California Postsecondary Education Commission

A Historical and Contextual Look at Education and Workforce Development

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Preface

The California Postsecondary Education Commission is currently producing a series of policy briefs examining the nexus between workforce development and postsecondary education. The research question "How does California's postsecondary education system contribute to the needs of the state's economy and its future?" will serve as the foundation for each of the briefs in the series.

Education and economics in California have never relied more closely on each other than they do today. Over the next century, this will only increase. If California is to keep its economic vitality, it will depend on the knowledge, skills and innovations of its people. Accomplishing this involves investments in, and partnerships among, education, economic development and workforce preparation. Being competitive in the "knowledge-based" global economy demands the creation and maintenance of an agile, efficient world-class education system. By responding to rapid changes in the economy and to the needs of its clients, that system will add value to the economy.

Who will be involved? Where will investments need to be made? What will this partnership look like? What are the implications for educational and workforce policy? In order to look more closely at this issue, the California Postsecondary Education Commission has, as part of its extended study, convened a technical advisory committee on the nexus between postsecondary education and the workforce. The committee is made up of major workforce entities, higher education segments, and state agencies. The purpose of the committee is two-fold: first, to advise commission staff on the creation and exploration of research questions, and second, to increase and improve dialogue among different segments and agencies in California.

This first brief gives a historical context and summary of workforce development and education in California. It looks at California's education and workforce development systems from a historic and contemporary viewpoint and will focus on the role education has played in workforce development. Section one outlines the current workforce development system in California, including its components and a definition of key terms. Section two describes the changing role of K-12 education as California shifted from an agrarian economy to an industrial economy, then to one dominated by information and service industries. The last section highlights postsecondary education's role in workforce development with a brief summary of the 1960 Master Plan.

I. Current components of California's workforce investment system

A workforce investment system involves several components. At the core of this system are the institutions and programs by which individuals are educated, trained, upgraded and retrained for employment and participation in the workforce. In California, this includes all segments of the K-12 education and postsecondary systems, as well as public and private sector training programs. Also included are the workforce activities of labor and community-based organizations (see Display 1).

Workforce preparation can be defined as the programs offered both in the public and private sector that are focused on employment and training specifically. Job training programs involve youth and adults, but usually do not incorporate an academic curriculum.

The components of the workforce investment system in California can be arranged into a layered structure, with K-12 education serving as the foundation. K-12 education has the task of providing individuals with the knowledge and skills necessary to be successful both in the workforce and postsecondary education. Public and private postsecondary education, as well as training programs and labor-based organizations, make up the second level of the system. This second level has become more complex in recent years as individuals change jobs more often, upgrade skills, and attain higher degrees, increasing the number of input and output points along the educational pipeline.

Training and postsecondary education institutions in California vary in the type and amount of investment they make in the workforce. Larger training and public sector employment programs in California include Cal Works, California's welfare to work initiative, and programs under the Workforce Investment Act.

Display 1: California's Workforce Investment System

Public and Private Postsecondary Education	Public and Private Sector Employment and Training Programs
• Community Colleges • California State University • University of California • Private Colleges and Universities • Specialized Career Training Institutions	• Public Workforce Programs Workforce Investment Act Employment Training Panel • Private Sector Training • Emerging Partnerships Community Colleges Extension Programs
K-12 Education	

II. K-12 and vocational/career workforce development in California

K-12 and vocational/career workforce preparation have had a complex relationship dating back to the early part of the twentieth century. As the economy of California shifted and evolved, so did the role and definition of vocational education and its relationship with K-12 education. This section outlines some of the watershed legislation, major relationship shifts, and current programs.

During the post World War II era, the rationale behind K-12 education began to shift. Due to the changing educational needs of the nation, K-12 had to alter its educational focus from post-agrarian to industrial to technical industrial. During the early and middle part of the 20th century, there was not a need for a large percentage of the population to be prepared for college, but there was a growing need for individuals to be prepared to work in more technical industries. By the late 1970's, largely due to breakthroughs in science and technology, there was yet another shift in the educational needs of the workforce. Due to this shift to what is now called "the information age", employees were required to have more knowledge and technical skills in the workplace.

