Strengthening business through effective investments in children and youth

ReadyNation
AMERICA'S EDGE

Fortifying the Inland Empire's Talent Pipeline: Closing Our "Skills Gaps" through Linked Learning

ReadyNation/America's Edge is a project of the Council for a Strong America

COUNCIL FOR A
Strong America

WHO WE ARE

ReadyNation/America's Edge is the nation's preeminent business leader organization working to strengthen business through better policies for children and youth. We educate policymakers and the public about effective investments that will help businesses compete in today's global marketplace, build a foundation for lasting economic security, and help children get on the right track to succeed in school and in life.

Acknowledgements

This report was authored by Sandra Bishop-Josef, Ph.D., Stephanie Schaefer, Ph.D., Jennifer Ortega, and Sara Watson, Ph.D.

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Our Funding

ReadyNation/America's Edge is supported by tax-deductible contributions from foundations, individuals, and corporations. ReadyNation/America's Edge accepts no funds from federal, state, or local governments.

Major funding for ReadyNation and America's Edge includes: Alliance for Early Success • Buffett Early Childhood Fund • The California Education Policy Fund • The Annie E. Casey Foundation • Robert Sterling Clark Foundation • Bill & Melinda Gates Foundation • The George Gund Foundation • Hagedorn Foundation • Heising-Simons Foundation • The Leona M. and Harry B. Helmsley Charitable Trust • The William and Flora Hewlett Foundation • The James Irvine Foundation • W.K. Kellogg Foundation • The Kresge Foundation • McCormick Foundation • The J.B. and M.K. Pritzker Family Foundation • PNC Financial Services Group • Rauch Foundation.

EXECUTIVE SUMMARY

If current education and labor market trends continue, by 2025, California will face a deficit of 1 million workers with bachelor's degrees to fill open jobs that require a degree. At the same time, there will be a shortage of another 1 million workers to fill middle-skill jobs—those requiring more than a high school diploma but less than a four-year degree. Two-thirds of the jobs created in California between 2010 and 2020 will require some type of formal education beyond high school, and 60 percent of the fastest growing and high-wage jobs will require at least a two-year degree. In that same period of time, 96 percent of jobs in the areas of science, technology, engineering, and math (STEM) will require postsecondary education. By 2020, throughout the state, there will be 91 percent more job openings requiring postsecondary education than openings for those with a high school education or less.

By 2025, California will face a deficit of 1 million workers with bachelor's degrees to fill open jobs, and another 1 million workers to fill middle-skill jobs requiring more than a high school diploma.

The need for middle- and highly-skilled workers is also evident in the Inland Empire. Half of the high-growth and high-wage jobs in this region will require an associate's degree or higher by 2020. Jobs requiring a bachelor's degree are expected to grow 50 percent faster than jobs for those with only a high school diploma. Over the next ten years, about 60 percent of the jobs with the highest projected deficits will require education beyond high school. About a quarter of these jobs will require a STEM-related degree or training in a healthcare or medical field. Educational trends suggest that, if the status quo is maintained, schools in the Inland Empire will not produce enough graduates to meet the demand for workers with postsecondary training. Reform efforts are underway to reverse these trends.

Half of the high-growth and high-wage jobs in the Inland Empire will require an associate's degree or higher by 2020.

The skills deficiencies go beyond those related to specific occupations. Inland Empire businesses are also concerned about the lack of increasingly important skills: communication, collaboration, and critical thinking—required for virtually any occupation in today's world. In a national poll, executives cited communication as the most important skill for a recent college graduate to possess.

San Bernardino and Riverside Counties make up the Inland Empire.

A pipeline of skilled workers will be hard to create when 20 percent of California high school students fail to graduate on time. The figure for San Bernardino County is 22 percent and for Riverside County it is 16 percent. Twenty-one percent of people in the Inland Empire lack a high school diploma, compared to 19 percent for the state as a whole.

To reverse these skills gaps and generate a robust and competitive workforce, ReadyNation/America's Edge, a business membership organization, applauds Inland Empire education leaders for using the Linked Learning approach as a regional school improvement and workforce readiness initiative. The Linked Learning approach is designed to equip our high school students for success in both college and careers.

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The bottom line: The future of California's and the Inland Empire's economy depends upon the caliber of our workforce. If we expect to compete and succeed in the global marketplace, we must act now to ensure our businesses have the skilled workforce we need.

Fortifying the Inland Empire's Talent Pipeline: Closing Our "Skills Gaps" through Linked Learning

Only 29 percent of California 8th graders are proficient in reading, only 27 percent are proficient in math, and only 22 percent are proficient in science.

In addition to basic competencies, employers are increasingly concerned about a lack of interpersonal skills.

