

Linked Learning:

An Approach to Bridging the Skills Gap

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About this Report

Linked Learning: An Approach to Bridging the Skills Gap is the final product of the USC Price School Master of Public Policy capstone, in which students apply skills and knowledge gained throughout the program to a real-world policy issue and gain practical consulting experience in policy analysis.

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The views and opinions expressed in this report are those of the authors and do not necessarily reflect the official policy or position of the California Foundation for Commerce and Education, the Linked Learning Alliance, or the University of Southern California.

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Executive Summary

California's economy is large and varied and requires a skilled workforce to foster continued growth and economic mobility for its residents. Several trends including automation and the transition to a service economy are changing the nature of jobs in the state, which increasingly require workers with education and training beyond high school¹. The K-12 education system is a critical component of the state's workforce pipeline; students cannot access skilled, well-paying jobs unless they graduate prepared to take the next steps in their education and careers. Linked Learning is an innovative approach to K-12 education that seeks to incorporate rigorous academic standards and real-world work experience through industry themed pathways in an effort to better prepare students for continued academic or professional pursuits after graduation.

Supporters of Linked Learning view the approach as integral to meeting the state's anticipated workforce needs and to providing equitable access to the knowledge and skills required to succeed in California's innovation economy. Our project aims to examine Linked Learning career pathways from the lens of employer partnerships and provide a set of recommendations on how Linked Learning schools can strengthen these relationships to improve student outcomes. Our research has identified areas including business engagement, capacity, teacher credentialing, logistics, tracking outcomes, and signaling where stakeholders can work together to align the education and workforce development systems and equip the next generation of Californians for success.

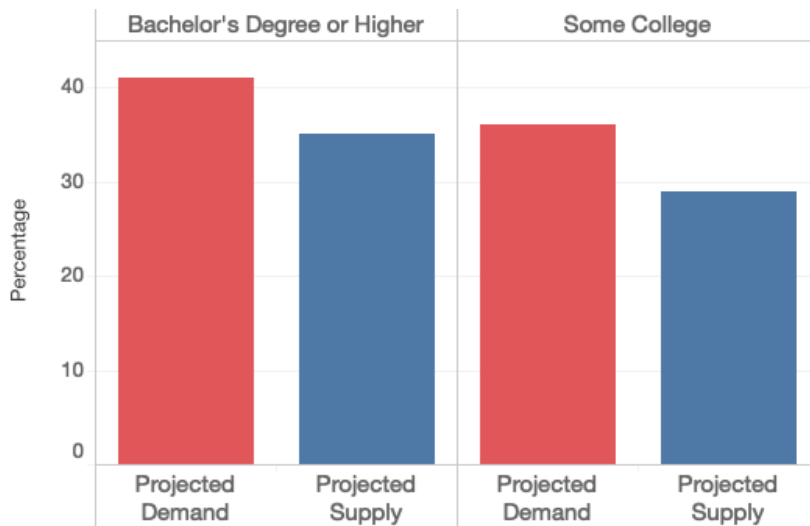


Source: Linked Learning Alliance

Introduction

Jobs in the United States, and the qualifications required of the workers who fill them, are changing. Economic trends including globalization, automation and a resulting demand for higher skilled workers, and a shift towards service industries have transformed jobs in America, which increasingly require education and training beyond high schoolⁱⁱ. Demand for skilled workers is expected to outpace supply, a problem that is exacerbated by retirements in the baby boomer generation as a large, highly-educated population leaves the workforce in greater and greater numbersⁱⁱⁱ. By 2030, California is expected to have a shortage of 1.1 million workers with bachelor's degrees^{iv}. The gap in middle-skill workers with some college, including associate degrees and technical certificates, is estimated to be even greater with a shortfall of 1.5 million workers by 2025^v. In industries with the highest projected growth rates over the next five to ten years such as healthcare, the gap between worker supply and demand is particularly stark. For nursing assistants, as an example, the ratio of qualified candidates to job openings is 1 to 100^{vi}.

Figure 1 – Shortage of California Workers with College Training



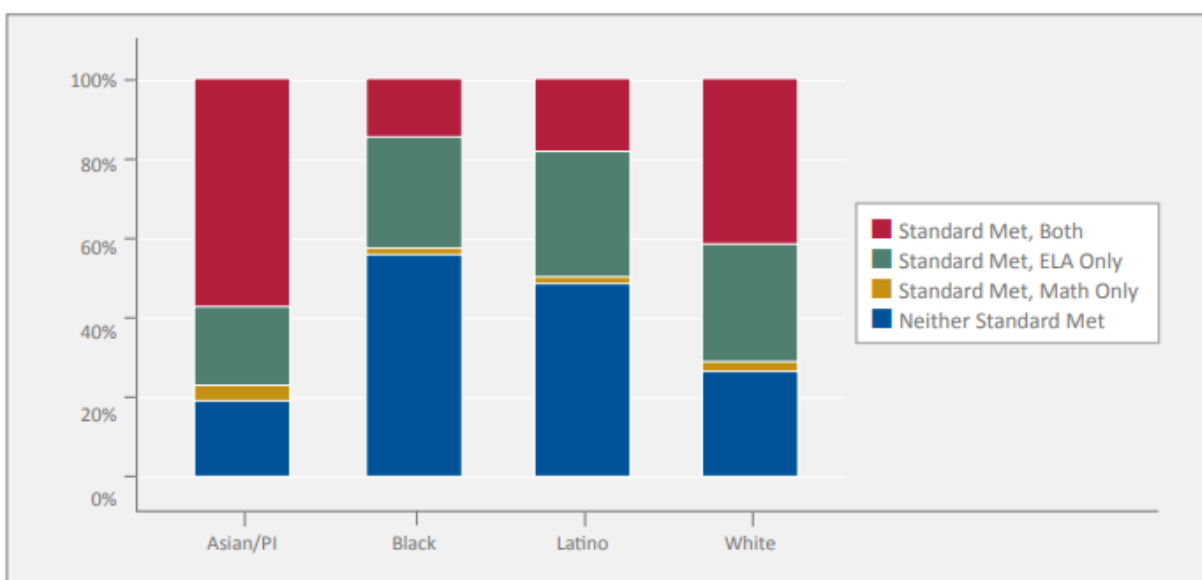
California is predicted to experience a shortage of both college-educated workers and those with some college by 2025.

