

**A White Paper on the Role of
Career Technical Education
and Multiple Pathways**

**San Jose Silicon Valley
Chamber of Commerce**

August 2009

Affirmations

This document was affirmed by members of the San Jose Silicon Valley Chamber of Commerce Education Committee.

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Executive Overview

This strategy paper is based on and advanced by the core values that constitute the framework of the San Jose Silicon Valley Chamber of Commerce, a nonprofit organization located in San Jose, California, that represents the interests of businesses in a major metropolitan area of more than 1.5 million people. The principle ideas covered in this report are listed below:

- Most high schools have a rigorous academic focus, whereas adding a career-focused curriculum can add balance and produce well-rounded, employable students.
- Multiple Pathways provides both pre-college and Career and Technical Education (CTE) youth preparation for college, career, and civic responsibility.
- Multiple Pathways may aid in reducing social and economic inequity between minority groups and the rest of society.
- Education and employer partnerships provide examples of best practices.
- Education and workforce development, student achievement, and economic growth all require investment, financially and otherwise.
- Some policy changes will need to occur to help Multiple Pathways succeed.

What are Multiple Pathways?

As defined by the Coalition for Multiple Pathways out of The California Center for College and Career, Multiple Pathways are "programs of study that connect learning in the classroom with real-world applications outside of school." Pathways link challenging academic instruction and arduous career and work-based learning in the context of an industry sector, such as engineering or information technology. Multiple Pathways are built on the premise that technical and career education are academically rigorous. As California Superintendent of Public Instruction Jack O'Connell stated in his July 2009 Status Report on Multiple Pathways, "Multiple Pathways offer a promising high school reform approach that will assist in closing the achievement gap and preparing all students for success in the global economy of the 21st century."

Why are Multiple Pathways Important?

Why are Multiple Pathways important? Multiple Pathways prepare students for post-secondary education and career options. They lead students to explore a full range of

post-secondary opportunities. Finally, Multiple Pathways improve student achievement by engaging students in authentic learning opportunities.

President Barack Obama released his proposal for a federal stimulus package in February 2009. Both the U.S. House and Senate released their versions of similar support packages, and all contained programs aimed to help jump start the economy, stimulate the flow of credit, and create new jobs. Approximately \$140 billion of the stimulus focused on education spending with another \$3-4 billion targeted for training and employment services. Education and employment training programs are at the heart of the President's focus on the future of our country's economic and workforce development efforts.

What Does This Mean for the Silicon Valley?

The California Department of Education has already made allocations of Federal Stimulus Funds to school districts and charter schools. Under their funding formulas, Santa Clara County schools can expect to receive \$17.4 million in Title I funds over and above their regular Title I funding and \$91.2 million from the State Fiscal Stabilization Fund. Much of this latter amount will be used to backfill cuts in state funding for schools.

In addition, although Workforce Investment Youth Program funds from the Department of Labor have not yet been broken down by county, we can expect our share to be about \$7.5 million based on the fact that Santa Clara County educates about 4% of the California's students. In total, these federal stimulus funds come to about \$116 million for Santa Clara County schools, based on the compilation of the \$17.4 million from Title I, \$91.2 million from the Stabilization Fund and \$7.5 million from the Workforce Investment funds.

The California Legislature passed and Governor Schwarzenegger signed AB 2648 authored by Assembly Speaker Karen Bass and Senate President pro Tempore Darrell Steinberg that requires the State Superintendent to develop, with input from various stakeholders, a report that explores the feasibility of establishing and expanding additional multiple pathway programs in California. The report will include the costs and merits associated with expanding these programs. The final report to the Legislature is due by December 1, 2009, and a draft will be issued in September.