STUDENTS AND WORKERS LACK SKILLS

Business leaders frequently report that they cannot find job applicants with the right skill sets to fill available jobs. While employers will always need their workers to be proficient in reading, writing and math, today's fast-paced, international marketplace requires even higher proficiency levels of these basic skills. But they are too often lacking, especially among those entering the workforce.

- According to the Nation's Report Card, only 29 percent of California 8th graders are proficient in reading, only 27 percent are proficient in math, and only 22 percent are proficient in science.[1]
- Twenty percent of California high school freshmen do not graduate within four years.[2] In San Bernardino County the on-time graduation rate is 78 percent, while in Riverside County, it is 84 percent.
- Twenty-one percent of people in the Inland Empire lack high school diplomas, compared to 19 percent for the state as a whole. At the same time, 28 percent of Inland Empire residents have an associate's degree or higher, lower than the 38 percent in California as a whole.[3]
- Only one-third of 2013 high school graduates in California taking the ACT admissions test met college readiness benchmarks in the four core areas tested–English, reading, mathematics and science.[4]

In addition to basic competencies, employers are increasingly concerned about a lack of communication, collaboration, and critical thinking skills. In a 2014 survey, more than 500 national "C-suite" business leaders were asked: "What is the single most important skill for a recent college graduate to possess?" The leaders ranked communication first, followed by collaboration (interpersonal skills / networking / socialization / ability to work in teams). Critical thinking was also included in the top 10 most important skills. Only 14 percent of the leaders said that most recent college graduates had the skills they ranked as most important.[5]

THE GROWING CALIFORNIA SKILLS GAPS

With weak education outcomes, dissatisfied employers, and jobs that place an increasing emphasis on skills, how will the California workforce of the future fare? Data suggest that California needs to make major changes to keep its workforce competitive domestically and internationally.

High-Skill and Middle-Skill Job Mismatches

If current education and labor market trends continue, by 2025, California will face a deficit of 1 million workers with bachelor's degrees to fill open jobs. At the same time, there will be a shortage of another 1 million workers to fill middle-skill jobs–those that require less than a four-year degree, but more than a high school diploma.[6]

Focus on Science, Technology, Engineering, and Math (STEM)

Jobs that are heavily reliant on technology are growing fast. The number of STEM jobs in California is expected to grow by 22

High-Growth Industries

The Inland Empire has four industries that are likely to expand employment more than 3 percent per year over the next decade. These industries —utilities, professional services, healthcare, and construction—represent about one-fifth of the total employment in the region and are projected to expand faster than the overall pace of job growth in California. (Chmura, 2013)

percent between 2010 and 2020, compared to an overall job growth rate of 17 percent.[7] Workers often need postsecondary education to capitalize on these types of jobs. In fact, 96 percent of California STEM jobs will require postsecondary education by 2020, and 76 percent will require a bachelor's degree or higher.[8]

Professional and technical healthcare jobs are also growing in California, with 26 percent growth expected between 2010 and 2020, compared to 17 percent growth in other jobs. But only 6 percent of these healthcare jobs in 2020 will be for those with only a high school diploma; 94 percent will require some postsecondary education. Even among healthcare support jobs, which are expected to have 32 percent growth between 2010 and 2020, 64 percent will require some postsecondary education.[9]

The need for middle- and highly-skilled workers is also evident in the Inland Empire. Of the jobs with the highest projected gaps over the next ten years, 60 percent will require postsecondary education. About a quarter of these jobs will require a STEM-related degree or training in a medical or healthcare field. Among the occupations with projected deficits are registered nurses; elementary, middle school and secondary teachers; and general and operational managers.[10]

Rising Education Requirements

The increased level of skills necessary for future jobs directly correlates to increased educational requirements for those jobs. The anticipated growth rates for occupations in California are skewed toward jobs that are either high-skilled, needing a bachelor's degree or above, or middle-skilled – requiring more than a high school diploma but less than a four-year degree.[11] Consider these projections for California:

- By 2020, throughout the state, there will be 91 percent more job openings requiring postsecondary education than openings for those with a high school education or less.[12]
- There will be 6.3 million total job vacancies between 2010 and 2020, as a result of new jobs and openings from retirements and career switches.[13] While 19 percent of Californians lack a high school diploma or equivalent, only 15 percent of these job vacancies will be available for those without a diploma.[14]
- In contrast, by 2020, 60 percent of the fastest growing and high-wage jobs will require at least a two-year degree.[15]
- Two-thirds of all job openings in California between 2010 and 2020 will require some postsecondary education, but only 60 percent of Californians 25 or older have this level of education.[16]

In the Inland Empire, the situation is similar, although not as pronounced as for the state as a whole.[17]

- Between 2010 and 2020, Inland Empire jobs requiring a bachelor's degree are expected to grow somewhat faster than those with only a high school diploma.