In 1981, California began focusing on computer and electronic training in it creation of the Partnership Academies. The first was established at Peninsula Academy at Sequoia High School in Redwood City and the model soon spread statewide. The curriculum stressed computer and electronic training, as well as preparation for college and the workforce. In 1983, an increased emphasis on academic and college preparation led to the Hart-Hughes Education Reform Act. This legislation came about as a result of the watershed report, *A Nation at Risk,* which pronounced that the U.S. education system was mediocre at best. The Hart Hughes Act raised standards for schools, lengthened the school day and year, changed the curriculum, attracted better teachers, and changed the text books.

Partly as a result of economic shifts and partly as a result of this new legislation with its strong focus on academic preparation, vocational education in high school began falling by the wayside. In 1978, the Proposition 13 Property Tax Reform Act shifted K-12 funding from a primarily local basis to a primarily state-general fund category. This shift left high school vocational education competing for resources with 290 Partnership Academies, 72 Regional Occupational Centers and Programs (ROCPs), adult education, and California Community Colleges. Since then, almost two-thirds of the state's K-12 vocational classes have been eliminated. California experienced an economic decline in the early 1990's, which further strapped resources for vocational education. With the limited resources available, California's high schools became more focused on preparing students for college.

Vocational and technical education. Substantial public commitment to workforce preparation in the United States and California began around World War I. Vocational and technical education in California has changed its scope and mission several times since 1917, when the federal government began supporting formal vocational education with the Smith-Hughes Act. The Smith-Hughes Act provided federal monies to states for teacher salaries, specifically those involved in educating students for industry, agriculture and home economics. This long-standing program, now known as the Carl Perkins Act, is the underpinning of California's first major workforce program, specifically vocational education. Over the next several decades, programs were added and expanded; examples include polytechnic high schools, Regional Occupational Centers and Programs, and community colleges (to be discussed below). In 1990, a shift in emphasis occurred. Vocational education became known as career and technical education (CTE) or career tech. The California Department of Education defines career and technical education as:

> *A program of study that involves a multi-year sequence of courses that integrates core academic knowledge with technical and occupational knowledge to provide students with a pathway to postsecondary education and careers.*

With this new definition came new standards for students. More rigorous standards resulted from the increases in the technical skills needed for most jobs. An example can be observed in the advances in auto technology, resulting in a need for mechanics to be versed not just in the workings of a car, but also in computers.

In 1994, the federal School-to-Work Opportunities Act (School-to-Career in California) provided support for a new type of career and technical education, which integrated academic and vocational coursework. In 1998, the Carl Perkins Vocational and Technical Education Act was reauthorized as a means to improve the level and amount of career and technical education, at the same time changing accountability and funding. The changes to career and technical education were made to allow students to adapt more quickly to changes in industry, switch careers, and possibly pursue college. Integrated

programs were set up to prepare these students to attend community college, take certificate programs, or work in a trade.

Regional and Occupational Centers and Programs (ROCPs). These programs, established in 1968, were designed to work both in partnership with high schools and community colleges and as stand-alone institutions. Currently, ROCPs serve over 460,000 California high school students and adults annually. The key components of ROCPs are to help students get employment in upwardly mobile careers and to be successful in moving on to postsecondary education (see Display 2). Unlike other workforce preparation programs, ROCPs must only offer courses that reflect current labor market demands. Labor demands and ROCP curriculum are established from the input of over 18,000 businesses in California. Display 3 presents the curricular areas offered through ROCP programs.

Display 2: Career-Technical Areas of California's ROCPs

• Business • Agriculture • Computer Technology • Marketing	• Child Development • Teaching Occupations • Public Service Occupations

Source: School Improvement Research Group.