Source: Recreated from Public Policy Institute of California^{vii}

The K-12 education system is a critical component of the workforce pipeline. Students that fail to graduate prepared to take the next steps on their path to higher education and skills attainment, or that fail to graduate at all, risk becoming unemployed or underemployed, potentially stuck in low skill jobs that limit their economic mobility. Although high school graduation rates in California have risen steadily^{viii}, fewer than half of K-12 students meet state reading and math standards^{ix}. Wide disparities in achievement also persist between different groups of students. The chart below graphs the different levels of achievement among groups of students on a test designed to test college and career readiness in English language arts (ELA) and mathematics.

Performance issues and achievement gaps at the K-12 level are reflected in post-secondary education attainment. California ranks 47th out of all states in its share of recent high school students who enroll in four-year colleges or universities^x. Twelve percent of nonwhite demographic groups in California have a bachelor's degree in comparison to the 32% statewide average^{xi}. Although Latinos represent an increasing share of California's population, which is reflected in the rising number of Latino high school graduates and college enrollment rates, the four-year graduation rate for Latinos in the Cal State system is 16 percent compared to 36 percent for whites^{xii}. This gap in educational attainment has serious implications for economic mobility: the poverty rate for Californians age 25-64 with a college degree was 8.4% compared to 34.5% for those who did not graduate from high school^{xiii}.

Figure 2 – 11th Grade Smarter Balanced Assessment Achievement Levels, by Race/Ethnicity



Data: California Department of Education.

Note: PI stands for Pacific Islander.

Source: Getting Down to Facts^{xiv}

Linked Learning is an innovative approach to K-12 education that has the potential to help California close the skills gap through its focus on academics and real-world skills gained through industry-themed pathways that help students better engage with curriculum and prepare for academic and professional opportunities upon graduation. Linked Learning maintains high academic standards to ensure students are ready for post-secondary education, but also utilizes work-based learning and curriculum aligned with in-demand industries to instill soft skills and provide students with opportunities to explore individual interests and talents.

In California, the policy environment has moved toward CTE programs, including the Linked Learning approach, in terms of legislation passed, proposed legislation, education funding priorities, and re-vamped education metrics. Initially funded by the James Irvine Foundation, in 2012 California AB 790 established the Linked Learning Pilot Program; 63 school districts elected to participate^{xv}. AB 790 did not establish a dedicated funding stream for Linked Learning, but rather requires school districts to buy-in and earmark their own funds for the program. As the state moved toward implementing the Local Control Funding Formula, limited-term grant programs were established to support CTE including the California Career Pathways Trust (CCPT) and the CTE Incentive Grant (CTEIG)^{xvi}. The K12 Strong Workforce Program, established in 2018 in partnership with California Community Colleges, also strengthens the state's CTE focus by appropriating \$150 million annually to support career education pathway links between high schools and post-secondary institutions.^{xvii}

There have been multiple studies demonstrating the effectiveness of the Linked Learning approach. Improvement in measures of Linked Learning pathway student outcomes over traditional students include higher high school graduation rates, greater postsecondary enrollment, and increased income after high school (James Irvine Foundation, 2017). Linked Learning has a demonstrated positive impact on high school students, but in order to scale the program and maintain the successes of existing Linked Learning pathways past evaluations have highlighted the need for key structural factors including a common vision, strong staff support, and support from a broad-based community coalition (Warner et al., 2016). Community support, particularly engagement from local business partners, is a key focus of our project.

Project Objectives

The purpose of our analysis is to examine Linked Learning career pathways from the lens of industry partnerships. Specifically, our project team sought to identify the common challenges that Linked Learning school districts face when trying to develop strong industry partnerships, to provide both work-based learning opportunities for students and a polished CTE curriculum. In addition, our team was focused on identifying what strategies are being adopted in various Linked Learning school districts to address these common challenges, to distill best practices that can serve as a useful guideline for strengthening Linked Learning models.

Our team also sought to identify important area differences between school districts in terms of local business composition, pathway staffing needs, and regional workforce needs, which may affect what best practices are ideal to adopt in specific district types. Finally, we aimed to

provide a set of recommendations to the stakeholders who engage with Linked Learning, as a blueprint for how to develop career pathways with strong industry partnerships.

Methodology

Our analysis utilizes qualitative data collection methods, specifically interview analysis and case studies. Interviews allowed us to hear directly from Linked Learning school staff and industry partners about the efficacy of different pathways; case studies allowed us to evaluate Linked Learning schools and districts and CTE programs to identify best practices that can be widely implemented.