The number of STEM jobs in California is expected to grow by 22 percent between 2010 and 2020, compared to an overall job growth rate of 17 percent.

"The majority of our staff are over 55 years of age, and more than 20 percent are past the age of 65. We cannot fill our needs by hiring people who already possess the skills for these jobs because there just aren't enough. We need to develop a pipeline of talent right here in the Inland Empire."

– Dr. Wallace P. Brithinee
President
Brithinee Electric

In the Inland Empire, half of the high-growth and high-wage jobs will require an associate's degree or higher by 2020.

- Half of the high-growth and high-wage jobs in this region will require an associate's degree or higher by 2020.[18]

Some community colleges are well-connected to industry in this region, including through "learn and earn" programs. For example, California Steel Industries (CSI) developed a program with Chaffey College to train electrical technicians and maintenance mechanics. They hired 11 students who spent three days a week in the classroom and two days a week at a work site, where they received hands-on training. When the eight-week program ended, all participants passed their exams and were hired by CSI with a starting wage of nearly $21 per hour. Such connections now need to be forged earlier, at the high school level, and CSI is already working with the engineering pathway at Upland High School, where the company's human resources manager serves on the academy's advisory committee.[19]

Skills Gaps on the Rise

Experts believe the recession may have accelerated a demand for highly-skilled workers; many companies turned to workers with higher skills while not replacing laid-off lower-skilled positions because they were able to automate these jobs or ship jobs overseas.

Manufacturing was among the hard-hit sectors in California in the last decade, with employment falling by over three percent annually from 2000 to 2010. The recession exacerbated this trend, and in 2008 and 2009, the manufacturing sector lost 10 percent of its workforce. However, with the economic recovery and an increasing demand for products, manufacturing employment is predicted to grow over time, especially in durable goods manufacturing, with highly technical manufacturing jobs.[20]

Despite recent losses, manufacturing remains a vital part of the Inland Empire economy,

with seven percent of the region's workforce employed in this sector—84,000 workers in 2013.[21] Although, overall, a decline of four percent in manufacturing jobs is predicted by 2015 for the Inland Empire, in six subsectors, growth is expected: soft drink manufacturing, iron and steel manufacturing, wineries, pharmaceuticals, concrete manufacturing and industrial instrument manufacturing.[22] Very recent data suggest that the manufacturing sector in the Inland Empire might be on the edge of an upswing: the Purchasing Managers

Worker Shortages in the Inland Empire: Over the next 10 years, gaps are expected in several occupations: registered nurses, teachers, general and operations managers, office supervisors, sales representatives, teacher assistants, retail salespeople, and home health aides. (Chmura, 2013)

Index (PMI) increased more than 10 points in April 2014, which seems to have triggered an increase in hiring.[23] The combination of a strong history of manufacturing and a solid number of people already engaged in this sector in the Inland Empire indicate that it will be important to have young people being trained to replace existing workers who retire, and to fill new positions that will be opening up as manufacturing jobs increasingly return to America.

An aging population could also be a factor. The leading edge of the baby boom generation turned 65 in 2011, and the share of California's population age 65 or older is projected to rise from 11 percent in 2010 to 23 percent in 2060.[24] Retirements of highly-trained employees, coupled with increased demand for health care as the state's population ages, is expected to lead to increased shortages in areas such as nursing and other healthcare positions.

THE UNITED STATES IS NOT KEEPING PACE

California is not alone. Thanks to technology, more and more American workers are now directly competing with workers from around the world. How U.S. students stack up against students from other countries is, thus, increasingly important, and the United States is no longer on top.

The U.S. high school graduation rate ranks in the bottom quarter of developed nations.[25]

On an international test of applied knowledge and skills, the Programme for International Student Assessment (PISA), U.S. 15-year-old students scored significantly below the average for industrialized nations in math and trailed behind leading countries in reading and science.[26] The U.S. is getting worse results while spending almost 40 percent more on education: U.S. spending per student in 2010 was over $11,800, compared to an industrialized nation average of about $8,600.[27] In California, education spending per student was about $9,400 in 2010.[28]

