a clear passion or direction. Jessica, who graduated from the Environmental Science Academy in Porterville, felt that her pathway provided her with opportunities to explore "many career paths in many industries" yet she was unable to identify her path. Jessica shared that while she believes most students in her pathway were able to find their way—through career exploration including internships, and engaging projects—she felt she needed additional room to experience different career options. According to Jessica, "I was still lost after high school." Although admitted to a four-year institution, Jessica chose to attend a community college and avoid student loans until she had clearer career goals in mind.

A PORTRAIT OF PERSISTENCE: ORLANDO MENDOZA

For as long as he can remember, Orlando Mendoza had been interested in science and engineering. As a sixth-grader, Orlando and his family were thrilled to discover a school spanning seventh to 12th grade where he could explore these topics—the School of Engineering and Sciences (SES) in Sacramento City Unified School District. As Orlando reflected upon his middle and high school years, he fondly remembered his AutoCAD and drafting class, and his participation in the robotics club. He also spoke excitedly about all of the collaborative projects he engaged in: the egg drop, bridge, solar powered car, solar powered boat, and electric vehicle project, to name a few. The electric vehicle project allowed him to design and manufacture an actual electric vehicle. He recalled how the project involved all of his classes: He learned about the history of electric vehicles and renewable energy sources, created a marketing plan in economics, and conducted research in English class. According to Orlando, his pathway and integrative projects provided him with “a process for what to do when an obstacle is encountered and to find a solution to said problem.”

In addition to projects, Orlando appreciated access to the tools of the craft, which he acknowledged few high school students experience. According to Orlando:

At the school, everybody has access to all the machines and is able to learn how to use everything. ... Any student could come in and learn how to use a table saw, a CNC machine, or a 3D printer ...

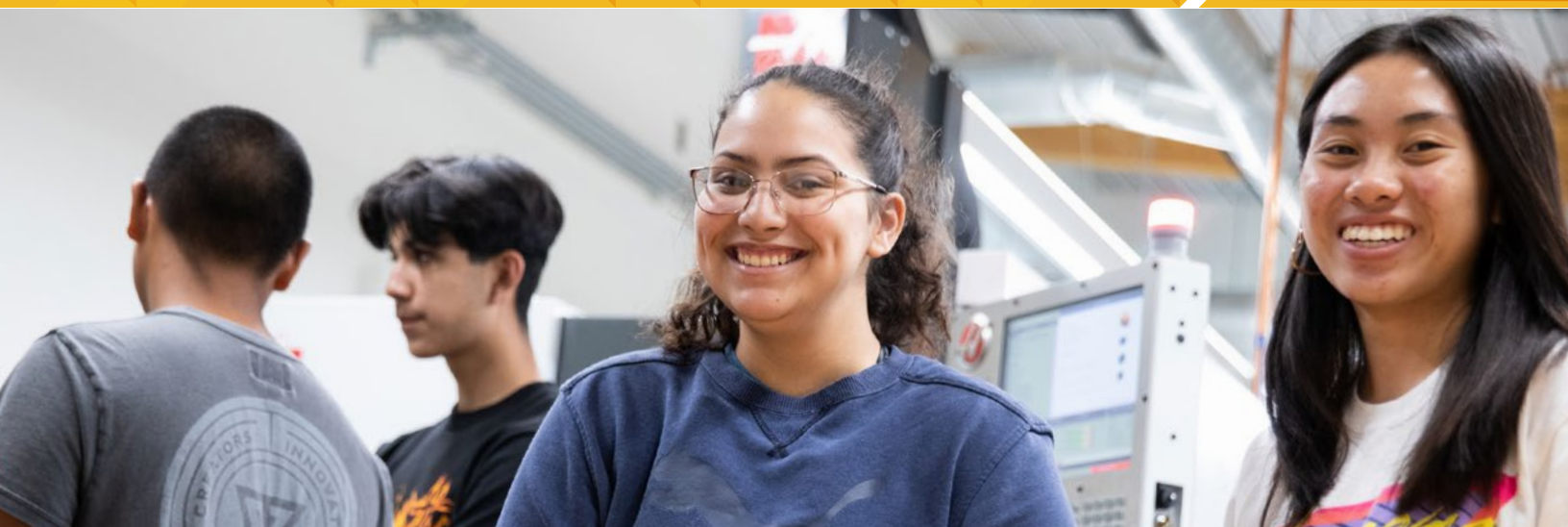
With the goal of pursuing a mechanical engineering degree, Orlando was encouraged by his teachers and counselor to apply to four-year colleges. However, Orlando knew that he was place-bound and would begin his college career at the local community college. “For me,” he said, “I couldn’t move out, I had to make sure that everything [with my family] was okay, so it was a no-brainer to go to the community college and then transfer.” One year in, Orlando had to change course. As his family situation worsened, Orlando needed to seek a full-time job, postpone the completion of his general education courses, and put his plans to transfer on hold. With the skills he learned at SES and his familiarity with CAD, Orlando landed a job at a company that designs tillage machinery, which prepares soil for agricultural purposes. Orlando described feeling prepared to work alongside engineers right out of the gate. He appreciated what he had learned about himself and engineering while on the job: “[The job] gave me an idea that I really ... like the design stuff. ... I guess I’ve always been more of a creative person.” With improvement in his family situation, in winter 2019 Orlando took a more flexible job so that he could return to school and transfer to a four-year institution.

Orlando also lends his experience and knowledge in robotics to other students at SES and is considering applying his science and engineering background to a career in teaching. He already gives back to his community as a coach and mentor to the after-school robotics team, which he has been involved in since he graduated from high school. Orlando shared how the robotics team has been the constant in his life since graduation, and how he has been able to share his passion and knowledge even more broadly:

I was able to ... get into community service and help other students learn more about robotics—[an opportunity] that [these students] wouldn’t necessarily have [otherwise]. I don’t feel I’ll ever really stop doing that because it’s kind of cool to be able to help other people.