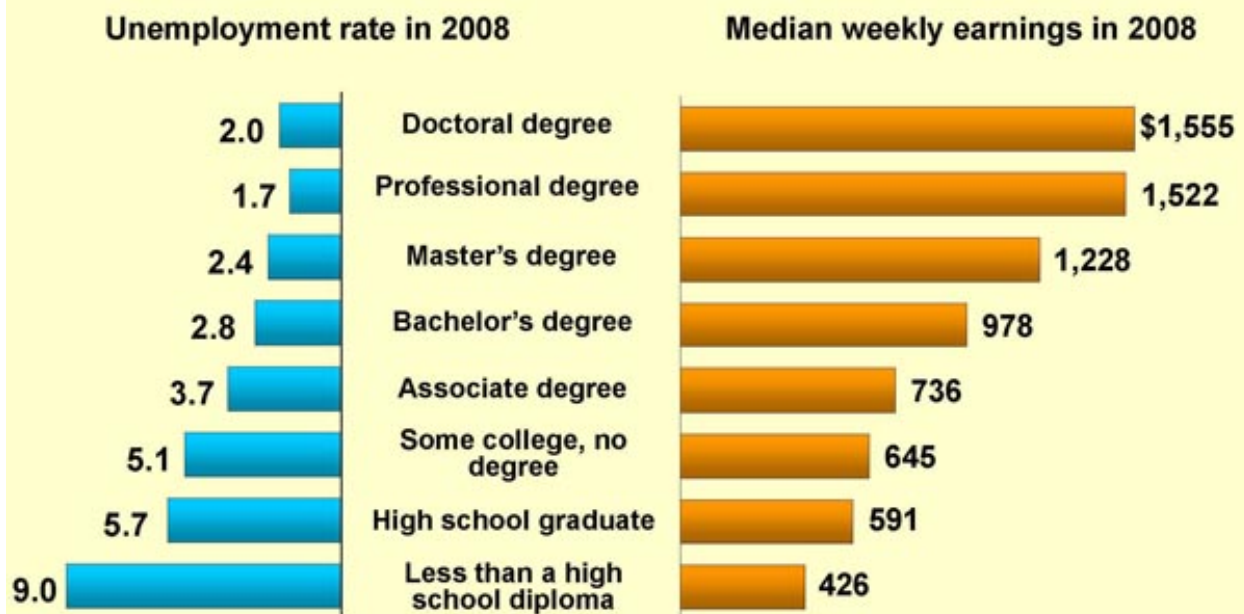
In order to position the Silicon Valley in a global economy, we need business and civic leaders to illuminate a clear path for our students through the use of Multiple Pathways. Whether they enter a degree or training program or go straight into the workforce, our students need a multi-faceted education to be successful in this innovative and global economy. In the 21st century, more than a college education may be needed to succeed; employers may soon require a mastery of sophisticated technical skills in

addition to their two or four year degree. Local, state, and federal officials must take a serious look at the benefits of Multiple Pathways and increase their financial investments. Our students and our economy need it.

What Education Really Pays

Although as seen in the chart below a higher education level corresponds with higher median weekly earnings, many unfilled technical and manufacturing jobs pay \$60,000 or more without a bachelor's degree. However, according to the Bureau of Labor Statistics, someone who did not graduate high school on average earns \$22,152 per year while the median salary for those receiving a high school degree is \$30,732; a four-year college degree recipient earns an average \$50,856; and a master's degree or higher earns about \$74,620. Not only does higher education lead to higher income, but it also leads to lower unemployment.

Education pays



Source: Bureau of Labor Statistics, Current Population Survey

This evidence supports the rigorous academic education that many high schools strive for. The following page will show that Multiple Pathways and CTE are another way to develop academic skills.

How CTE Supports Academic Skills

In the 21st century, an increasing emphasis on academic learning has captivated the nation. However according to Crain et al. (1998), "Abstract academic education not connected to a specific career can be satisfying only to those students who are certain they will get a four-year college degree that will meet their career-preparation needs." There are many skills that can be taught to high school students who either will not go to college, or will not be able to learn career-specific skills while pursuing their bachelor's degree.