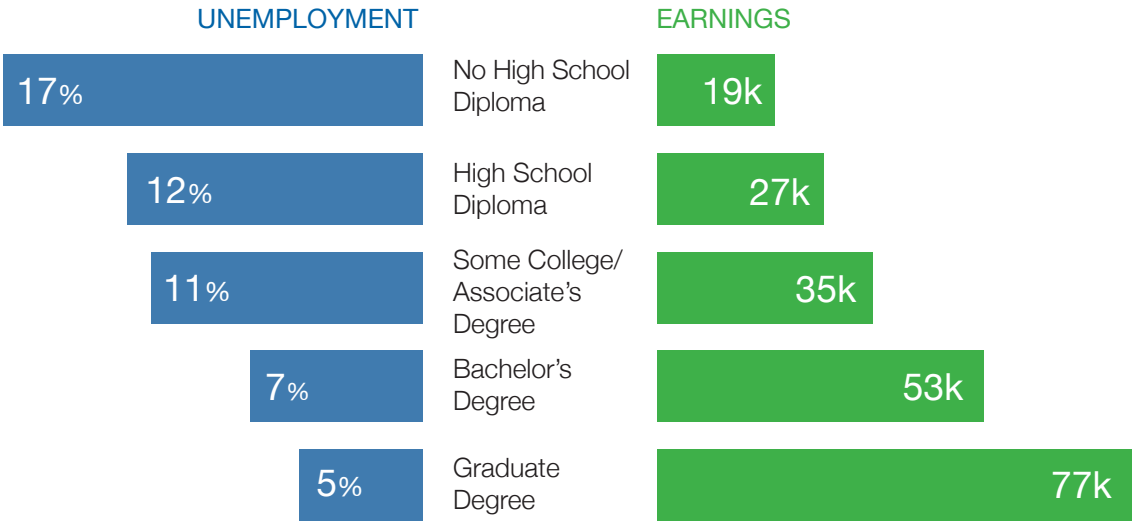
Although higher education attainment in the U.S. has continued to climb, we are not keeping pace with other nations and we are not growing fast enough to keep up with labor market demand. As recently as 1995, the U.S was tied for first in college graduation rates. But as other countries dramatically improved their college completion rates, the U.S. has fallen to 14th out of 25 industrialized nations–decidedly in the middle of the pack.[29]

ECONOMIC IMPACT OF THE SKILLS GAP

The lack of a skilled workforce comes at a high cost for individuals, businesses, and the economy.

The unemployment rates in California for workers with a bachelor's degree or higher are about five percentage points lower than the unemployment rates for individuals with a high school diploma, and ten points lower than rates for those without a high school diploma.[30] The wage gains from even attempting some postsecondary training are clear across the state as well: workers with some college or an associate's degree earn about $8,000 more than a high school graduate and $16,000 more than

California – Unemployment and Earnings by Educational Level



SOURCE: PPIC, 2013; U. S. Census Bureau, 2012 American Community Survey 1-year estimates

a high school dropout.[31] In the Inland Empire, workers with an associate's degree earn $15,000 annually more than a worker with previous work experience, but no postsecondary degree.[32]

High school dropouts are so much less productive than high school graduates that each new cohort of California dropouts will earn $20.8 billion less over their lifetimes than their high school graduate peers.[34] These staggering earning losses translate into less spending power, fewer contributions to the tax base, and lower productivity. The returns from a college degree are even greater. The average lifetime earnings of an individual college graduate are more than 50 percent higher than those of a high school graduate.[35] There are also longer-term returns from a college degree: children of college graduates are more likely to attend college.[36]

Raising California's high school graduation rate to 90 percent could result in impressive economic benefits:

$1.4 billion
in increased annual earnings.

$171 million
in increased vehicle sales.

$3.5 billion
in increased home sales.

11,650
new jobs in the state.

$2 billion
increase in gross state product.

$122 million
increase in state and local tax revenues.[33]

Remedial courses and training to help students catch up and get on track for higher education and training are helpful, but they are expensive and inefficient. Nationwide, about half of all students entering community college require remediation.[37] Remedial education costs the state of California and students an estimated $780 million annually, and up to $1.1 billion annually after factoring in the reduced lifetime wages of students taking remedial courses.[38]

Developing Core Competencies

Business leaders know that young people entering college and the workforce need a mastery of core academic subjects. But they also need more. For example:

- Students need to develop the critical

thinking and problem-solving skills necessary to find answers to challenges that, unlike with multiple choice tests, are not on the page in front of them.

- Part of those skills come from learning how to learn–knowing how to find out what they do not already know.
- Effective written and verbal communication skills are necessary to work as part of a team, or to interact with the public.
- To work as a team, students will have to master collaboration skills, such as interpreting others' messages and responding appropriately.[39]

This preparation includes going beyond rote learning to transfer what they have learned in one subject and apply it in novel ways or different settings in the workplace. It also requires the ability to regulate one's own behavior and emotions to reach goals. Research cited by the National Research Council, for example, shows that being conscientious–"being organized, responsible, and hardworking–[has] the strongest correlation with desirable work and educational outcomes, [whereas] anti-social behavior … is negatively correlated with these [desirable] outcomes."[40] These are skills that can be taught and reinforced, especially in the workforce. All of this goes beyond "textbook" learning to provide students and workers with the skills now needed in a competitive global market.[41]

