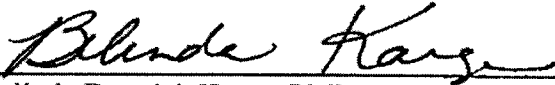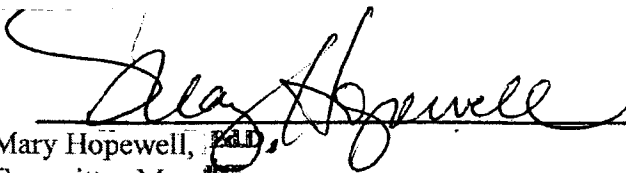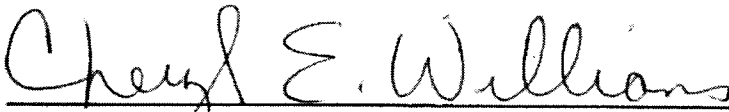## ACCEPTANCE

This dissertation, ECONOMIC PROSPERITY AFTER HIGH SCHOOL: HOW ONE NORTHERN CALIFORNIA SCHOOL DISTRICT'S HIGH SCHOOL ACADEMIC EXPERIENCES CAN BETTER PREPARE STUDENTS FOR COLLEGE AND CAREER, was prepared under the direction of the candidate's Dissertation Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree of Doctor of Education in the School of Education, Concordia University Irvine.

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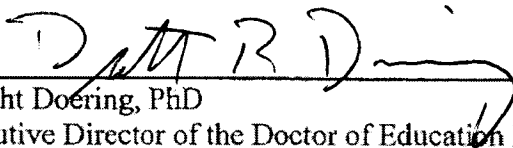Committee Member

The Dissertation Committee, the Dean, and Executive Director of the Doctor of Education Program of the School of Education, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty.

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ECONOMIC PROSPERITY AFTER HIGH SCHOOL: HOW ONE NORTHERN

CALIFORNIA SCHOOL DISTRICT'S HIGH SCHOOL ACADEMIC EXPERIENCES CAN

BETTER PREPARE STUDENTS FOR COLLEGE AND CAREER

by

William G. Nelson

A Dissertation

Presented in Partial Fulfillment of
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ABSTRACT

As we progress into the 21st century, we find ourselves at a transition point in the field of education. Preparing students for future careers and economic prosperity requires a dramatic change in the traditional American high school education system. The purpose of this mixed methods study is to identify if the participants' high school experiences provided the skills necessary for college and career preparation after graduation, ensuring their economic prosperity as adults. Three research questions were addressed in this study: (1) If students graduate from high school unprepared for college and career after graduation, what is the economic impact on the community? (2) Does the completion of career-related programs such as career pathways, career technical education (CTE), or science, technology, engineering, and math (STEM) prepare students for college and career? (3) Does A-G course completion, participation in honors programs, early college, or dual credit courses completed in high school prepare students for college and career? This population was identified because they would have time after graduation from high school to provide answers if their high school education program affected their college and career success or lack thereof. The findings demonstrated that the participants' high school college and career preparation could influence students' future economic success as adults. Also, the findings suggest that the specific types of experiences the participants had while in high school that led to their economic success varied and depended on the type of educational programs, opportunities, experiences, support, and motivation they had in high school.

Keywords: College and career readiness, Northern California school district, San Joaquin County, and mixed methods

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ACKNOWLEDGMENTS

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CHAPTER 1: INTRODUCTION

As we progress into the 21st century, we find ourselves at a transition point in the field of education. Preparing students for future careers and economic prosperity requires a dramatic change in the traditional American high school education system. The United States faces ongoing challenges to meet the workforce demands of an economy that is based on science, technology, engineering, and math (STEM). The United States continues to fall behind other industrialized nations in these areas, causing huge economic and workforce gaps with women and within the Latino and African American communities as compared to White and Southeast Asian US workers who hold STEM-related careers or have received STEM-related education/training (Monster Whitepaper, 2012). This has led to a lack of opportunity and diversity in many US STEM-based businesses, especially in the technology and science fields. US businesses continue to import STEM workers from around the world to fill STEM careers that US students are not prepared to fill (Salzman, Kuehn, & Lowell, 2013).