A variety of programs in California receive funding from both state and federal sources (see Display 3). The California Department of Education estimated that for the 2003-04 school year, 42% of high school students participated in career/technical education beyond the introductory level. Total support in 2004-05 was $447 million, with $387 million coming from the state and $48 million from the federal government. Display 3 below summarizes the various career and technical programs in California.

Display 3: Career and Technical Education Programs in California

	Career and Technical Education (at high school site)	Regional Occupation Centers and Programs (ROCPs)	School-to-Career Program		
			General School-to-career	Career or Partnership	Tech Prep
Description	Electives and Comprehensive	Vocational training and placement at centers and high schools	Internships, co-op programs, school enterprises	Schools within schools that focus on an occupational area with integrated academic and tech prep	Integrates vocational education in high school into two-year college, certificate, or other postsecondary degree
2004-05 Funding	Federal: $48 million (Perkins Act)	State: $364 million for high school and adult students (General Fund)	State: None	State: $23 million (General Fund)	Federal: $11.5 million (Perkins Act)

Source: California Department of Education (CDE), May 2005.

III. Postsecondary education workforce preparation in California

There is little dispute that both California and the nation have some of the best colleges and universities in the world. With this being said, colleges and universities were not set up organizationally as producers of workers. However, they do have a long history of supporting curriculum that fosters critical thinking, problem solving, creativity and citizenship. As the economic needs of society become more complex, so do the type and amount of education required. It can be argued that the historical focus of colleges on thinking skills is very relevant to a modern workforce. The following is a brief historical summary of the role postsecondary education has played in workforce development. The purpose of this section is not to list each program offered by the different segments, but to give a broad history of each segment's involvement, highlighting major milestones and programs beginning with a brief summary of the California Master Plan for Education.

The California Master Plan for Education. The Master Plan for Higher Education, created in 1960 and renewed in 1989, continues to be the foundation of the State's philosophy of access and quality for all eligible college and university students. The Master Plan provides a framework for public higher education in California and outlines specific missions and admissions policies for each of the public systems. Independent and private colleges and universities also play a vital role in the State's ability to provide postsecondary education opportunities.

California Community Colleges (CCC) – The CCC system is governed by a 16-member board of Governors appointed by the Governor to serve as a coordinating and regulatory agency for the local districts. Admission is open to any high school graduate or person over age 18 who can benefit from instruction. The community colleges have three primary missions: (1) transfer, (2) career/vocational education, and (3) local economic development. It awards the associate degree and technical certificates in a variety of occupational and vocational areas.

California State University (CSU) – The CSU system is governed by a 24-member Board of Trustees appointed by the Governor. Admission of first-time freshman is generally limited to the top one-third of California's high school graduates. The CSU provides instruction in the liberal arts and sciences in applied fields, grants degrees at the baccalaureate and masters degree level, and may award the doctoral degree jointly with the University of California or an independent university. Currently it awards bachelor and masters degrees in more than 200 subject areas.

University of California (UC) – The UC has constitutional status as a public trust, and is governed by a 26-member Board of Regents, of whom the Governor appoints 18. Eligibility for admission as a freshman student is extended to the top one-eighth (12.5%) of California's high school graduates. UC offers broad undergraduate curricula leading to the baccalaureate degree at each campus. The University also offers masters and professional degrees and has sole authority among public institutions to award doctoral degrees. In addition, within the public higher education system, the University has exclusive jurisdiction over instruction in the professions of law, medicine, dentistry, and veterinary medicine. It also has primary jurisdiction over basic research.

The California Community Colleges. The first community college was established in 1910 in Fresno. At the time, it was referred to as a junior college. Over the next decade, the number of junior colleges jumped to 20, and by 1960, there were 63 junior colleges. Each campus included adult education and community service courses. The 1960 California Master Plan affirmed the different missions of the community colleges.

In 1989, AB 1725 made transfer to four-year institutions and vocational education the primary missions of the community colleges. In 1991, AB 1497 also mandated economic development as a mission of the community college system. This was intended to strengthen the relationship between school and work by reducing the gap between academics and vocation.