Table 1 – Researchable Questions and Corresponding Methodology

Researchable Question	Approach	Methodology
What are the characteristics of successful partnerships between Linked Learning schools and industry stakeholders?	Qualitative	Interview Analysis, Case Study Analysis
Which Linked Learning pathways best integrate academics with regional industry?	Qualitative	Interview Analysis, Case Study Analysis

Site Visits and Interviews

In order to assess how well Linked Learning programs are meeting workforce development needs, we conducted a qualitative analysis of data collected from on-site visits at Linked Learning schools and standardized semi-structured interviews. The semi-structured interviews were conducted with two groups:



Linked Learning Schools and School Districts



Industry Stakeholders

Each interview followed a similar format sought to discern what educators and industry view as the most and least effective aspects of Linked Learning pathways, as well as any changes that might be desirable. Interviews in the academic setting also sought to identify the academic and professional backgrounds of Linked Learning staff, to help us search for any patterns in the qualifications of program coordinators and successful industry partnerships. Interview questions for our two stakeholder groups can be found in our appendix section.

Interviews and Case Studies

To answer our final researchable questions and identify best practices for Linked Learning programs overall, we conducted research interviews with experts across education and industry who engage with Linked Learning. Our team identified common themes from these expert interviews and used them to help develop a framework for evaluating Linked Learning models. A full list of interviews conducted for this project can be found in our appendix.

In addition, we selected four Linked Learning school districts and one non-Linked Learning district to visit in person as part of a case analysis. These site visits allowed us to observe Linked Learning in practice and provided us with additional context on how school districts seek to address the common challenges raised in our expert interviews.

Figure 3 – Locations of Interviews and Case Studies



Evaluation Criteria

Our group developed a set of criteria that we evaluated our cases on; these are important factors that help determine the strength of industry/school partnerships. These chosen criteria were supported by our semi-structured interviews with business professionals, teachers, and school district staff, as well as literature research on two sample career pathway models in Boston and New York; they represent the most common themes that our group encountered during our research. Each of our selected case studies has strengths and weaknesses in their circumstances and approach. Our intent was to highlight the methods they have adopted to address each of the criteria we identified above and outline a set of recommendations for the Linked Learning model.



Business Engagement

The business community is integral to the success of Linked Learning. Our most important evaluation criterion is the extent to which business entities are involved in the development and/or implementation of career pathways. Examples of this include:

- Career pathway advisory boards, local workforce development/investment boards, local chambers of commerce, and/or other business organizations that meet frequently with educators to develop curriculum, provide internships/work-based learning opportunities, or fund career pathways.
- Dedicated staff liaisons at the school, district, and workforce board levels that build partnerships with local businesses, as well as intermediary nonprofits created to broker partnerships with local businesses.



Capacity

Work-based learning opportunities are essential for Linked Learning students to apply their career skills in a real-world setting. However, there are often more students than internship opportunities.

- This is particularly a problem in regions with a small number and variety of employers. (E.g., some districts may only have one hospital available for healthcare pathway students)
- Local in-demand industry sectors may not align with career pathway teacher availability, or with career pathways that are the most popular with students. (E.g., students in the Central Valley who are interested in digital media and film)

- It takes time and effort from schools to build partnerships with local businesses and increase the number of placements available to students.



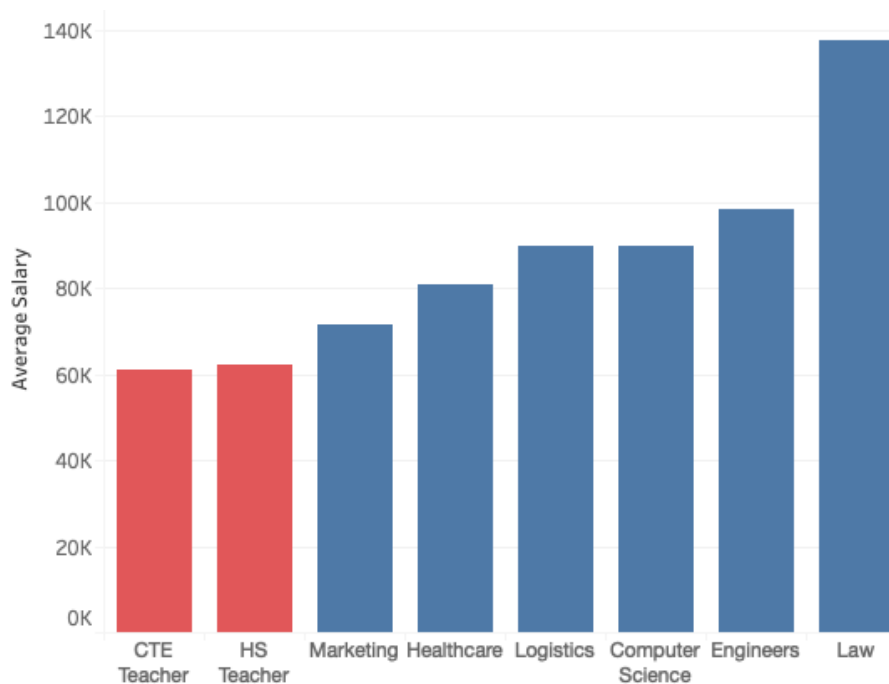
Teacher Credentialing

Career pathway teachers are most effective when they have relevant experience in the industries associated with their curriculum. There are two strategies for teacher credentialing:

- Recruiting industry professionals to teach in schools
- Upskilling existing teachers so they can obtain CTE certification

Recruiting industry professionals to teach in schools is the ideal scenario. However, this has proven difficult for many districts. It is hard to attract professionals away from industry due to the pay decrease associated with becoming a teacher. Some new career pathway teachers also struggle with the different workplace culture in education. As a practical alternative, districts may instead choose to provide additional training and externship opportunities for existing teachers or pursue dual enrollment as a way to provide students access to professionals at the community college level.