The full implementation of the Common Core Curriculum Standards set specific learning objectives for all students to prepare them for college and career. Educators across the nation must rethink the US kindergarten through 12th grade education system. All students will need to explore possible career interests while attending high school to ensure that their learning is meaningful, applicable, and will improve their critical thinking skills to prepare them for additional education after they graduate from high school (i.e. college and career skills). Many of the current school systems, programs, curricula, and instructional methods in the US that were thought to prepare students for college and career may not produce the same type of success in the 21st century.

Statement of the Problem

The 21st century economy is STEM-based. Students who enter into this workforce need to be prepared for this type of economy if we want to sustain our middle class and American economic power. The ongoing need to import workers to fill STEM and STEM-related careers in the United States has had a direct impact on our local, state, and national economy. When compared to other industrialized nations around the world, American students rank behind many of the top economic and industrial competitors according to the US Department of Education's evaluation of standardized test scores from the International Mathematics and Science Survey, called Trends in International Mathematics and Science Study (TIMSS). Two additional international assessments utilized to compare US students to other industrialized nations include the Progress in International Reading Literacy Study (PIRLS), and the Program for International Student Assessment (PISA).

On the 2011 PIRLS assessments, American fourth-grade students ranked sixth in the world in the area of reading (U.S. Department of Education, 2012). However, higher grade levels of American students did not rank as high. On the 2011 TIMMS assessment, American eighth-grade students ranked ninth in science and seventh in math (U.S. Department of Education, 2012). Additionally, the 2015 TIMMS assessment had the United States fourth-graders ranked 11th in math as compared to other educational systems. Eighth-grade students also improved in 2015, ranking in the top ten as eighth overall ("Highlights from TIMSS and TIMSS Advanced 2015," 2016). The 2012 PIRLS assessment ranked American students 23rd in science and 30th in math. That same year, PISA ranked the US as 20th in reading (U.S. Department of Education, 2012). The 2015 PISA assessment did see some improvements; however, the United States is still ranked either in the top 30 or 50 among industrialized nations. On the 2015 PISA

assessment, the United States ranked 26th in science, 41st in math, and 25th in reading ("Program for International Student Assessment [PISA] - Science Literacy," 2015). As the top economic power in the world, the United States continues to struggle to prepare all students for STEM careers, causing employers to import professionals from all over the world.

Purpose of the Study

The purpose of this study was to identify if the participants' high school experiences provided the skills necessary to be prepared for college and career after graduation, ensuring their economic prosperity as adults. High school preparation for college and career will be different in the 21st century as compared to the 19th and 20th; new systems of learning will need to be adopted and applied throughout the K-12 educational system. In the identified Northern California school district chosen for this study, high schools will need to create a "college-going culture" for all students and a culture of lifelong learning that focuses on the types of career skills needed to be successful in the 21st century. Schools will need to ensure that students' academic skills prepare them for both college and career, thus moving beyond test scores as an indicator of school or student academic success. Schools will need to "align course content to college and career-readiness standards" to ensure rigor, and "partner with local postsecondary institutions and business" to provide high school students with opportunities for hands-on learning and preparation for expanding careers in their communities (Conley & McGaughy, 2012, p. 33).

Significance of the Study

As we move deeper into the 21st century, we find ourselves at a transition point in the field of education. The full implementation of the Common Core and its focus on preparing students for college and career is causing educators to rethink our education system at the state,

district, and school site levels. The same systems, programs, curricula, and instruction that have brought us success or challenges in the past may not work in the Common Core era. To truly prepare students for 21st century careers, we need to go beyond simple solutions such as test preparation to new approaches in teaching and learning to ensure that students are engaged in the process (Trilling, 2009). In the 1990s, California worked with the adoption of State Standards and had to rethink our educational system to meet the diverse needs of our students to ensure their economic and career success. Once again, in the 21st century, we are exploring new ways to implement educational practices.

Definitions of Terms

A-G course requirements: Specific courses required to be completed and passed with a grade of C or better by the University of California (UC) and California State University (CSU) systems.

Advanced Placement (AP): College-level course designed to prepare students to take and pass the content area prep course they are enrolled in. A score of three on the exam is required to receive elective credit. A score of four or five provides the student with college credit for that specific course.

American College Test (ACT): Standardized test used to determine a high school graduate's preparation for college-level work. The test examines the content areas of English, math, reading and science.

California Assessment of Student Performance and Progress (CAASPP): California's statewide student assessment system composed of several types of tests and performance indicators to monitor student achievement in grades 3-12 (California Department of Education, 2015).