The vocational mission of the community colleges is designed to meet the needs of the entry or transitional worker. Much of the coursework is delivered in a condensed format with offerings in the day or evening, both weekday and weekend. In 2001, the California Community College Board of Governors implemented Ladders of Opportunity, which combines classroom instruction and career development as well as workplace training, as this best meets the needs of the evolving workplaces of the 21st century. The clientele of the community colleges is diverse, ranging from non-English speakers to university graduates.

California's 109 Community Colleges provide substantial benefits to industry through trained human resources, particularly to smaller firms that may not be able to afford their own training. They offer thousands of occupational programs at the certificate and associate-degree level, including newly emerging specialties in biotechnology and other areas. In addition, they offer occupational courses to meet re-licensure and continuing education requirements, some through contracts with large companies in California.

The California State University. The California State University (CSU) system was established in 1862 as the California State Normal School. In 1920, legislation reorganized CSU under the State Board of Education and the Superintendent of Public Instruction, renaming the schools teachers' colleges. In 1935, legislation again changed the name to state colleges and allowed for the expansion of curriculum to include the liberal arts and sciences along with various technical fields. Since expanding its curriculum, CSU now offers programs in most contemporary occupations. Examples include business, public administration, computer sciences, criminal justice, engineering, nursing, and social work.

Because of the geographically diverse location of its 23 campuses, CSU faculty members are able to build relationships with local firms and businesses as well as provide expert advice throughout the state. They are also well suited to apply research and scientific findings as a part of their research responsibility. To better meet the ever-changing workforce needs, CSU has created programs suited to working individuals. Examples include Colleges of Continuing Education and MBA executive programs.

The University of California. The University of California was founded in 1868 as a land grant institution and has been focused on research as a key part of its mission from the beginning. Research efforts by this system have and continue to create new jobs for the state of California. In addition to technological breakthroughs in computers, chemicals, pharmaceuticals, and the biomedical sciences that have stemmed from its research, several areas of University research are particularly pertinent to future economic prosperity in California.

For the last 40 years throughout the UC system, researchers have been deeply involved in the field of microelectronics, including computer architecture and computer design. The University is at the forefront of gene splicing with several patents. In the area of agriculture, UC continues to be in the forefront of combating plant and animal diseases, enhancing harvests and mechanization of farming.

Other areas that have had a large impact on California's prosperity include earthquake safety and energy.

Private Postsecondary Education Institutions. *Independent Colleges and Universities* – The first independent university in California was established in 1851. Currently there are more than 75 accredited, degree granting, non-profit independent colleges and universities. These institutions are regionally accredited. The size and type of degree offered at these institutions varies from tier-one (major research) universities, to small liberal arts and professional schools. Most grant baccalaureate and advanced degrees, however a few grant two-year associate degrees.

State Approved Schools and Colleges – There are more than 275 non-regionally accredited institutions with approved academic degree programs operating throughout the state. In addition to these institutions, there are more than 3,000 non-degree granting institutions that offer vocational and occupational training programs.

Conclusion

Education and workforce development are vital to California's economic prosperity. Over the last century, California has altered its economic and education focus sometimes by choice, sometimes by mandate. This transformation began slowly, from a post-World War II economy focused on defense-related and agricultural resource-based activities to a "new economy" incorporating multiple industries. Burgeoning industries over the last two decades include: telecommunications, motion pictures and multimedia, tourism, space and navigation, professional services, and biotechnology and genetic engineering to name a few. As a result of the transition to these new knowledge- and information-based industries, businesses have had to alter the way they operate. An analysis by IFC Consulting revealed nine distinct industries in California based on their high concentration of employment in California relative to the entire United States as presented in Display 4 below.

Display 4: Nine Distinct Industries in California

• Information Technology	• Engineering Services
• Media and Cultural Industries	• Apparel
• Agriculture, Food and Wine	• Aerospace
• Life Sciences	• Transportation Services
• Tourism	

Source: ICF.