Figure 4 – Average Salaries (2017), Educators vs. Industry



Source: Bureau of Labor Statistics^{xviii}



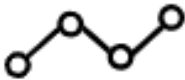
Logistics

Logistical issues can impact students' ability to attend schools with their desired career pathways, or participate in work-based learning opportunities. The most common logistical barrier is student transportation to and from schools and internship sites. Another is insurance liability; students under 18 may not be able to perform some internship tasks, particularly in healthcare and manufacturing.



Signaling

Awareness of the Linked Learning brand varies by region. Several of our semi-structured interviews revealed that awareness of Linked Learning is low in certain areas. Greater program impact would be possible if business leaders consistently recognized the Linked Learning seal that students graduate with. In addition, CTE pathways have existed long before Linked Learning was implemented; signaling is one way that Linked Learning could provide added value over other career pathway programs.



Tracking Outcomes

Student academic performance metrics are collected by various institutions throughout the state. However, these systems are often not aligned. Student work-based learning metrics, internship placement rates, and post-graduation outcomes, are also notably missing from a comprehensive source. Our semi-structured interviews revealed that business leaders have a strong desire to see student performance metrics, and that providing this data to industry increases the level of buy-in for Linked Learning among potential employers.

Case Studies^{xix}

Long Beach Unified School District

- LBUSD is the first Linked Learning district
- The district offers more than 40 career pathways at the high school level
- 73,211 students enrolled in the 2018-19 school year



Norwalk La-Mirada Unified School District

- Each of the 15 industry sectors contain from three to seven pathways
- 17,387 students enrolled in the 2018-19 school year



Porterville Unified School District

- 14 pathways
- 14,205 students enrolled in the 2018-19 school year



San Bernardino City Unified School District

- 23.4% of students classified as English learners upon enrollment
- 52,773 students enrolled in the 2018-19 school year



Orange Unified School District

- 27,915 students enrolled, 47% of which qualify for the Free and Reduced Lunch program
- 23 pathways, that which graduated 200 seniors in 2018





Business Engagement

Long Beach Career Linked Learning (LB CaLL), an intermediary nonprofit created to broker relationships between industry and education, was founded in 2012. LB CaLL helps raise awareness of Linked Learning career pathways among businesses in the area; it holds a summer internship program, which gained attention from local businesses with the backing of Mayor Robert Garcia, who had recently launched a summer intern challenge with incentives for businesses to participate. LB CaLL is unique in that it convenes multiple local workforce investment boards and community colleges into its work; district staff noted that this has led to some challenges related to territorial disputes among investment boards and competing community colleges, regarding student placements.



Capacity

Capacity for internship placements is high at the Port of Long Beach. However, 85 percent of companies in the area are small businesses, which may have smaller capacities to provide work-based learning opportunities.



Teacher Credentialing

Long Beach Unified offers externship programs for teacher upskilling. (E.g., it partners with the Port of Long Beach on the Academy of Global Logistics, which provides training in logistics for career pathway teachers)



Logistics

Long Beach Unified students are required to figure out their own transportation to schools and/or work-based learning opportunities. District staff did not note transportation as a major issue; popular career pathways are found at nearly every school in the district.



Signaling

Awareness of Linked Learning in Long Beach Unified among business leaders is assisted by intermediary nonprofits like LB CaLL, and political visibility due to the mayor establishing student internship placement as a policy goal.



Tracking Outcomes

Long Beach Unified tracks student academic performance metrics. Work-based learning metrics are tracked by some schools and/or specific career pathways.



Business Engagement

Norwalk-La Mirada Unified adopts a business engagement strategy centered on a work-based learning coordinator at the district level, who builds relationships with potential employers by hosting and attending networking events. The district also participates in a regional hub with several other Linked Learning districts and community colleges. Local public/partnerships such as the Norwalk Education Alliance exist to facilitate career pathway partnerships, however educators often have the burden of initiating contact with employers. In addition, district staff noted that they would like to see business leaders be more involved in the process of curriculum development.



Capacity

Capacity concerns at Norwalk-La Mirada Unified are related to aligning regional workforce needs with career pathways provided; the major constraint is teacher availability.



Teacher Credentialing

Recruiting teachers from industry is difficult. Norwalk-La Mirada Unified offers funding for upskilling existing teachers if they express a desire for additional training. Time-constraints on teacher preparation during the day were also raised by district staff as a barrier to strengthening pathways.



Logistics

District staff did not note student transportation as an issue. Norwalk La-Mirada Unified has addressed its insurance liability concerns by covering students as if they were on a class field trip. In addition, the district has had a harder time placing students at healthcare related sites due to privacy-related concerns.



Signaling

District staff feel that Linked Learning has added a credible seal to students' diplomas, but that awareness among business leaders could be improved.



Tracking Outcomes

District staff noted that systems of data collection on student outcomes between the state and school districts are not aligned, and that it is hard to track student outcomes after graduation.



Business Engagement

In Porterville, local business leaders recognized a need for a locally-trained skilled workforce, noting that new hires from other areas had difficulty adjusting to the unique small-town culture of the city. Porterville Unified has adopted a streamlined system for business input on its career pathways, utilizing business relationships that have been in place for many years. The district staffs work-based learning coordinators to help facilitate partnerships and has an especially strong employer presence in pathway curriculum development. 80 percent of pathway advisory board members in Porterville are business leaders; teachers in the district develop a preliminary pathway curriculum and bring them to their pathway advisory board for feedback and approval. Pathway advisory board meetings at Porterville Unified take place once a month, in contrast to other sites we visited where they could meet as infrequently as once a year.