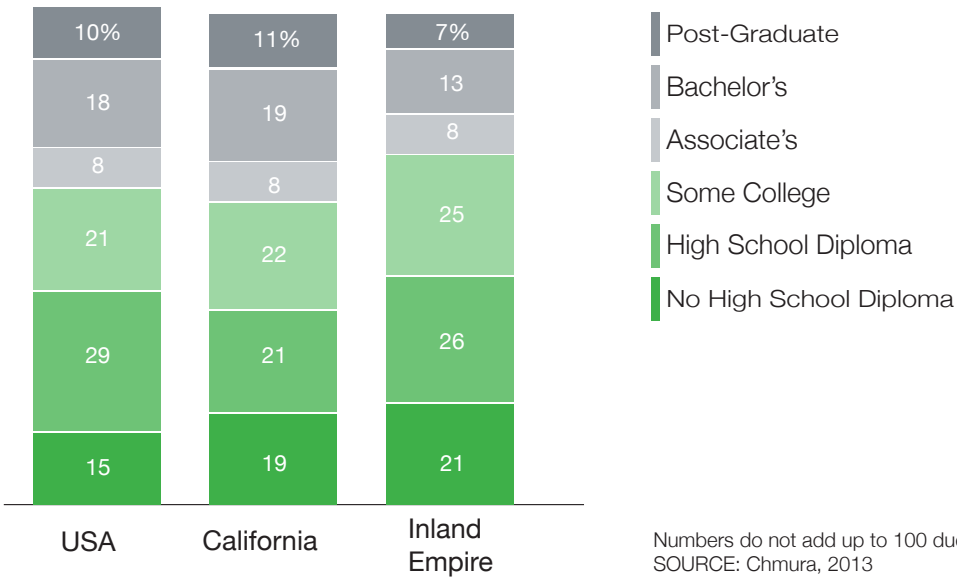
CONNECTING EDUCATION TO OUR ECONOMY

Business leaders, educators and now policymakers are coming to the conclusion that public education cannot be disconnected from California's economy. Recognizing that K-12 students will soon become our future workforce, business leaders have begun advocating for career relevance to be incorporated into the classroom. Too many students do not understand why they need to know what they are being taught, lose interest in school, and then do not develop the skills employers expect them to have.

Developing Skills Businesses Need

One of the best–and proven–ways to impact the skills gap is to equip high school students for success in postsecondary training and/or education and their future careers.

Educational Attainment in California and the Inland Empire



Numbers do not add up to 100 due to rounding.
SOURCE: Chmura, 2013

"Inland Empire employers are seeking a highly talented workforce in industries that are critical to California's economy. To build a robust talent pipeline, young people must understand what it takes to get a good job. Exposing students to career options early and helping to direct their path is vital to building our future workforce."

– Michael Gallo
President & CEO
Kelly Space & Technology, Inc.

SPOTLIGHT ON:

Upland Academy of Engineering and Architecture[42]

Upland High School's Academy of Engineering and Architecture has emerged as an excellent example of Linked Learning. Currently serving 165 students in grades 9-12, the Academy offers students a chance to explore pre-engineering curriculum and scientific concepts through practical application and project-based courses. Through relevant coursework and the chance to apply gained knowledge in real-world settings, academy students learn how to quickly acquire and apply new information, communicate, problem-solve, and think critically. These skills are demonstrated in student portfolios of major projects and achievements, in addition to maintaining an industry standard Engineering Notebook throughout the course of the program. The courses include: Introduction to Engineering Design, Principles of Engineering, Digital Electronics, Computer Integrated Manufacturing, and ROP Architecture.

Work-based learning is a key component of the pathway. For example, last year, seniors participated in internships with the district construction company working on campus. Students held supervisory roles and utilized punch lists in order to see that jobs were being done properly on site. The Academy features real world, project-based learning. The National Association of Women in Construction (NAWICA) provides an annual, national competition in which Upland students are asked to solve an architectural design problem, alternating from year to year between a residential structure and a commercial structure. Student designs are judged and receive critical feedback from a team of working, professional architects. Students also participate in job shadowing programs and site visits.

An initial indication of success is that Academy students are more likely to complete A-G requirements by their senior year (48.5 percent) than students not enrolled in a pathway (33.5 percent). Further, students in the pathway boast a higher GPA (an average of 3.17) than Upland High School students who are not in a pathway (an average of 2.88). School administrators report that the Linked Learning approach adds depth and meaning to students' education, encouraging them to succeed.

Students need to understand how education is relevant to a career, know their options and what is expected in the work place, and develop communication, collaboration and critical-thinking capabilities. Linked Learning approaches are helping them achieve these goals.