Overall, alumni felt that their Linked Learning experience prepared and guided them through their postsecondary decision-making process. Alumni did not feel alone as they contemplated weighty options, and they trusted the advice of teachers, mentors, and other caring adults who understood their particular circumstances. A few alumni felt restricted in terms of their postsecondary options, based on a perceived lack of readiness or direction, yet remained optimistic that they would eventually discover their path toward a fulfilling career. In the next section of the report we share how Linked Learning alumni applied the knowledge and skills they acquired in their pathway to postsecondary experiences. We also discuss the many roadblocks alumni experienced as they made their way to degree completion and career attainment.





Postsecondary Experiences

Navigating life after high school is a process for all young people. As noted in the previous sections, many alumni expressed readiness to transition to their respective higher education institutions and jobs upon graduation from their pathways. In this section, we describe how transferable skills and knowledge such as academic preparedness, public speaking, research, writing, collaboration, and communication proved useful to alumni as they pursued their academic and professional goals. Additionally, although Linked Learning alumni felt confident in themselves and their futures as they began their postsecondary lives, we share how their transitions to postsecondary settings included a number of obstacles that influenced their trajectories. Among these challenges, students dealt with demanding financial and familial responsibilities, a lack of support transitioning to and navigating their new settings, and difficulty maintaining their level of confidence—obstacles that influenced their postsecondary journeys.

Although Linked Learning alumni felt confident in themselves and their futures as they began their postsecondary lives, their transitions to postsecondary settings included a number of obstacles that influenced their trajectories.

APPLYING SKILLS AND MINDSETS ACQUIRED THROUGH PATHWAYS TO POSTSECONDARY SETTINGS

Workforce training prepared students for career success

Whether they entered the workforce right out of high school or sought part-time employment while in college, alumni generally expressed that they felt prepared to both obtain jobs and succeed in their roles. They felt confident in their ability to demonstrate their professionalism in job interviews and networking events. Linked Learning alumni also indicated that, through their pathways, they learned that

presentation matters in securing employment. By way of mock interviews, dress for success themed days, and networking opportunities with representatives of industry and the community, alumni felt ready to approach the job market. Lorena from Sacramento shared that although she “hated” dressing up in high school, she ultimately felt that it helped her easily transition into her office job. According to Lorena, looking and being professional in her current workplace was “super easy” as a result of her pathway experiences.

Alumni indicated that their pathway experience prepared them to successfully interact and communicate with employers or future employers.

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Ryan from Porterville shared how he “was already pretty well-versed in interviews” by the time he graduated from high school. He felt the interview skills he developed through his pathway experiences were useful, especially as he decided to work full-time after just one semester at his local community college. He shared an experience in interviewing for a position:

[After the interview], the manager was like, “Top five interviews I’ve ever had.” He’s interviewed hundreds of people and he’s like, “That was one of the best interviews I’ve ever seen.” And I thought I did terrible ... My voice was nervous because I was talking to the CEO of the whole company. Everybody, they’re just like, “You killed it.”

Alumni also shared that collaboration skills were useful as they aimed to navigate new work and learning environments. Interacting with customers, coworkers, and supervisors became much more manageable as a result of their pathway experiences, especially their work-based learning experiences, group projects, and presentations. Ana Karen from Los Angeles detailed how she was able to successfully collaborate with her colleagues while working as a peer advisor within the Chicano Studies Department at her university because she knew how to treat and interact positively with other people:

I have to work with the faculty a lot, and ... sometimes they could be intimidating because you’re working with amazing people. [But I was] able to talk to them as people, not as celebrities. I got that training in high school. ... I think that was one of the main skills I got ... to treat them with the [same level of] respect that you want.

Critical thinking and problem solving were mindsets that alumni developed in their pathway and continued to apply in their postsecondary work settings. Alumni described “think[ing] differently” as a result of their pathway’s curriculum and pedagogy. After joining the workforce due to a family illness, Michelle from Sacramento believed that her pathway prepared her to think critically at her job. She explained that her math teacher taught students to “focus on what you’re researching” and to be mindful of “reputable sources.” Michelle discussed how this mindset helped her succeed as an assistant in a chiropractic office because she understood how treating individuals in real life differed from conducting a research paper or studying an academic concept in a university. She described how hands-on learning experiences within her pathway helped her apply the “bigger science” and tend to the unique needs of patients.

21st century skills prepared students to get to and through college

Alumni indicated that they were academically prepared and possessed a range of skills that enabled them to succeed in their postsecondary institutions. Many alumni described, for example, how their college courses were made “easier” as a result of their pathway experiences.

Alberto from Porterville shared how he felt he had “essentially transitioned into [college] already” by the time he entered his four-year university. He added, “It almost felt like college was a little slower [academically].” Students also shared that through their communication, presentation, and collaboration skills, they had gained the personal agency and ability to seek out needed support and additional learning opportunities, build relationships with professors, and share their ideas and/or questions with professors and colleagues. Alumni were especially vocal in discussing how the public speaking, research, and writing skills they acquired in their pathway prepared them for success in college.

Cassandra, a graduate of the STEM Academy of Hollywood and once a self-proclaimed “shy” person, stated that her pathway experience helped her feel more comfortable communicating her needs—both with peers and with adults—in high school and beyond. According to Cassandra, having had the opportunity to share her learning with her fellow students and with a range of adults (including community members and professionals) through projects and presentations allowed her to feel comfortable expressing herself. Reflecting on her experiences at both a community college and a four-year institution, Cassandra shared that while other students expressed a fear of meeting one-on-one with their professors, she felt confident in her ability to ask questions about assignments.

Students shared that they had gained the personal agency and ability to seek out needed support and additional learning opportunities, build relationships with professors, and share their ideas and/or questions with professors and colleagues.

As college students, Linked Learning alumni discussed feeling very comfortable with public speaking. Orlando from Sacramento shared:

[In] some of my chemistry classes in college, we had to do projects [that] you [would] do in the science fields and seeing how much more prepared we were [than students who didn't attend a Linked Learning pathway] in those classes was pretty crazy. You wouldn't think that a presentation in high school is really important ... [but] by the time [you] get to college, you have that many more repetitions in creating a presentation ... you feel a lot more comfortable than some of the other students that haven't had that experience.