Capacity

Porterville is a small community, and capacity for work-based learning opportunities is a concern in the area. For example, there is only one hospital in the district, which limits internship opportunities for students interested in a healthcare pathway. In addition, there are several popular pathways that are not a natural fit for the Central Valley (e.g., digital media, hospitality and tourism). The district has focused on building capacity at school sites, with state-of-the-art labs and equipment, as a more practical option.



Teacher Credentialing

Porterville Unified provides teacher externships to upskill its teacher workforce and has developed a collective bargaining agreement that provides incentive stipends for teachers who choose to participate in career pathways. The district has also developed a strong educational model in which teachers work collaboratively to integrate pathway themes across all core academic courses. Porterville Unified teachers also demonstrate a strong sense of ownership and pride in developing their career pathways.



Logistics

Porterville is a very spread-out city, which requires a lengthy drive to schools and/or work-based learning sites. The district has open enrollment, but schools eventually reach capacity; a lottery system is in place if the number of interested students exceeds the number of available slots at a specific school. Notably, Porterville Unified has implemented a

comprehensive shuttle system to transport students to their desired school or internship site.



Signaling

Awareness of Linked Learning is high among employers in Porterville, due to how heavily involved business leaders are in developing career pathways.



Tracking Outcomes

District staff noted that it is difficult to track student outcomes after graduation, but that Porterville Unified does track outcome data while students are enrolled in school. Importantly, this data is made available to business leaders involved with Linked Learning. These industry stakeholders noted that having access to data (some of which is not publicly available) has strengthened their partnerships with educators.



Business Engagement

Linked Learning in San Bernardino is centered on a partnership between the San Bernardino Workforce Investment Board and San Bernardino Unified, with additional relationships built with the San Bernardino Chamber of Commerce and San Bernardino Valley College. The district offers a large number of career pathways, which each have specialized strands in different subsets of pathway themes. Within each school, every career pathway and pathway strand has a lead. However, this lead not have any contact with industry stakeholders. The liaison to the business community is staffed at San Bernardino Unified, half funded by the workforce investment board, and half funded by the district. Most of the Linked Learning business outreach efforts in San Bernardino are handled by the investment board. “Generation Go!” an initiative which provides internship opportunities for students, is an example of one of the ways the county spearheads this effort. Business professionals can provide input on curriculum development at pathway advisory board meetings, but these meetings are infrequent. Industry leaders noted that they wanted to see curriculum changes adopted more quickly, after providing their feedback.



Capacity

Locally in-demand industry sectors like education and logistics/supply chain transportation, have high capacity for work-based learning opportunities in San Bernardino. However, career pathway instructors available don’t always align with in-demand sectors. The district has open enrollment, so students can choose to attend the career pathway school they want. However, schools do eventually reach capacity. District staff noted that a large number of career pathways are available at San Bernardino Unified, and the most popular pathway options should be available at all schools.



Teacher Credentialing

Recruiting teachers from industry has been difficult due to the pay decrease associated with becoming a teacher. Some teachers also have a difficult time adjusting to the different workplace culture in education. District staff noted that San Bernardino Unified is fortunate enough to have many teachers with prior industry experience. As a result, the district has emphasized upskilling teachers so they can obtain a CTE credential based on the experience they have; the district also encourages teachers to extern to help obtain this credential.



Logistics

Educators noted that it is difficult to transport students to pathway work-based learning sites, and to adjust teachers have tried to get business professionals to visit schools directly. Business leaders noted that there are challenges in providing work-based learning opportunities to students due to regulations on what tasks minors are allowed to perform on the job.



Signaling

Business leaders noted that awareness of Linked Learning among employers is improving, but still not high enough. District staff highlighted the San Bernardino Valley College Internship Program, and the Fall Community Gathering for Excellence, as examples of initiatives that have raised awareness among business professionals.



Tracking Outcomes

Anecdotally, educators shared that most career pathway students end up staying in the San Bernardino area; this is ideal for fulfilling local workforce needs. San Bernardino Unified has not adopted a system to track student outcomes after graduation. However, some career pathways have taken it upon themselves to do so.



Business Engagement

At the district level, Orange Unified has a single work-based-learning coordinator. At the school level, it staffs site-based coordinators at its four high schools. In the past, the district reported difficulty with attracting interested business partners. However, the district now meets regularly with industry leaders and professional associations about specific workforce needs in the region. Orange Unified is also part of the Career Technical Education Partnership (CTEp), a unique CTE curriculum network developed by the Orange County Department of Education. CTEp provides a platform for Orange Unified School District, Santa Ana Unified School District, and Garden Grove Unified School District to engage with CTE curriculum specialists, to develop a standardized model of CTE courses which satisfy both University of California (UC) and California State University (CSU) admission requirements.



Capacity

At Orange Unified adequate capacity for work-based learning opportunities was not a significant concern. The district maintains career pathway relationships with 145 local businesses^{xx}.



Teacher Credentialing

Site-based coordinators emphasized the value of staffing industry professionals to teach in career pathways but acknowledged that they can be difficult to recruit. Notably, Orange Unified provides a robust CTE teacher support system, which helps new educators recruited from industry adjust to the change in workplace environment. The district also provides dual enrollment courses for students at local community colleges.



Logistics

At Orange Unified, students are responsible for their own transportation to schools and work-based learning sites. In addition, the district covers the insurance liability for students while they are at internships off-site. District staff noted that insurance liability coverage is communicated clearly with potential employers when business relationships are developed.