California Department of Education (CDE): State government institution that oversees and provides guidelines, support, and accountability for both public and private K-12 districts and schools throughout California.

Career Pathways: A sequence of courses based on a specific career. The sequence includes at least an introductory course, concentrator course, and capstone course.

..Career and Technical Education (CTE): A program of study that involves a multiyear sequence of courses that integrates core academic knowledge with technical and occupational knowledge to provide students with a pathway to postsecondary education and careers.

College and Career Readiness (CCR): When an individual is prepared to receive at least one year of post-high school education or training to eventually enter the workforce or attend a college without the need to take remediation courses.

College and Career Indicators (CCI): The California Department of Education's measurement to identify a student's college and career-readiness. There are three levels of this indicator identified as well: prepared, approaching prepared, and not prepared. The level of preparedness is based on a student's graduation from high school or lack thereof, the student's score on the state assessment (SBAC), A-G completion (CSU and UC entrance requirements), completion of two career technical education (CTE) courses in sequence, completion of Dual Enrollment course(s), or score on the AP or International Baccalaureate exams.

Common Core State Standards (CCSS): Set of learning standards that provide a clear and consistent understanding of what students are expected to learn throughout the school year. The standards are designed to provide teachers with a guideline of what skills and knowledge students need so that they can prepare students for future success (Cox, 2015, para. 1).

Contextualized Teaching and Learning (CTL): "Diverse family of instructional strategies

designed to link foundational skills with academic or occupational content by focusing teaching and learning squarely on concrete applications in a specific context that is of interest to the student," (Kalchik & Oertle, 2010, p. 2).

Course of Study (CCS): Series or selection of courses that all students are required to complete before they can move on to the next level in their education or earn a diploma. In high schools, a core course of study will typically include specified classes in the four 'core' subject areas—English language arts, math, science, and social studies—during each of the four standard years of high school (Concepts, 2013, para. 1).

Dependent Charter School (DCS): Charter school that is operated by a public school district.

Dual Enrollment: An articulated course with a two- or four-year college offered to high school students. Students who earn a grade of B or better can receive college credit from a two- or four-year college.

Early College Courses (ECC): Two- or four-year college courses offered to high school students during their high school career. Once a student passes the course with a grade of C or better, the student earns college credit that can be transferable to other colleges.

Elementary and Secondary Education Act (ESEA): Federal law that provides funding support to states for public school education. The act, which was originally developed in 1965 and has been modified since that time, ensures all American students equal access to a quality education ("Elementary and Secondary Education Act," 2016).

Every Student Succeeds Act (ESSA): Federal law that replaces the 2002 No Child Left Behind Act. This law includes funding, support, and accountability to all 50 states in the areas of college and career-readiness, pre-K-12 educational services, student achievement, State

assessments, and school accountability ("Every Student Succeeds Act (ESSA) | U.S. Department of Education," n.d.).

Honors High School Course: College preparatory courses intended to challenge students to prepare them for university entrance after high school.

Independent Charter School (ICS): Charter school that is operated by an individual organization that is different than the local public school district in which the charter school operates.

No Child Left Behind (NCLB): Federal law that created standards-based education reform in the United States. The law focused on reading and school choice and "reauthorized federal programs meant to hold primary and secondary schools measurably accountable to high standards" in which 100% of US students were to demonstrate proficiency by the year 2014 ("NCLB - No Child Left Behind," 2016).

Preliminary Scholastic Assessment Test (PSAT): A practice test for the SAT. Also, high scores on the test can lead to qualifying for the National Merit Scholarship and provide universities with additional information regarding a student's college-readiness (Maness, 2013).

Progress in International Reading Literacy Study (PIRLS): An international assessment administered to students from all over the world in the fourth grade. The assessment first debuted in 2001 and is administered every five years. The assessment includes school academic programs and teacher instructional practices ("Progress in International Reading Literacy Study [PIRLS] - Frequently Asked Questions," 2016).

Program for International Student Assessment (PISA): An international assessment administered to students at age 15. The assessment was established in 2000 and is administered every three years to students from around the world for comparative analysis. The assessment

analyzes mathematics, science, literacy, reading, and students' "general or cross-curricular competencies, such as collaborative problem-solving. By design, PISA emphasizes functional skills that students have acquired as they near the end of compulsory schooling," ("Program for International Student Assessment [PISA] - Overview," 2016).

Program of Study (POS): A sequence of courses that focus on a specific post-high school career or college major.