Jonathan from Los Angeles described how creating “proper presentation formats” that looked clean and organized while in his pathway gave him a leg up once he entered his four-year university. Analyse from Porterville, who also described herself as “shy” in high school, shared: “Being in the pathway helped me transition [to college] presentation-wise and be able to speak out in front of the class.”

Many alumni found that the research and writing skills they had acquired through projects in their pathway eased their transition to college-level work. Jorge from Pasadena, for example, explained how his pathway experiences made writing in college much easier to tackle and something he wasn't “scared of.” Jonathan from Los Angeles shared:

For our senior project we had to research a topic and then create an argument to defend that. Then, we would write a paper off of that. We would look up works cited, reliable sources, grab research, and now in college that's pretty much all you do. ... In high school, it felt very difficult doing that, but now in college, it doesn't seem as complicated.

Ana Karen from Los Angeles echoed these sentiments and shared how “research was a big thing in our high school,” and opportunities to delve deep into a topic area prepared her for her four-year university experience. Cassandra, who transferred from a community college to a four-year university, also shared how her pathway experience helped her feel prepared for college. She shared, “I [didn't] feel as lost because this is what we were doing in high school.”

Education is viewed as a lifelong pursuit

Regardless of where alumni began their postsecondary journeys—in a four-year university, community college, technical college, or in the workplace—most viewed themselves as lifelong learners. They described growing in the understanding that everyone moves forward at their own pace, and that the learning that happens along the way is what matters—and credited those realizations to the experience of their Linked Learning pathways. Alumni did not view their educational journeys as coming to an end with the completion of a degree or when their educational plans needed to be changed. Rather, they viewed education as an ongoing pursuit. According to Jessica from Porterville, the skills she learned in high school that were most important to her “weren’t specific to [her] career choice” but were those skills that helped her understand “how to pursue education to get there.”

Alumni did not view their educational journeys as coming to an end with the completion of a degree or when their educational plans needed to be changed.

Ana Karen explained how her pathway “got [her] excited” about learning. As such, she said, it “framed [learning] differently—to be a little more optimistic about it.” Isaac from Pasadena, for example, who struggled to stay in community college while supporting himself financially, shared that he maintained his plans to obtain his bachelor’s degree because he knew he could eventually get there. Met with challenges, Isaac, like many of his Linked Learning peers, expressed an understanding that his dreams were not over, but delayed. Orlando from Sacramento, despite experiencing a severe family situation that forced him to leave community college to work full-time, felt confident that he would continue his education to become an engineer and eventually a teacher. Orlando shared how he was motivated to pursue his own learning in engineering so that he could effectively serve as a mentor to high school students until he could resume his formal education. According to Orlando, his pathway taught him how to pursue his own learning:

It’s more of a mindset that we learned [in our pathway]. Nothing is concrete. You can always try to learn about something you don’t already know. So, it’s okay to ask questions. It’s always okay to fail. Always keep trying and if you try your best, you’re going to land somewhere good.

The pathway experience also helped Orlando feel comfortable with his decision-making and his progress toward his goals by reminding him that “you’re not lost, you just haven’t figured it out yet.”

Daryl, who entered the workforce immediately after high school, also described the importance of lifelong learning and a mindset that enabled him to value education. Daryl described enrolling at Pasadena City College after working full-time after high school graduation. When asked what motivated him to return to school and to

persist despite a number of financial challenges, he was reminded by the words of his pathway teachers: “It’s all going to pay off in the end.” With this mindset, Daryl was able to secure an associate’s degree in theater and aspires to transfer to a four-year university in 2021.

As shown in Table 2, nine study participants indicated that they planned to formally continue their education: Six alumni indicated that they planned to return or transfer to a four-year university, and three shared their plans to attend graduate school.

Table 2: Interviewee Postsecondary Trajectories

NAME	IMMEDIATE POSTSECONDARY	DEGREE ATTAINMENT	FUTURE ASPIRATIONS (MAJOR)
Carlos	Four-year institution	BA	Graduate school (psychology)
Jonathan	Four-year institution	BA	Career in film
Cassandra	Community college	AA/BA	Career in kinesiology
Ana Karen	Four-year institution	BA	Graduate school (higher education)
Alejandro	Four-year institution	BA	Graduate school (public health)
Andrea	Technical school	Certificate	Career as medical assistant
Daryl	Workforce	AA	Transfer to four-year institution
Jorge	Four-year institution	BA	Career in film
Isaac	Community college	—	Transfer to four-year institution (animation)
Analyse	Four-year institution	BA	Career in data analysis
Alberto	Four-year institution	BA	Career in petroleum engineering
Jessica	Community college /workforce	—	Transfer to four-year institution (business development)
Ryan	Community college /workforce	—	Career in real estate
Michelle	Four-year institution	—	Return to four-year institution (engineering)
Lorena	Four-year institution	—	Return to four-year institution (economics)
Orlando	Community college	—	Transfer to four-year institution (engineering and education)

POSTSECONDARY CHALLENGES EXPERIENCED BY LINKED LEARNING ALUMNI

Finances and familial responsibilities shaped postsecondary trajectories

According to alumni, financial considerations and familial responsibilities were primary in shaping their postsecondary trajectories. Financial hardships formed a barrier for many alumni as they sought to pursue their postsecondary goals. Some were forced to create alternative paths for themselves that veered from their original goals. The story of Lorena, a graduate of Sacramento New Technology High School, provides an example. Lorena had envisioned a straight path toward her bachelor's degree in economics but hit a roadblock due to her status. Lorena explained:

I was at Sacramento State University. Unfortunately, because I am a DACA [student], we don't get as much financial aid as if you weren't DACA. We don't get all the scholarships, so I did have some issues economically. I was paying out-of-pocket, and then I decided that I didn't want loans so I did take a semester off.

Like Lorena, many alumni who struggled to pay for higher education decided to either take breaks from school to work full-time or to continue while working part-time jobs. Alumni spoke of taking up jobs working at gas stations, in offices, or on campus to secure funding. Unfortunately, this created another barrier for some alumni as they struggled to balance work life and formal learning. Orlando, a graduate of the School of Engineering and Sciences in Sacramento, for example, spoke to the difficulties of continuing his education at his local community college because his job did not afford him the necessary flexibility in his schedule to take classes. Orlando shared his challenges:

I had to stop [my enrollment at community college] because I was starting to have some problems staying focused because there was a family situation and my mom got sick. I had to work a full-time job. That's where I started applying for different kinds of jobs and trying to see what I could get ... I was still going to school and it just got [to be] too much. I ended up taking a break from school. It's been a year or so, almost two years now [since I've been in school]. I'm trying to go back now. My mom's better.