As with the proven Career Academies model, the career-themed Linked Learning approach helps high school students gain a concrete understanding of what they will need to succeed in the workforce and academically after high school, thus better ensuring California businesses have a workforce armed with the appropriate skill set to succeed on the job.

Linked Learning integrates rigorous academics, real-world professional skills, personalized support services for students and work-based learning experiences supported by industry and community partners over a three- or four-year period. Linked Learning students can choose industry-themed pathways in a wide variety of fields, such as engineering, biomedicine and health, and arts and media. These pathways help prepare high school students for future careers and a full range of postsecondary options, including two- or four-year college, apprenticeships, the military, or formal employment training.

Linked Learning can be found in a number of models, such as California Partnership Academies (CPA), National Academy Foundation (NAF) academies and other career academies. Although Linked Learning can be found in stand-alone schools, including charter or magnet schools, many Linked Learning pathways exist within larger comprehensive high schools. Often called a "school-within-a school," pathways typically comprise no more than 200 students who stay together with the same teachers for the duration of their high school experience. That continuity helps create close relationships among the students and their teachers. It can help create the kind of "team player" mentality employers too often find lacking in their younger employees.[44]

Four Elements of Linked Learning

Linked Learning has four essential components, as outlined by the Linked Learning Alliance:[43]

Rigorous academics: English, mathematics, science, history, and foreign language courses.

Real-world professional skills: Technical courses to help students gain knowledge and skills to give them a head start on a successful career.

Career-based learning: Work-based learning opportunities, starting with mentoring and job shadowing, leading to intensive internships, school-based enterprises or virtual apprenticeships.

Support services: Counseling and supplemental instruction in reading, writing and mathematics.

CAREER ACADEMIES AND LINKED LEARNING CAN GET RESULTS

Career Academies is a proven approach found throughout the United States and in California. The benefits of the Career Academies did not always show up on test scores. They showed up when a young woman got a chance to meet an employer and leave a good impression so she could go back and get a job later, or a young man had a teacher who could say to a potential employer "Yeah, he's solid, hire him." In a well-designed study of Career Academies across America, students were twice as likely as nonparticipants to be working in the computer, engineering, and media technology sector eight years after graduation, thus helping to increase the supply of STEM workers. Young people who went through Career Academies earned more and were more productive than those not in the program. The young men who went through the program were even 33 percent more likely

Career Academy students were twice as likely as nonparticipants to be working in the computer, engineering, and media technology sector eight years after graduation.

to be married and living with their spouse, and 45 percent more likely to be living with their children.[45]

Findings from the fourth year of an evaluation study of the California Linked Learning District Initiative revealed that in successful sites, students in certified Linked Learning pathways outperformed similar peers on assessments of engagement, progress toward graduation and progress toward college eligibility.[46] For example, in 10th grade, students enrolled in certified pathways earned more credits, on average, and were five to 17 percentage points more likely to be on track to complete coursework required for

Coachella Valley Economic Partnership[47]

In 2004, the Coachella Valley Economic Partnership (CVEP), along with county workforce development leaders and local employers, recognized the need to diversify its economy to attract higher-wage, higher-growth jobs to the region. At the same time, they analyzed their talent pipeline and found that high school dropout rates were too high and rates of going to college were too low.

CVEP and local school leaders examined best practices and embraced career pathways as a solution. They received a grant to develop an initiative focused on growing pathways in three industry sectors: healthcare/life sciences; arts, media & entertainment; and advanced technology. They began building a regional collaborative, which now includes 500 industry partners, the community college, three universities, the county workforce investment board, the county office of education, and three school districts with 18 career academies that serve 2,500 students. About 12 percent of high school students are currently in these academy pathways.

CVEP helps connect employers with schools for work-based learning opportunities. It also utilizes industry councils to identify current labor needs to make sure pathway classes are connected to the needs of the regional economy. Between January and December of 2013, CVEP helped coordinate work-based learning experiences for more than 1,500 students. Nearly 450 individual employer partners from 119 businesses contributed more than 18,000 hours to a variety of in-class and workplace experiences. The in-kind donation of time for such activities is estimated at $1.36 million.

CVEP has worked diligently with the schools to track student outcomes. Their data show that Linked Learning academy students fare better academically than non-Linked Learning students. For example, 99.6 percent of their health academy seniors graduated in 2012-2013, versus 81 percent of seniors not in an academy, and 66 percent of health academy graduates completed all of their A-G requirements, versus just 28 percent of graduates who were not in an academy.

The partners also adopted a Regional Plan for College and Career Readiness, and by 2018, 30 percent of high school students are expected to be enrolled in an academy. This is one of the benchmarks of the Valley's regional plan, which has set specific goals for increasing high school graduation rates and better preparing students for college and career using the Linked Learning approach.