Additionally, for students who are planning to pursue a four-year degree, taking both CTE classes and academic classes may provide additional motivation by tailoring education. For example, if a student can see the real life applications of their mathematics, science, reading, writing, and cultural studies, they will likely put more effort into those classes. The 2006 report titled "The Silent Dropout," compiled by the Bill and Melinda Gates Foundation, illustrated that 81 percent of high school dropouts wanted more "real world" learning in school. Possible areas of real-world learning include, but are not limited to:

- agriculture and renewable resources
- business
- marketing and distribution
- health care
- trade and industry
- technology and communications
- food service and hospitality
- child care and education

Although high school children have a limited number of classes that they can fit into their schedules, replacing a science class with a health care or technology class and a social science class with child care or education will help prepare students for the many possibilities after high school including workforce, post-secondary education, or both.

Two brief examples of Multiple Pathways supporting academics were discussed recently by Jeannie Oakes and Marisa Saunders in a Commentary in *Education Week* (2009). They described how students at San Diego's School of Digital Media and Design have compared the environmental policies of presidents Theodore Roosevelt

and Barack Obama in their U.S. History classes and then developed an advertising program promoting protection of the oceans. The student presented their ad campaigns to parents, community members and a real-world client.

They further described a student study at Sacramento's New Technology High School, which looked at use of methanol and ethanol as cost-effective, environmentally friendly fuels. The students developed cost analyses and researched the pollution effects and then presented the mathematics and chemistry supporting their proposals to "clients" from the community.

Much of this discussion has focused on high school exploration, yet elementary and middle school years are prime times for the introduction of careers. Especially relevant in the elementary school grades of kindergarten through 5th grade are career awareness discussions, particularly about math and science and how these subjects are important skills to master for future careers. In middle school, career exploration can introduce students to the CTE pathways so the delivery systems of high school career preparation are both familiar and exciting.

New Relationships That Enrich Education

Multiple Pathways fundamentally changes the relationship between students and the adults with whom they interact. Rather than playing the passive role of "absorber" of knowledge imparted by the teacher, the student becomes an active partner in his/her education. Real-world simulations and off-campus learning are often part of Multiple Pathways. Multiple Pathways involve coaching, mentorships, internships, apprenticeships and job shadowing. As Oakes and Saunders state, "What distinguishes multiple pathway schools is that they emphasize and extend student-adult relationships—both within the school and outside of it, with members of the larger community—as a way of weaving exemplary practices into a coherent school reform."

Students Benefit from Career Preparation and Counseling

Career preparation and counseling classes will obviously require new teachers or preparation of current teachers to be knowledgeable in CTE content classes. But it is also important for high school counselors to acquire as much knowledge about workforce needs and requirements as they have about college admission standards.

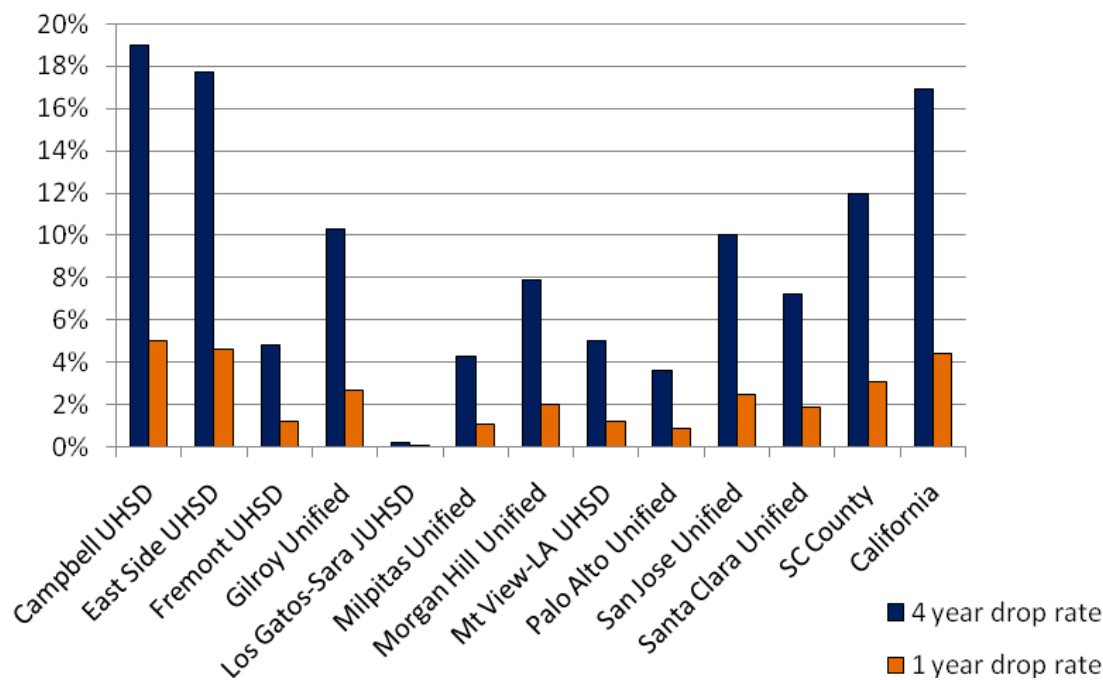
A student's high school plan should consist of career exploration opportunities such as internships as well as goals for secondary study. This will help students focus on careers that interest them and build the needed skills either through additional