Others considered taking breaks from school to help support their families. In those instances, familial and institutional support became critical in the continuation of their studies. Cassandra, who started her postsecondary journey at a community college, shared that taking a break from college had crossed her mind so that she could save

money to help support her family. Although she was ultimately persuaded by her parents to continue in school full-time, she felt very much alone in her struggle to balance her many responsibilities. According to Cassandra:

I feel [it was] especially [hard] because there's no one that I can look up to that has gone through the same things. My parents don't know much about how university works, so it's me trying to figure out what I can do.

Similarly, in the midst of her college career, Ana Karen, who attended a four-year institution after graduation, shared how her family experienced housing insecurity. Ana Karen described the experience:

All these things piled up and then the economic issues, the social issues of not being able to afford it and thinking maybe I should stay home and work because I'm more useful working than learning. ... I really felt I shouldn't be in college at the time. I should be working, but my parents would not let me quit.

Ana Karen also shared that her DACA status made it especially difficult to find a job to help support her family. With the support and encouragement of her family, she decided to remain at her four-year institution. Ana Karen discussed that while her citizenship status made it difficult to receive financial support, she nevertheless sought assistance—a skill she believes she sharpened in her pathway.

For most alumni, the factors (e.g., family and finances) that led them to consider beginning their journeys at a community college, four-year university, or in the workplace, continued to shape their trajectories. However, those alumni who entered the community college system were more likely to take school breaks and enter the workforce either full- or part-time as a response to those challenges than those who entered four-year universities directly. Community college students often participated in a cycle of working and going to school that sometimes prolonged reaching their goals. As the next section discusses, available supports within their postsecondary settings also influenced trajectories.

Alumni felt disconnected to their postsecondary institutions

Linked Learning alumni identified a sense of disconnectedness as a major challenge in their transition to their postsecondary settings. In high school, alumni described feeling known and cared for by adults and peers in their pathway setting. Alumni's postsecondary learning environments—whether four-year institutions or community college—felt markedly different. Isaac from Pasadena, who attended his local community college after graduation and aims to eventually transfer to a

four-year university, expressed that he lost an important sense of community once he graduated. When asked to expand on what he found most difficult about his transition, Isaac shared:

I feel it's mostly mental things like knowing that I'm [not] going to have someone there. ... It finally hits you, like, "Bam, it's all on me."

Alumni indicated that, while in high school, they felt they played an important part in a larger ecosystem that was their pathway: They provided support and care to others as much as they received it. In contrast, alumni discussed feeling isolated while figuring out how to overcome a range of obstacles after high school, including financial needs, everyday challenges (e.g., transportation, food assistance, course scheduling) and, importantly, how to connect their academic interests to their career goals. Jorge, for example, who attended a four-year university, admitted to struggling to understand his graduation requirements. He said, "I didn't even know what a unit was." He recalled looking at his degree progress report and thinking "Okay. What's my graduation plan?"

Although Linked Learning alumni indicated that they felt well supported through the application and enrollment process, they were expected to navigate new challenges largely on their own once in college. According to Lorena, who began her postsecondary journey at a four-year university and transferred to a community college:

I felt like that [transition from high school] was hard for me ... Everything was new, the campus was huge and I didn't know what things or programs they had, so it was hard for me in the beginning. I felt like an outsider, because I didn't know what was going on. I had to figure everything out on my own, so that was hard for me the first two years.

Like Lorena, who described figuring things out after a couple of years, other alumni discussed discovering means to adjust to their new learning environments over time. Ana Karen, for example, shared how she used her pathway skills to become part of a close-knit community in college:

Once you get a little more used to the system, once you find people who will encourage you and find your community, it really helps. I guess in those terms, high school helped me find my community ... just to reach out to other people that I normally wouldn't reach out to.

Ana Karen described how she found a community within her university's Chicano Studies department that assisted her in navigating a number of obstacles including financial issues.

As noted previously, a number of alumni described using the tools gained through their Linked Learning experience to create a supportive community within their postsecondary setting to seek out needed assistance. Some alumni, however, were more successful than others in accomplishing this.



FINDING HOLISTIC SUPPORT WITHIN COMMUNITY COLLEGES AND LARGE, PUBLIC, FOUR-YEAR UNIVERSITIES

Institutional support, such as academic advising, is one of the most effective retention strategies used by colleges and universities. Such support is a key way for students to connect and develop relationships within the institution. Research suggests that advisors also play a critical role in promoting student engagement and help students feel welcome and make choices in a complex environment (Center for Community College Student Engagement, 2018). The benefits of this support are well-established: According to the Community College Resource Center, effective academic and career advising occurs over time and guides students through an exploration of their strengths, skills, and interests, followed by a structured investigation into occupations and careers that match (Karp & Stacey, 2013). Yet, few community college students in California and those within large, public four-year universities experience this approach to advising.

In California Community Colleges, where many students are the first in their family to attend college, students experience a range of barriers to effective advising, such as high student-advisor ratios, infrequent and rushed interactions, and the inability to meet consistently with the same advisor. Sometimes students are unaware that advising is available to them. A recent report suggests that at many community colleges, students look outside of their institution for advising. For students first entering community college, 41 percent reported turning to “friends, family, or other students,” for this help (Center for Community College Student Engagement, 2018).

A number of barriers also disrupt students’ access to advising across the California State University (CSU) system. A study by Education Insights Center documented the perspectives of advisors and students across five CSU campuses where advising is often distributed, or decentralized, across multiple divisions and offices (Moore, Schrager, & Jaeger, 2019). This structure was found to pose a significant challenge to ensuring adequate communication and coordination across advising units. Students cited issues with limited access to advising, fragmentation of advising, and a lack of communication across different advisors and advising offices. Students and advisors also shared how available advising is largely focused on course selection and programming versus career guidance or assistance in other areas. Advisors acknowledged the need for a more holistic and cohesive experience for students that would integrate academic advising with other services and create more meaningful mandatory advisory touchpoints (Moore, Schrager, & Jaeger, 2019).