LINKED LEARNING®

The 10th grade students enrolled in Linked Learning earned more credits, on average, and were 9 percent more likely to be on track to complete coursework required for college entrance, than similar peers in traditional high schools.

Critical Skills for 21st Century Learning

Master Core Academic Content

Students must be able to demonstrate a baseline understanding of core content knowledge and apply facts, processes and theories to real-world situations.

Think Critically and Solve Complex Problems

Students must be able to apply tools and techniques learned from core subjects to formulate and solve problems, using them to evaluate, integrate and critically analyze multiple sources of information. Students must be able to learn to reason and construct justifiable arguments creatively, encompassing non-linear thinking and persistence.

Work Collaboratively

Students should demonstrate the ability to cooperate together to identify and create solutions to social, vocational and personal challenges. This includes the ability to identify common goals; to organize resources necessary for meeting group goals; and to learn to communicate and incorporate multiple points of view to better achieve goals.

Communicate Effectively

Students must be able to organize their thoughts and findings in clear, meaningful and useful ways and express themselves in both written and oral forms. They must be able to listen well and present others' concepts, as well as their own.

Learn How to Learn

Students must be aware of their strengths and weaknesses and be able to monitor and direct their own learning. They should understand and be prepared to meet changing expectations in a variety of academic, professional and social environments.

Developing Academic Mindsets

Students must develop academic mindsets that are positive, motivated, and resilient. Students should commit to completing their work, meeting goals, doing quality work, and searching for solutions to overcome obstacles.

college entrance, than similar peers in traditional high schools. The findings suggest that this approach is producing encouraging results. Because not all sites achieved the same level of success, it should continue refining its efforts to reach its full potential.

INLAND EMPIRE SCHOOLS ARE COMMITTED TO LINKED LEARNING

Education leaders throughout the Inland Empire have embraced Linked Learning as an education approach that can help keep students engaged and on track for success in college and career. Superintendents throughout the region

"Workforce development is a key way to improve the lives of many while helping build a stronger economy for all."

– Bob Murray
Board Chair
Gene Haas Foundation[48]

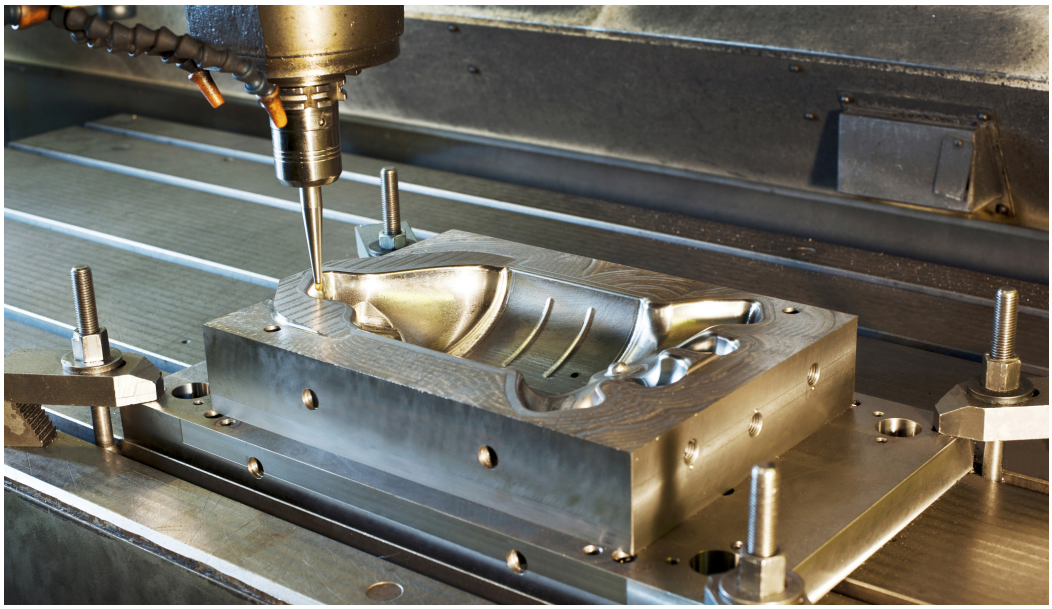
SPOTLIGHT ON:

Yucaipa High School

During the 2013-2014 school year, Yucaipa High School implemented a Linked Learning Academy for the first time.[49] Yucaipa High School's Engineering Academy is a pathway within the school, a "school-within-a-school". It offers students four years of instruction to build a foundation in engineering principles, for success in postsecondary education or entry-level careers in engineering-related fields. Academy students are engaged in rigorous academics and workplace experiences to build strong skills, including mathematical modeling, technical writing, and intergroup communication.[50] The Engineering Academy enrolled 101 ninth graders and 38 10th graders in its inaugural school year.[51]

As in all Linked Learning academies, the Yucaipa High School students in the Engineering Academy study rigorous academics, take a technical core of three of more courses meeting industry standards, practice work-based learning, and have access to personalized student supports.[52] Numerous businesses and employers are engaged with the Engineering Academy, including Caltrans, Sorenson Engineering, Savon Homes, HMC Architects, Design West Engineering, Sigland and Associates and the City of Yucaipa.