internships after high school or post-secondary schools. Furthermore, schools and their counselors should recognize the need for technical workers who do not have a bachelor's degree and keep that option open to their students.

Educational Disparity

According to Hugh Mehan (2007), the greater the number of minorities and the poorer the students, the more focus is placed on vocational education and the less rigorous the college prep program. The Multiple Pathways programs provide both a rigorous education and career preparation so all students will be prepared for both college and careers. The most important part of this program is not separating the students into two different tracks; this will create castes that do not allow for educational mobility. Therefore, by the time the higher track children have graduated, they have received a much more intensive and expansive education and are more prepared for life after high school.

2007-2008 Dropout Rates by District



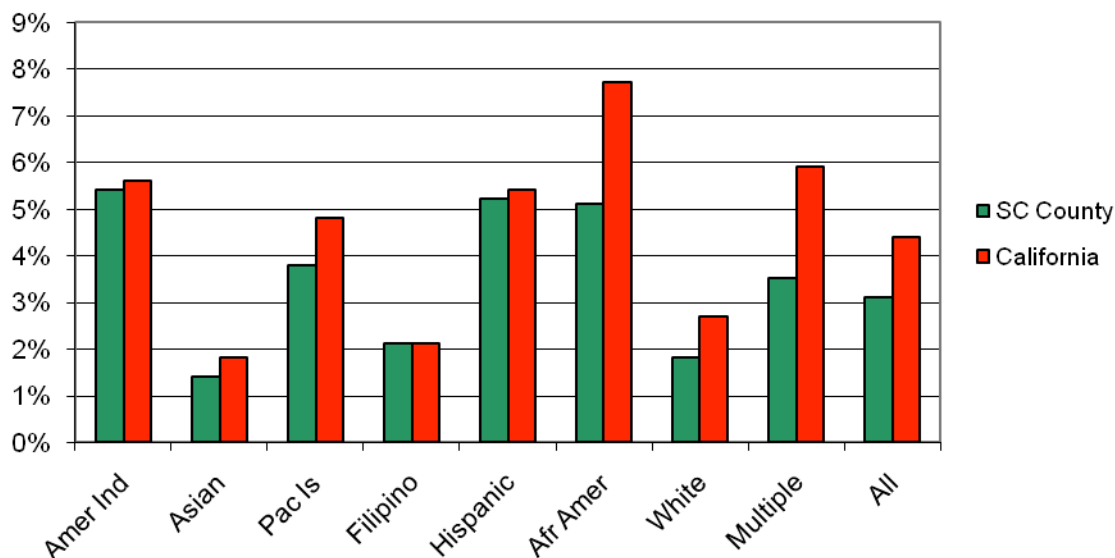
Source: California Department of Education

Multiple Pathway programs will eliminate this disparity by allowing students and their parents to personalize their education. Both poor and rich, minority and majority, will have the same options for academic and career preparation which, as mentioned above, can benefit students no matter where they are headed after high school.