In contrast, advising within private universities is often viewed as a critical component of a strategy to afford the latitude and support each student requires to chart their “own intellectual course” (Stanford University, 2012). This means providing students with the counsel and mentoring they need to make informed and thoughtful choices. At one private, four-year institution in California, the importance of advising “has been conceded virtually from the university’s founding.” The university has established a system of professional, residentially based academic directors who are well versed in the specific curricula of different departments and programs. Students are also assigned a faculty advisor and a pre-major advisor, and have access to dorm-based resident fellows and residence deans who provide a safety net for those in academic or personal distress. Undeclared students must meet with pre-advisors before they can register for classes (Stanford University, 2012).

In an effort to address these disparities, the California Community College Chancellor’s Office adopted Guided Pathways in 2017—the gold standard for community college reform. The approach is organized around four student-centered pillars that aim to support students in achieving their academic and career goals by providing them with a set of clear course-taking patterns, integrated support services to make it easier to get the help they need, and proactive academic and career advising—where contact is initiated by the institution rather than the student.

A culture of competition threatened positive academic identities

Alumni shared that their pathway teachers, school staff, and peers facilitated collaborative learning experiences and often defined success collectively. In college, alumni said, their postsecondary institutions generally took an individualistic and meritocratic approach where students were encouraged to compete rather than collaborate and support each other. As Ana Karen, who attended University of California, Santa Barbara after attending the Los Angeles High School of the Arts, shared, “Everything was so competitive and I was used to being competitive, but this was cutthroat.”

For a few alumni, a heightened sense of competition prompted them to question their academic preparedness. Alejandro, for example, a self-identified “higher achieving student” at Life Academy in Oakland who chose to attend a four-year university after graduation, shared he “didn’t know how he was supposed to compete with his peers.” For Alejandro, who began his postsecondary education with the dream of being a doctor, the competition he experienced in his pre-med courses caused him to doubt his ability to achieve this goal:

I think the fact that [my pathway] had me convinced that I was prepared to go into a four-year and try to become a doctor was a huge mistake because in reality I was nowhere near ready for the chemistry, the bio, and all these other rigorous classes. I was able to mangle my way through them but in terms of being, like, okay for a medical school application that was not ever going to happen.

Unfortunately, college introductory courses—courses that should have served to attract and invite Alejandro into the field—served to “weed out” and turn him away.

Analyse from Porterville shared a similar story. She explained how her four-year university whittled away at her identity as an agentive learner capable of achieving her academic and career goals. Analyse shared how she felt that she had “more of a voice” in high school when compared to her experience in her four-year university. She said that her Linked Learning environment, where “no one’s competing with you,” but working to empower you, enabled her to grow as a confident learner who could achieve her dreams. Although she was able to maintain her goal to graduate as a math major, Analyse felt it came at a high cost. She lost her confidence and felt intimidated by her classmates and professors who might “think [her] answer or question was stupid.” In pursuing a career as a data analyst (and teaching herself programming) Analyse hopes she can regain her sense of self.

Analyse and Alejandro both shared how they endeavored to hang on to a belief in their strengths, talents, and dreams throughout their postsecondary journeys.

A PORTRAIT OF PERSISTENCE: JESSICA GUILLERMO

As a middle schooler, Jessica Guillermo was excited to learn about the Environmental Science Academy at Monache High School in Porterville, California. Growing up in a small town, Jessica saw her pathway as an avenue to “finally get out into the world.” Field trips and hands-on class projects made learning exciting because every single day was different than the last. Most important to Jessica, who struggled with anxiety and depression in high school, her pathway offered a “safe place” to express her thoughts and rely on her peer/teacher relationships. In this environment, Jessica felt that she could be the best version of herself and engage in real-world problem-solving such as water conservation. While California was experiencing a drought, Jessica took part in a funded project to conserve water usage using native plants. Through job shadowing assignments and support from encouraging school staff, Jessica explored various career paths despite feeling pressure from her family to pursue a career in medicine.

Before graduating from high school in 2015, Jessica had plans to attend California State University, Stanislaus. As Jessica was set to enroll in classes, she decided to attend community college to avoid student debt. She shared:

I grew up with my parents living from paycheck to paycheck. ... [My mother is] the breadwinner so she would send the money we would be saving if we were any other household, to our family in the Philippines. Growing up like that, I didn't want all those student loans.

While in community college, Jessica began to reconsider her desire to work in the medical field. Without guidance from her community college, Jessica spent a significant amount of time trying to sort out what she wanted for herself. For the next couple of years, Jessica enrolled in various community college systems while working multiple jobs to sustain herself financially. She often spoke about how lonely she felt in navigating new higher education institutions in comparison to the support she received in high school.

Today, Jessica works as a business development manager for Nissan. She said that although she had not yet finished her college education, she credits her high school experience for the position she currently holds. In addition to the mock interviews she participated in high school, she noted that being encouraged to be herself in high school helped her stand out in her job. As she put it, “You don't have to just follow what everyone's doing. Just make sure to strive to be the best in whatever you do.” Jessica plans to do this by continuing to demonstrate her work ethic. She aspires to go back to school to pursue a bachelor's degree in business development.

Conclusion

FINDINGS

The stories of 16 Linked Learning alumni detail how the knowledge and skills they acquired, and the supportive learning environments they experienced in their pathways, assisted them through high school and put them on the path toward their postsecondary educational and career goals. These stories also shed light on the numerous roadblocks students encounter as they work to persist and achieve their aspirations.