Due to the recent launch of the Engineering Academy, the school does not yet have graduation or postsecondary placement outcome information.[53] Yucaipa High plans to add a Health and Biomedical Sciences Academy and a Law and Public Safety Academy in the 2014-2015 school year.[54] The school is already registering current 8th grade students for the academies. Each academy will serve approximately 360-900 students in 9-12th grades.



have committed to making Linked Learning a district-wide strategy for high school improvement, and are working to establish or expand Linked Learning pathways. One of the main objectives of the Alliance for Education, San Bernardino County's employer-education partnership, is to use Linked Learning to create a highly skilled and educated local workforce, with a focus on STEM. Currently, 24 schools, in 12 of the 33 San Bernardino County school districts, have such programs in place.[55] The San Bernardino City Unified School District has 20 Linked Learning career pathways at seven high schools.

When the California Department of Education solicited participants for the state's Linked Learning pilot program in late 2012 – with no guarantee of additional dollars to implement the approach – several Inland Empire districts volunteered to participate. Palm Springs Unified School District in Riverside County was selected, as was a San Bernardino consortium comprising five school districts.[56] In late 2013, pilot districts were notified that they would receive a total of $7.5 million to further develop Linked Learning, thanks to contributions from state funds, the California Community Colleges and a grant from the James Irvine Foundation.[57]

While many schools are improving or expanding their existing pathways, some schools are introducing brand new academies. In the 2014-2015 school year, students at Indian Springs High School will have a new pathway option – a Manufacturing Academy, whose high-tech lab is sponsored by Haas Automation, Inc. Participating students will learn computer-aided design, 3-D modeling and Computer Numerical Control (CNC) machining – skills required in many engineering and advanced manufacturing jobs. Headquartered in Oxnard, Haas Automation and its Gene Haas Foundation has taken great interest in promoting career pathways and supporting students entering technical training programs, especially machinist-based certificate and degree programs.[58]

CONCLUSION

With the economy now growing and employers starting to hire, California—and the Inland Empire— must respond by producing well-qualified workers to meet this emerging demand. Without taking action, we run the risk of falling behind because our public education system is not keeping pace. To meet the future demands of a more skilled and educated workforce, policymakers should invest in what works to fortify our talent pipeline.

The education approach known as Linked Learning is gaining momentum in California and around the nation. In April 2014, the U.S.

Department of Labor announced $100 million in grants through its Youth CareerConnect program. This is an effort to strengthen America's talent pipeline by supporting stronger partnerships among high schools, postsecondary institutions, workforce investment systems, and employers that deliver: robust employer engagement and work-based learning; a focus on high-demand industries, including STEM; and integration of post-secondary education and training.[59]

In Spring 2014, the California Department of Education will announce the winners of its $250 million Career Pathways Trust – competitive grants that are intended to "provide funding to motivate the development of sustained kindergarten through grade fourteen (K–14) career pathways programs that connect businesses, kindergarten through grade twelve (K–12) schools, and community colleges together in order to better prepare students for the 21st century workplace."[60]

Additionally, significant philanthropic and private sector investments have been made by the James Irvine Foundation, which has supported Linked Learning in California since 2006[61], and JPMorgan Chase, which recently announced a $250 million, 5-year initiative called New Skills at Work, intended to close the nation's skills gaps by supporting demand-driven skills training.[62]

By beginning to create a workforce that is better equipped to succeed, Linked Learning is starting to make California more competitive, which will benefit our state's businesses, tax base, and economy. Policymakers must work together and with communities to ensure a favorable policy environment and proper funding are available to help Linked Learning continue to innovate and expand, so it can ensure young people enter the workforce with the skills California businesses need.

What Policymakers, School Leaders, Employers, and Parents Can Do:

1 Local, state and federal policymakers

Incentivize Linked Learning approaches through providing matching grants to employers to create work-based learning internships and similar student experiences.

2 School leaders

Use Local Control Funding Formula dollars and other funds to provide more students with the supports and opportunities they need to successfully engage in Linked Learning pathways.[63]

3 Employers

Engage with Linked Learning academies in their county by offering work-based learning opportunities, such as job shadows, mentoring students, creating virtual assignments, and offering paid or credit-bearing internships within their industries to qualified high school and community college students.

4 Parents and students

Look for Linked Learning opportunities in order to help students define their career goals and stay on track for academic and work success.

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