One way of looking at the effects of these disparities is to look at dropout rates. Students who see little point in what they are getting in school are much more likely to drop out of high school.

The chart on the previous page shows dropout rates for Santa Clara County districts with high schools and the wide diversity among districts. There are many explanations for this diversity, but the lack of attractive alternatives may be one of them. Dropout rates also vary by ethnicity. The chart below compares the one-year dropout rate for the various ethnic groups in Santa Clara County high schools.

2007-8 One Year Dropout Rate by Ethnicity



Source: California Department of Education

Care must be taken with these percentages because of the varying number of students involved. For instance, the 5.4% dropout rate for American Indian students involved only 20 students, while the 5.2% dropout rate for Hispanic students was a loss of over 1,400 students who left school. The 5.1% dropout rate for African American students was based on 138 students leaving school. Clearly, our dropout problem is greatest among Hispanic students. While our dropout rates are marginally better than the state as a whole, we are still losing too many students who are statistically slated for poverty.

Employer and Education Partnerships

Many organizations in our region facilitate meetings between business and education leaders in order to coordinate combined education and career pathways. This is one area where our Chamber of Commerce can have a leadership role, in conjunction with organizations like the Silicon Valley Education Foundation, Santa Clara County Office of Education, Silicon Valley Leadership Group, and Joint Venture: Silicon Valley Network.

Many examples of exemplary business/education partnerships that benefit both high school students and the businesses in our communities exist in Silicon Valley. The purpose of Multiple Pathways is to prepare our students for a job, whether directly after high school or after many more years of post-secondary school. Specifically, in the Silicon Valley, an area that so depends on technology, input from employers and their human resources staff is necessary to see what types of coursework will most benefit our students and propel the Silicon Valley into a 21st century economy. Some CEOs may have their finger on the pulse of what is taking place and the needs in their corporations, but the human resources staff members are the ones who can truly speak to the skill sets and abilities necessary to be successful in positions.

Many examples of exemplary business/education partnerships exist in the Silicon Valley that benefit both high school students and the businesses in our communities. The Cisco Networking Academy is an example of an innovative education initiative that delivers information and communication technology skills to improve career and economic opportunities. The Academies are taught on many Silicon Valley high school campuses and result in students who are ready for employment in networking careers.

National Hispanic University, the Latino College Preparatory Academy, and Tom Zimmerman from IBM were awarded a \$900K National Science Foundation (NSF) grant to create the Extreme Science Program, a hands-on science enrichment program for low-income minority high school students. The curriculum was developed with the unique perspective of combining extreme activities with science to show students how exciting science is and why they should pursue it as a career. The recent nationally award-winning design of a solar car is one example of a student project.