Preparing for College, Career, and Life

Based on reflective interviews and aligned with previous studies on Linked Learning, we found:

- **Linked Learning experiences engaged students in their learning and built a set of skills that helped them through high school and into their postsecondary futures.** Participants described how collaborative, integrated projects and work-based learning experiences assisted them through high school by connecting academic content to their postsecondary college and career goals. Alumni appreciated the opportunity to apply and demonstrate their learning through authentic projects and to reflect upon their growth through performance assessments such as a senior defense or capstone projects.
- **Opportunities to build meaningful relationships with caring adults allowed alumni to feel understood as unique individuals with distinct interests, backgrounds, and life circumstances.** Along with feeling known, alumni indicated that relationships with adults and peers helped them recognize their strengths and talents, and contributed to their sense of confidence.
- **Learning experiences provided alumni with the opportunity to explore a range of careers.** Alumni shared that access to the tools of the trade (e.g., equipment) and to the individuals who use them in their everyday work increased their exposure to new career paths, assured them in their ability to pursue these paths, and helped to demystify what the work entails.
- **Pathways provided a supportive space for alumni to investigate their curiosities, direct their learning, identify their many strengths and talents, and develop positive academic identities.** Engaging and academically rigorous learning opportunities that took place within a supportive environment built students' confidence to excel within their pathway, graduate, and pursue their postsecondary aspirations. Alumni felt that their pathways assisted them in dispelling deficit-based notions about their communities. Rather, they were provided opportunities to learn how individuals from their communities and with shared backgrounds can access and thrive in all fields or careers—as health professionals, artists, engineers, etc.

Postsecondary Decision-Making

When reflecting on the factors that influenced their postsecondary decision-making process, alumni shared:

- **Critical considerations, such as financial costs associated with postsecondary education, legal status, and familial obligations, coupled with career interests and goals, influenced decision-making.** Pathway experiences assisted in developing career interests and enabled alumni to understand the role postsecondary education played in pursuing career goals and planning their trajectories after high school.
- **For guidance and to make sense of their options, students relied on caring adults**—teachers, counselors, mentors, and family members—to assist in these life-changing decisions. Feeling known by adults, students trusted the advice of school staff and mentors.
- **The high expectations staff members held guided decision-making.** Most alumni indicated that the pursuit of four-year college or university was universally encouraged.
- **Alumni's sense of readiness for next steps influenced their decision-making.** Most alumni indicated that they felt prepared academically to continue their learning in a postsecondary institution. In addition to fulfilling the entrance requirements for entry into California's four-year public institutions, alumni indicated that they felt prepared for the transition to college. Some alumni said taking college-level classes, including dual enrollment or AP courses, helped them feel prepared to continue their education.
- **Postsecondary options felt limited for some.** For alumni who indicated that they needed time and space after high school graduation to continue to explore their career interests, postsecondary decision-making proved challenging. Alumni did not view four-year universities as a place to continue their process of career exploration, and those who were unsure of career goals hesitated to commit to four-year institutions as a result. The expectation that all students should consider four-year institutions felt limiting to alumni who indicated that the expectation discouraged them from considering community colleges as a viable option in their pursuit of postsecondary goals.

Postsecondary Advantages

Within postsecondary environments—four-year universities, community colleges, technical school, or the workplace—alumni shared how they felt academically prepared and aimed to apply the knowledge, skills, and mindsets they had acquired in their Linked Learning pathways:

- **Alumni felt confident in their ability to demonstrate professionalism and 21st century skills.** Alumni reported they were prepared to successfully interact and communicate with employers, and they indicated that collaboration, critical thinking, and problem-solving skills were particularly useful as they aimed to navigate new college and work environments. Alumni felt confident in their ability to demonstrate their professionalism and prepared to secure jobs and succeed in their roles.
- **The public speaking, research, and writing skills alumni developed through projects and presentations of their learning were especially useful to students in their postsecondary learning settings.** Alumni shared that these skills eased their transition to college-level work and enabled them to tackle college assignments with confidence.

Challenges in Postsecondary

Despite the knowledge and skills developed in their pathways, alumni recognized that additional institutional supports were needed to successfully navigate their postsecondary learning environments. In particular, alumni needed supports and resources for a range of challenges including finances, immigration status, and familial responsibilities. While some alumni were able to reach out for assistance and create supportive communities within their postsecondary settings, others were forced to create alternative paths for themselves that veered from their original goals. Challenges were exacerbated by:

- **A sense of disconnectedness within postsecondary learning environments.** For many alumni, resolving financial and familial issues, as well as academic difficulties, became untenable as a result of this disconnectedness. Alumni indicated that they had to work hard and independently to maintain and further develop the skills, interests, and strengths that were valued in their pathway setting.
- **A culture of competitiveness.** According to alumni, individualistic and meritocratic approaches where students were encouraged to compete rather than collaborate and support each other in postsecondary settings contrasted starkly with their pathway experiences. For many, this culture eroded their confidence and worked to discourage rather than encourage the development of interests and strengths.

For many alumni, their secondary and postsecondary experiences felt siloed, with success in one segment not translating into success within the next segment. Yet, five or six years after high school graduation, alumni remained optimistic with regard to their futures. They did not view their educational journeys as coming to an end with the completion of a degree or when their educational plans needed to be altered or halted due to barriers. Rather, they viewed their education as a lifelong pursuit.

RECOMMENDATIONS

The stories of alumni make it clear that Linked Learning can transform the high school experience for young people. These stories also suggest that students require additional support as they transition to their postsecondary settings and pursue further educational and career goals. Based on this study, we share recommendations that aim to create the conditions and provide the supports that can keep young people on track to meet their postsecondary goals, including the attainment of a college degree or certificate. Our recommendations include:

- **Provide additional opportunities for students to bridge and align secondary and postsecondary experiences.** Alumni shared that learning opportunities such as dual enrollment, where high school students take college-level courses, helped them feel prepared to transition to community college or four-year institutions. Bridge programs can provide students with a feel for collegiate academics and continue to build students' confidence in their ability to access and succeed in college. Importantly, bridge programs can also help address students' sense of disconnectedness by providing an early opportunity to engage with college professors and to view college as an environment where they can continue to develop and learn in ways that were valued in their high school setting.
- **Ensure all pathway students are prepared for the challenges ahead and possess a solid understanding of postsecondary options.** Students should have an understanding that getting into college may be the easiest part of their postsecondary journey. Preparing young people for their postsecondary experiences should include detailed information about the potential implications of their decisions and challenges ahead, including financial aid, immigration status, juggling work, school, and familial responsibilities, the costs and benefits of being place-bound, and other unique considerations. Arming students with this information can assist them in the postsecondary decision-making process, help them make informed decisions about the full range of postsecondary options, and prepare them to navigate these obstacles within postsecondary settings. Increasing students' knowledge, self-agency, and navigational skills can improve postsecondary persistence.
- **Increase the readiness of postsecondary institutions to provide services and resources to students experiencing hardships.** Postsecondary learning institutions must examine and adopt practices that can improve students' access to services, including health, counseling, access to emergency grants, faculty office hours, advising, mentorship, and opportunities for students to create and join supportive communities. Although students leave their postsecondary learning environments for a number of reasons, financial and familial responsibilities play a major role. Services such as these—often provided to students in more elite institutions—can assist students, especially first-generation college-goers, in feeling connected to and supported within their postsecondary setting as they work to navigate these roadblocks and chart their intellectual course. Increased services within postsecondary institutions can also work to better align and bridge the K-12 and postsecondary segments.

- **Create continuity in terms of the practices that encourage creativity, agency, an exploration of interests, and meaningful and deep learning.** For many Linked Learning alumni, disconnections between their secondary and postsecondary learning experiences worked to discourage rather than encourage the development of their creativity, interests, strengths, and agency. By rethinking pedagogical strategies in institutions of higher learning to move away from traditional lecture-style to collaborative and individualized learning, we can better bridge students' secondary and postsecondary learning experiences. Rather than offering introductory courses that serve to “weed” students out, introductory courses should be inviting spaces of learning where students can continue to develop and explore their interests.
- **Broaden postsecondary instructional strategies and opportunities that can connect students' learning to career goals and exploration.** College courses that are directly linked to career through the integration of work-based learning opportunities like internships, long-term projects, or other out-of-the-classroom (or lecture hall) opportunities enable students to apply the skills they have learned to real-world settings. These immersive strategies can deepen students' engagement and understanding of course material, refine students' collaboration skills, assist students in connecting college course-taking to their career goals, and ready students for the workplace.
- **Develop opportunities for students to continue to identify their strengths and contribute to their communities.** Institutions of higher education must value the talents and strengths of students from all backgrounds and recognize the great value students from marginalized communities bring to their postsecondary environments. In doing so, students find support in viewing their communities as a source of strength and in identifying opportunities to learn, work, serve, and lead the next generation.
- **Address resource disparities.** A lack of financial resources hinders the ability of postsecondary students to engage in their studies and disproportionately impacts those from low-income families. Students from low-income backgrounds, whether enrolled in postsecondary study full-time or part-time, were more likely to work, which resulted in a range of postsecondary challenges including less time to study and the inability to fully participate in their postsecondary environment (e.g., extracurriculars and internships). This contributes to academic disengagement and a sense of disconnectedness.
- **Continue to learn from the experiences of young people.** Researchers, policymakers, and the public at large need visibility to what is working (and what is not) in public education, and for whom. We must expand our research efforts to ensure we understand the experiences of underrepresented populations in postsecondary institutions and first-generation college-goers, in particular. We are mindful that the current study, due to sample size, prevented us from gaining a deeper understanding of whether and how students from distinct backgrounds experience their transitions to postsecondary environments differently. By learning from the experiences of young people, we can begin to transform systems so that all students can successfully pursue their postsecondary goals.

REFLECTION

The stories of Linked Learning alumni are a celebration of persistence and achievement. Approximately two-thirds of study participants have attained a degree or certificate five to six years beyond high school graduation, and those who have yet to achieve their postsecondary goals shared their determination to do so. These stories also demonstrate the need to continue to work toward more equitable postsecondary experiences and outcomes. The postsecondary trajectories of Linked Learning alumni illuminate that, for too many, the positive high school learning experiences, opportunities, and self-proclaimed preparedness for college and career do not easily translate into postsecondary success. Alumni, many of whom were the first in their families to attend college, were on their own to navigate new settings, connect academic course offerings to career goals, and tend to the financial hardships, immigration issues, and familial responsibilities they encountered along the way.

If we are to make good on the promise of Linked Learning—to empower every student to successfully chart and pursue their course to rewarding postsecondary learning opportunities and careers—we must acknowledge the unequal realities and chances students from marginalized communities possess to access and successfully navigate postsecondary options. We must also tap into our knowledge about what all young people require to thrive—learning environments and supports, such as those found in certified Linked Learning pathways, that nurture students' intellectual curiosity, engagement, confidence, and wellbeing—and work toward making this expectation a reality within all postsecondary settings.

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APPENDIX A:

Methods

The goal of this study was to understand the influence of Linked Learning on the postsecondary trajectories of Linked Learning alumni. Over the last decade, quantitative evaluations of the California Linked Learning District Initiative have shed light on a range of Linked Learning outcomes including credit accumulation, high school graduation rates, college enrollment, persistence, remedial coursework, and transfer and degree completion rates. This study aimed to tell a comprehensive story of students' postsecondary trajectories through qualitative methods.

In partnership with the Linked Learning Alliance, researchers from the UCLA Center for Community Schooling gathered qualitative data that captured the stories and the voices of young people who have attended and graduated from a Linked Learning pathway in California. These data aimed to illuminate how students who have experienced an integrated approach to college and career readiness enter postsecondary institutions academically and socially prepared, motivated, and informed about establishing an educational path that can assist them in succeeding both in college and in their transition to a fulfilling career.

SAMPLE SELECTION

In collaboration with the Linked Learning Alliance, the UCLA Center for Community Schooling identified two cohorts of Linked Learning graduates who experienced a comprehensive pathway experience. Graduates from the high school classes of 2014 and 2015 who attended a certified Linked Learning pathway within a district participating in the California Linked Learning District Initiative were identified as potential participants. Alumni from these graduating classes would be able to reflect upon a minimum of four years of postsecondary experiences. Alumni from certified pathways—pathways that have undergone an external review process based on quality standards—within districts participating in the Initiative were selected. The certification process indicates that a pathway has attained a certain level of fidelity to Linked Learning components. Further, the identified sample aligned with samples used in previous evaluations of the California Linked Learning District Initiative conducted by SRI International.