Signaling

Orange Unified did not formally become a Linked Learning district due to a perceived workload increase for pathway teachers, associated with the certification process. District and site-based coordinators noted that they

were unsure of the benefits of becoming a Linked Learning district; both indicated that if the Linked Learning brand gained more industry recognition this would increase the benefit of becoming formally certified.



Tracking Outcomes

District staff did not indicate that Orange Unified provides data to potential employers. After graduation, students in the district complete an exit survey indicating their immediate career or college plans; Orange Unified is working with local CSU and community college campuses to develop a more robust post-graduation tracking system for students.

Findings and Recommendations

There are opportunities to better align Linked Learning pathways with California's workforce development gaps, evaluate work-based learning based on district-specific needs, and strengthen the Linked Learning brand. Our recommendations are meant as a guide to help strengthen partnerships between Linked Learning schools and the business community.

Business Engagement

Findings

- A key aspect of strong relationships between schools and businesses is communication. Career pathway advisory boards are the key mechanism that provide a direct communication line between these two groups. Significant variation exists in how frequently these meetings are held; in Porterville, these meetings are at least once a month, with additional contact occurring between formal meetings, while in Oxnard advisory boards met only twice a year.
- Work-based learning coordinators can be staffed at either the district or school level. For example, coordinators at Norwalk-La Mirada Unified excelled from the district office. However, other districts may choose to prioritize pathway coordinators in schools directly. In our research, divides in district needs emerged between urban and rural, and large and small enrollment districts.
- Alongside pathway advisory boards, other groups in place for facilitating regional partnerships (E.g., local workforce development boards, chambers of commerce) lend themselves to a small business-oriented approach. Partnerships with large corporations do exist; Porterville Unified, for example, partnered with Qualcomm to develop the Thinkabit Lab – which engages students in hands-on engineering projects. However, in our research we encountered a larger share of small businesses that engaged with the school districts we studied.

Recommendations

Increase Frequency of Contact between Educators and Industry Leaders

Frequent board meetings help empower businesses to provide meaningful input on developing strong pathways, communicate work-based learning opportunities, and assist with shaping curriculum; it also helps educators recognize the value that businesses bring to education. In our research, we found that infrequent contact between educators and business leaders is a barrier to developing strong pathways.



Evaluate Work-Based Learning Opportunities in the Context of District Needs

In districts where the local workforce development board takes an active role in building out career pathways, staff liaisons at the school or district level can be valuable pieces to help facilitate relationship building. However, in the absence of a workforce development board that has made Linked Learning pathways a high priority, work-based learning coordinators are essentially the sole means of industry contact for school districts. In these districts, establishing an intermediary nonprofit group (E.g., LB CaLL) can be a valuable tool for brokering partnerships between industry and education; intermediary groups also provide a way to coordinate stakeholders that may not operate in alignment with each other (E.g., community colleges, workforce development/investment boards, school districts). However, developing nonprofit intermediaries is more challenging than staffing coordinators. Engagement strategy can also vary depending on a greater presence of large corporations or small companies in an area.

Findings

- Work-based learning opportunities are a key avenue for Linked Learning students to apply their knowledge and skills in a real-world setting. However, there are often more students than internship/apprenticeship opportunities.
- Work-based learning opportunities vary depending on regional workforce availability. Pathways in the most in-demand regional sectors flourished; Agriculture pathways at Porterville Unified, and Global Logistics pathways at Long Beach Unified benefit from plentiful opportunities for students. Pathways in sectors less aligned with regional needs face challenges in providing internships for students; Media and Entertainment pathways in Porterville and Fashion pathways at Orange Unified have to be creative in how they develop these opportunities.
- By nature, capacity for work-based learning opportunities is lower at small businesses than at large companies.

Recommendations

Align Pathways with Regional Workforce Needs

Aligning career pathways with local in-demand industry sectors will make work-based learning opportunities more available to students. In addition, if districts are conscious of how industry sectors change and evolve, they may be able to develop ways to work around visible capacity constraints. For example, healthcare has seen a prominent shift in care delivery from in-hospital to at-home or community-based settings. A smaller district (with only one hospital in the area) could pursue additional work-based learning opportunities in this space. Notably, it requires significant effort to restructure existing pathways or develop new pathways. This barrier can be exacerbated if feedback from the local business community is limited.

Large companies offer the advantage of greater capacity for work-based learning opportunities and may also be able to contribute financially to capacity building goals. School districts fortunate enough to share a region with a large corporation essential to the regional workforce may choose to adopt a strategy focused on building that relationship. Other districts may choose to focus on developing partnerships with a large number of small companies to meet their capacity needs.

Findings

- Schools have difficulty recruiting teachers with industry experience due to the pay differential and difficulties navigating the transition from industry to education.
- Districts were divided in their level of support for teacher externships to upskill existing teachers.
- California State University of Long Beach (CSULB) provides a unique Linked Learning certificate for teaching degrees, the Collaborative for the Advancement of Linked Learning (CALL). This creates a useful pipeline of Linked Learning-minded teachers for Long Beach Unified.

Recommendations

Identify Teacher Externship Opportunities

Several districts have established teacher externship partnerships with local industries to upskill their existing teacher workforce, and/or provide funding to support teachers who wish to participate in externships. Districts can communicate the benefits of teacher externships to more companies, and/or explore developing new externship programs; this helps increase both the quality of teacher credentialing and meet regional workforce needs. Certain districts have a greater share of small businesses in their areas. However, small companies may have limited capacity for teacher externship programs.