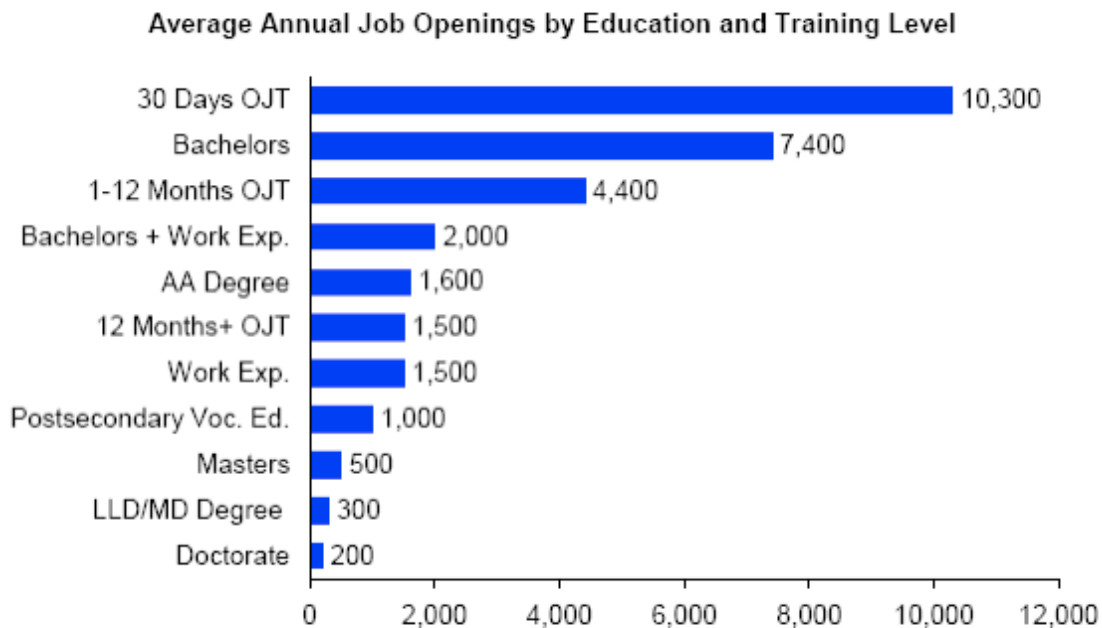
Through Bank of America's Neighborhood Excellence Initiative®, five Student Leaders™ are selected in Silicon Valley each year. Student Leaders are juniors or seniors in high school who have shown an outstanding commitment to their community. Each student is placed in a summer internship program with a local non-profit organization. Bank of America covers associated expenses including the students' salaries and administrative costs for the host organization. Through the internship experience students learn about leadership, non-profit administration, and the needs of their community. Past participants report that this experience often informs and directs the students' education and career path.

The Industry Initiatives for Science and Math Education (IISME) was founded in 1985, seeking to transform teaching and learning through industry-education partnerships. The program focuses on teachers as primary agents for effecting meaningful change in math and science education by placing them in paid summer fellowships where their business-based learning is brought back to the classroom and the students with whom they work.

Another successful business/education partnership can be found with the San Jose Silicon Valley Chamber of Commerce and local school districts. The Chamber has teamed up with EverFi™, an online financial literacy education platform that teaches the core concepts of basic money management to high school students. In its Spring 2009 kickoff year, the Chamber provided more than 300 EverFi licenses to the San Jose Unified School District for high school juniors. At the culmination of a two week long online course, students receive certification in financial skills, including credit card management, taxes and insurance, loans, renting vs. owning, and investments. For the 2009/10 school year, more students, students, and districts will be involved with the EverFi program.

Investment in Education and Workforce Development

The Sacramento Regional Research Institute (SRRI) projects that Silicon Valley could gain over 93,000 new jobs and almost \$8.9 billion in payroll over the next 10 years.



Source: California Employment Development Department

More than 50 percent of the local workforce aged population has a bachelor's degree or higher here in the Silicon Valley. On the surface, this is not a bad statistic. However, economic competitiveness requires us to increase the percentage of the workforce with college degrees. If we expect to compete with other nations in technology research and innovation, we need to focus on graduates in the areas of science, engineering, and mathematics.

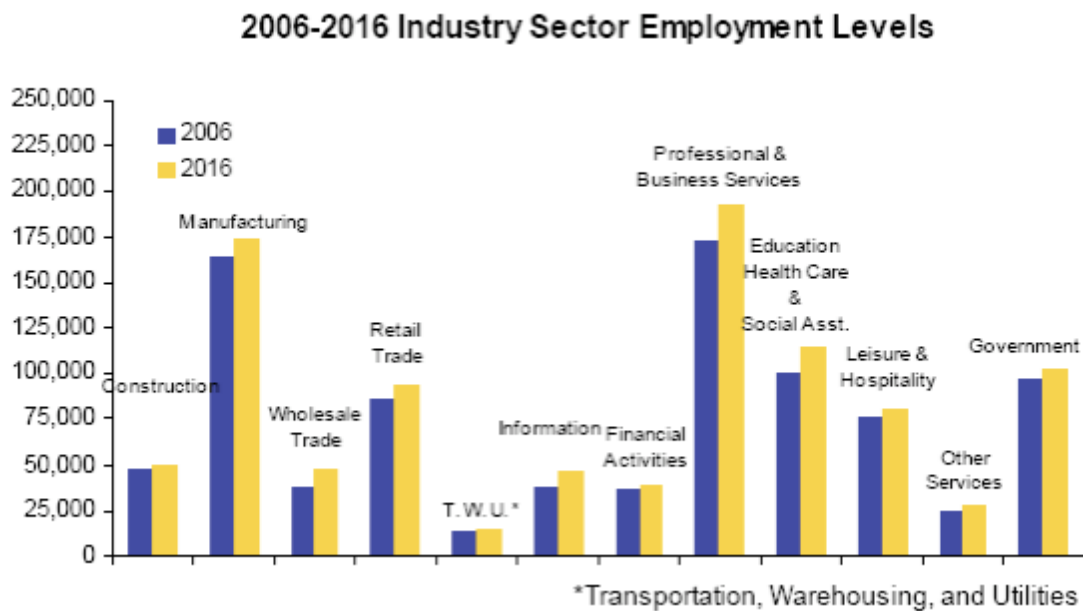
Just What Educational Levels are Needed in Santa Clara County?