District administrators across all nine districts of schools involved in the California Linked Learning District Initiative were informed of the study and invited to share a recruitment announcement to alumni. The following districts responded to our invitation: Long Beach Unified School District, Los Angeles Unified School District, Oakland Unified School District, Pasadena Unified School District, Porterville Unified School District, and Sacramento City Unified School District. A total of 25 alumni

across six districts responded to the invitation to participate in a 60- to 90-minute interview regarding their Linked Learning experience. Of these, a total of 16 alumni across five districts participated in an interview. Interviewees were selected to represent diversity with regard to demographics, postsecondary trajectories (through four-year institutions, community colleges and/or workforce participation), academic achievements based on self-reported high school grade point averages, and geography.

RESEARCH QUESTIONS

The research team collected data to address the following research questions:

1. **How do Linked Learning pathway graduates experience the transition to postsecondary education and careers?**
2. **To what extent do alumni attribute their pathways experience in influencing their postsecondary trajectories?**

DATA COLLECTION

We used a case study approach to address these research questions. Case studies allow researchers to investigate real-life phenomena in context, generating understandings of a phenomenon and its interplay with its environment (Yin, 2013). Data were collected from October 2019 to February 2020. A two-person research team collected all participant data.

Using a qualitative research design, we conducted 60- to 90-minute interviews with alumni. All interviews were conducted via video conferencing, recorded, and transcribed.

To develop protocols for data collection, we first conducted a review of existing evaluations of the Linked Learning approach and the California Linked Learning District Initiative and drew on the experiences of individuals within the Linked Learning Alliance who have supported the approach by identifying areas of inquiry for data collection. Based on this information, we constructed a semi-structured interview protocol to provide a better understanding of how students reflect on their Linked Learning experience and the extent to which alumni attribute their postsecondary journeys to particular, influential aspects of their pathway experience.

To analyze interview data, the researchers engaged in a multistep process. First, we drafted a preliminary code list based upon the key outcomes identified in our review of Linked Learning evaluations. Next, we transcribed all interviews. Each member of the research team then coded the data independently in Dedoose, a web-based application for qualitative analysis. This included deductive codes based on previous

Linked Learning evaluations, as well as inductive codes that emerged during the coding process. We then refined the codes based on the themes that emerged in the data and participated in a series of calibration exercises to ensure a shared understanding of codes. Once shared understanding was established, we then applied the codes to interview transcripts in Dedoose. To increase inter-rater reliability, researchers met throughout the coding process to discuss and compare decisions about code applications.

A case study draft was reviewed externally by members of the Linked Learning Alliance and district representatives. The draft was revised based on feedback by external reviewers.

LINKED LEARNING

GOLD CERTIFICATION STANDARDS

These evidence-based standards were developed and piloted by teachers, counselors, administrators, and students in Linked Learning pathways, and with input from technical assistance providers, educational equity experts, and industry and postsecondary partners. They emphasize cross-subject, student-centered learning with strong career and postsecondary integration, combined with student supports that ensure equitable opportunities for all students.



LINKED LEARNING GOLD CERTIFICATION™

The highest standard for college and career preparation, based on evidence of excellence in integrating the core components of Linked Learning. Learn more: [LinkedLearning.org/Certification](https://linkedlearning.org/certification).

INTEGRATED PROGRAM OF STUDY	WORK-BASED LEARNING	INTEGRATED STUDENT SUPPORTS
<p><i>Student-centered learning connected to postsecondary and industry expectations.</i></p> <p>Instructional design connects rigorous academics and career-themed coursework.</p> <p>Instructional delivery features equitable access to interdisciplinary learning opportunities.</p> <p>Students are encouraged to demonstrate their learning in many ways, including an annual public presentation.</p> <p>Early college credit opportunities such as dual enrollment are accessible to all students.</p> <p>Postsecondary and industry partners inform the design and assess the effectiveness of the program of study.</p> <p>Students have the opportunity for shared learning through a cohort structure focused on cross-subject projects and work-based learning experiences related to the pathway theme.</p>	<p><i>A continuum of meaningful experiences with work and real-world applications of learning.</i></p> <p>Students follow a work-based learning plan that is informed by input from industry partners and tied to the program of study and outcomes defined for their pathway.</p> <p>Students successfully complete multiple experiences ranging from career exploration to training and career preparation.</p> <p>Students have access to formal work-based learning through internships and apprenticeships, including opportunities to gain industry certificates.</p> <p>Students self-assess their work-based learning experiences, connecting these experiences to their academic studies, while also reflecting on their career skills development as well as understanding of their industry of interest.</p> <p>Industry partners evaluate the workplace readiness of each student, including the quality of their preparation, performance, and soft skills.</p>	<p><i>Meeting the developmental needs of each young person to equip all for a successful transition to college and career.</i></p> <p>Students experience learning that emphasizes social awareness, self-management, and a mindset of growth and self-efficacy.</p> <p>Teachers and counselors monitor student academic, personal, and social-emotional needs and provide culturally responsive, timely supports, engaging families in student development plans as warranted.</p> <p>Students learn in a culture of high expectations, are introduced to a variety of postsecondary options, and identify individual college and career readiness goals.</p> <p>Students receive guidance to complete college entry tests, financial aid applications, and other requirements for accessing postsecondary education.</p> <p>Students gain job application skills and resources they need to be prepared to enter the workplace, apprenticeships, and certification programs.</p>



The Linked Learning Alliance is the engine that drives a movement to help every young person determine their own future through a proven approach to education called Linked Learning. Linked Learning integrates rigorous academics with real-world learning and strong support services to prepare students for success in college, career, and life.

The Alliance helps create public will for equity and excellence in education, elevate the practice of Linked Learning across America, and advance policies that serve and support all youth.

Learn more at LinkedLearning.org.



The UCLA Center for Community Schooling is a campus-wide initiative to advance university-assisted community schools. As stable anchor institutions, universities play a unique role as K-12 community school partners. Our research, teaching, and service missions inform and are informed by the work of local schools and communities. In partnership, we are poised to disrupt historical inequalities and reimagine schooling as a public good that prepares all students to succeed in college, careers, and civic life.

Learn more at communityschooling.gseis.ucla.edu.

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