Promote Dual Enrollment to Increase Student Access to Industry Professionals

Industry professionals are more likely to be instructors at community colleges than at high schools. Given how difficult it is to recruit industry professionals to teach in Linked Learning pathways, dual enrollment is a practical option to increase student access to teachers with industry expertise. It is important to note that courses offered at community colleges may not always align with career pathways offered in high schools. Additionally, student transportation may be a concern if college campuses are located further away.

Develop Teacher Pipelines

Teacher credentialing models that specifically incorporate Linked Learning training into the curriculum are a promising long-term option for participating districts. CSU Long Beach's CALL program is a model that other locations may seek to replicate. Developing this type of pipeline model requires universities to identify Linked Learning as a priority for teacher training, which may be challenging in areas with lower Linked Learning visibility.

Logistics

Findings

- Logistical issues such as transportation and job site insurance and safety requirements can present barriers to students seeking to access preferred pathways and work-based learning opportunities.
- Porterville Unified and San Bernardino Unified cited transportation as a barrier to students accessing the career pathway of their choice. Other districts, such as Long Beach Unified, offer enough pathways at each school to accommodate student preferences.
- At many districts, insurance liability for minors at workplace sites was a concern for business partners.
- Logistical issues can be overcome with strong leadership at the district level.

Recommendations

Evaluate Logistical Options in the Context of District Needs

Transportation can present barriers to students seeking to access work-based learning opportunities and pathways outside of their local schools. Porterville Unified School District tackled this early on by committing to providing access to a district wide shuttle service, ensuring any student in PUSD can attend any high school to enroll in the pathway of their choice. Geographically dispersed districts in particular may benefit from enhanced student transportation options; however, careful consideration should be given to the expense this will entail and how to properly account for future increases in transportation costs. In addition, Porterville Unified uniquely benefits from high community support via donations, and the district also frequently receives grants for serving a large number of students from disadvantaged socioeconomic backgrounds.

School provided transportation does not appear to be a feasible way of transporting students to work-based learning opportunities. Potential solutions to this include co-locating classes in workplace environments, allowing students to engage directly in work-based learning. Districts should consider all available options and determine the best solution for their needs.

Clarify Industry Partner Requirements for Work-Based Learning

The prospect of hosting a minor high school student at a job site can raise concerns for employers in terms of insurance liability. The key way that districts can alleviate these concerns from the business community is to communicate clearly how insurance liability will be handled. Work-based learning coordinators should anticipate this concern and be prepared with information on how their districts deal with responsibility for students.



Findings

- The business community responds well to school districts that share student data with them; employers seek to make data-driven decisions.
- Post-graduation student outcome data is essential to evaluating how effective pathways are, and this data is often lacking.
- Business leaders in Porterville and San Bernardino indicated that data helps them adapt their recruitment strategies and better prepare for future skills gaps.

Recommendations

Make Student Performance Data Available to Employers

Providing industry with access to performance metrics on strong career pathway students helps make the case for why they should engage with Linked Learning. The largest barriers to making this data available are privacy concerns; districts may not be comfortable making non-public data available to potential employers.

Advocate for Workforce-Based Metrics in a State Longitudinal Data System

Governor Newsom proposed a budget that included \$350,000 to merge existing educational data systems, and an additional \$10 million to plan and develop a longitudinal data system to track K-12 students. Given how difficult it is to evaluate how effective career pathways are in the absence of quality data, it is important to advocate for workforce-based metrics in any new data systems. Linked Learning should advocate for new state data systems to include tracking students on their college or employment status after high school.

Findings

- There is room to develop the Linked Learning brand, so that the business community is more aware of the value the program brings.
- Non-Linked Learning districts such as Santa Ana Unified and Orange Unified still provide robust CTE programs. Increasing the signaling value of Linked Learning can help provide value-added over existing CTE models, for districts still on the fence about committing to the approach.
- Large companies have more resources at their disposal for community and education outreach; Linked Learning has more visibility among companies that are actively seeking to form educationally-focused partnerships as part of their community engagement strategies. There is room to increase Linked Learning brand recognition to fulfill workforce needs in areas composed of mostly small companies.

Recommendations

Work to Promote and Strengthen the Linked Learning Brand

Ideally, employers would quickly recognize that graduates of Linked Learning pathways are equipped with a robust set of knowledge and career skills; however, our research found that employer recognition of the program can be improved. There is also room to increase Linked Learning visibility among school districts that have chosen not to adopt the model. As Linked Learning grows in popularity, and industry/education partnerships continue to proliferate, recognition of the program brand can be expected to grow organically. However, there are additional steps that can help facilitate this process:

- Promote the Linked Learning Alliance's role as a pathway certifier
- Conduct brand outreach to industry stakeholders
- Leverage relationships with community leaders and elected officials who can provide a visible platform for Linked Learning

End Notes

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Appendix I: Interview Questions

Questions for Linked Learning Schools & Districts

- How do you build and maintain relationships with industry?
- How are we currently communicating the skills required by employers?
- How are we determining the skills that will be required in the future, and how effectively is that being communicated to partners in industry?
- There is a lot of emphasis on the role of employers in helping achieve better career readiness outcomes in education. Can you talk about both your greatest successes and your existing challenges in engaging employers to ensure that graduates are qualified and ready for good jobs in California?
- We hear a lot of discussion on employability skills, or soft skills—punctuality, work styles, communication skills, problem solving—are we making progress on defining, modeling, teaching, assessing those skills in California?
- How can we work to educate students about their options when it comes to different academic programs?
- How can we tangibly communicate what students can expect from putting time and resources into obtaining their degree or credential, and point them towards programs that make the most sense for them personally while also preparing them for well-paying, in demand jobs?
- How does skills-based training fit in a traditional academic program environment?
- How is school curriculum changing to meet the needs of a changing workforce?
- What is your background, both educationally and professionally?
- How would you describe the backgrounds of the staff here who help coordinate Linked Learning pathways?