According to the California Employment Development Department, the largest number of annual job openings in the county require only 30 days of on-the-job training as illustrated in the chart on the previous page.

But these figures can be deceiving. Annual job openings requiring post-secondary education total 13,000, by far the largest educational/training level required.

What Kind of Jobs Will be Available in the Future?

The California Employment Development Department prepared the projections below for Santa Clara County (along with San Benito County).



Source: California Employment Development Department

The amount of education required for jobs in all of the areas in the graph on the previous page will vary depending on the type of job—many of the jobs in the leisure & hospitality sector, such as room clerks or housekeepers, require little education but the well paying jobs in the sector require associate or bachelors degrees. In many of the above fields, most if not all well-paying jobs require post-secondary education (especially those on the right half of the graph).

Although some of these jobs are low wage and low skill, Multiple Pathways can provide interested students for these positions, including retail, culinary, and hospitality. Additionally, securing jobs like these will provide a need for even more training that many employers demand. On the other hand, many of the other jobs require secondary or post secondary education. An investment in professors and highly-trained teachers will be necessary for the Silicon Valley to gain a position in the innovative global economy.

Because a CTE course initially costs more than an academic class, all levels of the government and private businesses need to consider contributing financially. Equipment, training, and higher teacher salaries are all necessary to contribute to the success of the Multiple Pathways program. However, an investment in our students will provide much needed returns to our economy.

Policy Recommendations for Multiple Pathways that Grow the Economy and Student Achievement

These changes are not simply going to occur due to a shifting ideology about education. Some of the policies that have been guiding our high schools need to be modified. There has to be an incentive and a genuine effort by the schools to provide and encourage the enrollment in CTE classes. This can include:

- Adding CTE classes that meet "A-G" requirements
- Giving college credit for CTE classes
- Requiring CTE classes to graduate
- Linking CTE classes with related internships
- Having a CTE and academic class directly relate to one another
- Training CTE teachers and counselors
- Providing financial incentives for industry professionals to become CTE teachers
- Encouraging summer CTE courses with integration into regular academic courses
- Exploring a semester-long middle or high school course that explores all CTE alternatives

These recommendations may include modifications to the curriculum, reallocation of funds, additions to the course list, more flexible class requirements, and more difficulty finding qualified teachers. However, the benefits of this joint education will far outweigh the costs.

Summary

Multiple Pathways is a concept that combines career technical education with an academic education to better prepare students for the "multiple pathways" that lie ahead for them upon graduating high school. CTE motivates students who will be able to take classes that they can apply to their job and provide underachieving students the opportunity to receive a more academically rigorous education. Additionally, it will motivate students who plan to attend college to put forth more effort in their academic classes as well as expose them to experiences that will help them select and accept that are a match for their job interests and qualifications. Furthermore, an investment in CTE competent teachers, as well as additional equipment for career preparation, will need to be identified. However, this investment is not simply an investment in education, but in creating a qualified workforce for the 21st century.

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