As expected, each of these industries also relies on the human resources of the state to meet their needs. The current workforce investment system is a complex mix of education, economics, and workforce preparation. As this system becomes more complex, increased understanding and dialogue will be critical to California's ability to efficiently be both reactive and proactive to the demands of the economy.

Appendix A Outline of Briefs in the Series

Brief 1: A Historical and Contextual Look at Education and Workforce Development

Brief 2: California's Current and Future Workforce: Trends and Needs

I. Population, demographics, salary trends
Data Sources: BLS, LMID, CPEC, PPIC

II. Economic and industry projections and trends
- Largest growth industries and occupations
- Fastest growth industries and occupations

Data Sources: BLS, LMID, CPEC

III. Workforce knowledge and skills projections
- Regional economic clusters
  Knowledge and skills needed
- Research and development
  Knowledge and skills needed
- Recruitment from out of state (what areas, trends etc.)
  Knowledge and skills

Data Sources: BLS, LMID, CPEC

IV. Postsecondary education production
- Baccalaureate
- Community college
- Vocational technical education
- Majors, degrees, certificates awarded

Data Sources: CPEC

Brief 3: The Connection Between K-12 and Postsecondary Education and the Workforce in California

I. The type and amount of knowledge and skills necessary for success in the workforce and postsecondary education
- Historical connection between K-12 and workforce/postsecondary education
- Curriculum and rigor in K-12
- Knowledge and skills necessary for success in the workforce
- Knowledge and skills necessary for success in postsecondary education
- Articulation
  High school to workforce
  High school to postsecondary education

Data Sources: Achieve, College Board, CEPR: Standards for Success, ACT, Public Agenda, Onet

Brief 4: Final Analysis and Conclusions: How can California's Postsecondary Education System Continue to Develop and Maintain Agility and Efficiency?

I. Investments
- Current investments into the system
- Future investments to meet the needs of the economy

II. Dialogue
- Current dialogue
- Future collaboration

III. Accountability
- Keeping California agile and efficient

Appendix B The Nexus Between Postsecondary Education and the Workforce – Major Actions

FEBRUARY – CPEC Policy staff reached consensus on pursuing this topic and to begin writing a prospectus for presentation at the March Commission meeting.

MARCH – Prospectus was presented at the March 22nd-23rd Commission meeting. Commissioners gave unanimous support to continue with this research topic.

- Prospectus highlighted the need for this issue to be addressed in a series of policy briefs.

APRIL – CPEC staff continued gathering data and research on this topic as a means to formulate research questions, concurrently constructing an advisory committee.

MAY – CPEC staff convened a technical advisory committee on May 23rd around the issue of the nexus between postsecondary education and the workforce. The committee is made up of the major workforce agencies, higher education segments, and state agencies. The purpose of the committee is two-fold, first to advise Commission staff in the creation and completion of research questions, and second to increase and improve dialogue among different segments and agencies in California.

JUNE – CPEC staff collated input from first technical advisory committee meeting and constructed several research questions for review by the Commission and advisory committee.

- Commission staff presented research questions at June 21st Commission meeting.

JULY – CPEC staff convened the second technical advisory committee meeting on July 12th. The committee reached consensus on 4 contextual questions, and one overarching question. "*How does California's postsecondary education system contribute to the needs of the state's economy and its future?"*

- CPEC staff completed a draft of the first brief for review by the technical advisory committee in August.

AUGUST – CPEC staff convened the third technical advisory committee meeting on August 9th to review and give input on this first draft.

- Staff is currently revising draft for presentation at the September Commission meeting

SEPTEMBER – Staff will present draft of the first policy brief to the Commission during the Commission meeting on September 6th and 7th.

- Staff will complete draft in preparation for October technical advisory committee meeting.

OCTOBER – Staff will begin the second policy brief, which looks at California's current and future workforce trends and needs.

- Staff will convene technical advisory committee meeting to review the final draft of the first policy brief.