Questions for Industry Stakeholders

- What kind of partnership do you want the school to offer you?
- What employability skills do you need from students?
- How are we determining the skills that will be required in the future, and how effectively is that being communicated to partners in academia?
- There is a lot of emphasis on the role of employers in helping achieve better career readiness outcomes in education. Can you talk about both your greatest successes and your existing challenges in engaging with educational institutions to ensure that graduates are qualified and ready for good jobs in California?
- How can we work to educate students about their options when it comes to different work-based programs?
- How can we tangibly communicate what students can expect from putting time and resources into obtaining their skills, and point them towards programs that make the most sense for them personally while also preparing them for well-paying, in demand jobs?

Appendix II: Interview List

Interviewee	Type	Industry	Location
Norwalk-La Mirada Unified School District	Site Visit	Education	Norwalk
Long Beach Unified School District	Site Visit	Education	Long Beach
Porterville Unified School District	Site Visit	Education	Porterville
El Modena High School	Site Visit	Education	Orange
Santa Ana Unified School District	Interview	Education	Santa Ana
Rancho Campana High School	Interview	Education	Camarillo
Linked Learning Convention	Site Visit	Education/Other	Indian Wells
Linked Learning Alliance	Interview	Education	Sacramento
California Foundation for Commerce and Education	Interview	Other	Sacramento
Logistics Company President	Interview	Other	Ontario
State Healthcare Pathway Navigator	Interview	Education/Other	Santa Clarita
Education Labor Expert	Interview	Education	Los Angeles

Appendix III: Evaluation Criteria

	Long Beach USD	Norwalk-La Mirada USD	Porterville USD	San Bernardino City USD	Orange USD <i>*(Non-Linked Learning)</i>
Business Engagement	Long Beach CaLL, nonprofit intermediary, engages business community on behalf of LBUSD.	Industry coordinators at district level. Norwalk Education Alliance, organization designed to foster industry-school relationships.	Advisory boards comprised of 80% business, meet at least once a month. Coordinators operate from district office.	San Bernardino Workforce Investment Board, SB Chamber, and SB Valley College partner with SBCUSD. Pathway leads do not have contact with industry, district liaison does. "Generation Go!" initiative helps provide internships. Advisory board meetings are infrequent.	Regular meetings with professional and vocational associations. Part of Career Technical Education Partnership (CTEp), that develops curriculum with CTE specialists and central Orange County districts.
Capacity	Capacity for internships is high at the Port of Long Beach. However, 85% of companies in the area are small businesses with limited capacity.	Aligning regional skills gap needs with pathways provided is a concern. Businesses need dedicated individual to monitor internships.	Internships are limited due to location and size of community. District has focused on constructing state-of-the-art labs to bring work based learning to the schools.	Local industries like education and logistics and transportation have high internship capacity.	Local industry capacity matches that of the needs of OUSD CTE. 145 different local businesses partner with district in some way.
Teacher Credentialing	Externships are offered by the district for CTE credentials. CSULB Linked Learning credential offered in industry subject w/teaching degree.	NMUSD offers funding for teacher upskilling and credentialing.	PUSD provides teacher externships. Stipends provided for those who participate in CTE pathways.	Pay decrease associated with becoming a teacher not desirable to industry professionals. District has focused on externships and upskilling.	District focuses on converting industry professionals to teaching. Has support system to help transition new CTE teachers.
Logistics	Students must find their own transportation to internships. Most high schools possess similar pathways limiting need for cross district transfers.	Transportation not noted as an issue. Insurance liability concerns have been alleviated. Privacy concerns for healthcare work based learning.	A comprehensive bussing and shuttle system takes students to desired schools and internship sites. Open enrollment allows any student to attend any high school.	Open enrollment is available but lack of bussing makes it difficult to get kids to desired pathways. Child labor laws have complicated ability of students to participate in certain tasks on industry sites.	No open enrollment. Each High school has large quantity of pathways. Insurance coverage of interns is indicated to business partners.
Signaling	Long Beach CaLL increases awareness of Linked Learning. Mayor Garcia increased political visibility with establishing student internships as a policy goal.	Staff felt Linked Learning adds value to diplomas but conceded business awareness was an area for improvement.	Businesses understand the value of Linked Learning due to strong presence in advisory board process.	Business awareness is improving but not high enough. SB Valley College internship program and Fall Community Gathering for Excellence are initiatives to improve awareness & understanding of Linked Learning.	District saw no value in Linked Learning. Barriers such as increased teacher workload, with no noticeable benefit from the label were cited. Parents also have low awareness of CTE.
Tracking Outcomes	LBUSD tracks student academic achievement. Work based learning metrics are tracked by some schools and pathways.	Data systems currently in place are not aligned. School and state databases are disjointed.	Post-graduation data is limited. Outcome data during student tenure is available and provided to industry partners.	Most students stay in area after graduation. No tracking system for Linked Learning post-graduation outcomes has been developed. Some pathways have taken upon themselves to attempt tracking.	District pathways conduct exit surveys but nothing beyond that. Efforts have been made to track students into CSU and CC levels.