Regional Occupational Program (ROP): An educational career training program designed for high school students (16 years or older) to help them gain skills and knowledge for future careers.

Race to the Top: Federal program in which assessments are administered at the state level to "support and inform instruction, provide accurate information about what students know and can do, and measure student achievement against standards designed to ensure that all students gain the knowledge and skills needed to succeed in college and the workplace," ("Race to the Top Assessment Program," 2014, para. 1).

San Joaquin County of Education (SJCOE): County government institution that oversees and provides guidelines, support, and accountability for both public and private K-12 schools within San Joaquin County.

Scholastic Assessment Test (SAT): A standardized test intended to measure students' knowledge in the areas of mathematics and verbal skills (i.e. reading and writing).

STEM: Science, Technology, Engineering, and Math.

STEAM: Science, Technology, Engineering, Arts, and Math.

Social Economic Status (SES): The economic level of a person or group in society based on theirs or their families' annual yearly income.

Trends in International Mathematics and Science Study (TIMSS): International assessment of students in 4th, 8th, and 12th grade. Data is collected every four years and is used to compare US students with those from around the world in the areas of mathematics and physics ("Trends in International Mathematics and Science Study [TIMSS] - Overview," 2015).

Traditional Public School (TPS): Schools that are controlled by local school boards or by county organizations in which all students have access to attend.

Teaching Within License (TWL): Teachers who meet their state guidelines to be highly qualified and teach in the specific content areas of their college degrees and state certifications (Karelitz et al., 2011).

Theoretical Framework

The idea of college- and career-readiness has become the new buzz phrase of the Common Core era. Research on college-readiness is plentiful; however, research that combines college- and career-readiness based on a student's high school academic experience is limited. The concept of career-readiness, for the most part within the Common Core State Standards (CCSS) movement, is being linked to college-readiness. Many assume that if a student is college-ready, then they are automatically career-ready. Research specifically targeting the nontraditional academic skills that are needed to be developed while in high school so that students can enter the workplace, develop, evolve, and maintain a career is lacking in current educational research for college and career preparation.

Kreamer et al. (2014) discusses that most states do not truly address the career component of college and career preparation. Specifically, they neglect the "academic, technical and employability skills that are critical to post-high school success," (p. 19). For most states, the CCSS and their accountability systems target the evaluation of CCSS skills by sending all

students to college as the measure of student academic success. Kreamer et al. (2014) build upon four recommendations that will address all aspects of college and career preparation. This includes using "multiple measures college and career readiness" as part of a state accountability system, including "CTE, workforce and economic development leaders" as part of the development of state accountability measures to ensure academic focuses match workplace and employment needs (Kreamer, O'Hara, & Curl, 2014, p. 19). The data is distributed to the community stakeholders of the college and career development of all students to help policy makers drive "programmatic and funding decisions" at both the state and local levels (Kreamer, O'Hara, & Curl, 2014, p. 20).

If we are to prepare all students for college and career via the CCSS, it will mean the integration of content skills and knowledge via writing, presentations, projects, or work-based learning into all the courses that students take while in high school. Application and integration of subjects traditionally taught in isolation at the high school level—such as English, math, and science—will require students to think beyond traditional high school course completion and high school graduation. Students and educators will have to rethink the meaning of the high school curricular experience that may be focused more on skills than on content knowledge. Thus, college and career preparation must go beyond preparing students only for a four-year university. The real-world element of the college and career preparation for all students must include real-world applications. Improving the high school experience as so can help spark the students' possible career interests, make their learning more meaningful, and help them see the importance and need for traditional literacy skills (i.e. reading, writing, math, and science) that are necessary for the workplace (Trilling, 2009). To do this, students will need to have multiple

opportunities throughout their K-12 educations to develop both academic and career skills and demonstrate these skills via real-world concepts (Kaiser & Kaiser, 2012).

Beyond the traditional methods of college and career prep that include traditional high school course completion and honors and advanced placement (AP) courses, all students will need opportunities to be involved in career pathways (CP), career technical education (CTE), and dual enrollment (DE) programs throughout their educational careers. Lekes et al. (2007) found that students who participated in career pathways, internships, and college courses while in high school are better prepared once they transition to a two- or four-year institution. These students developed and attained higher academic and employability skills, which then fostered student success in preparing for careers in high-demand occupational areas while in college (Lekes et al., 2007). The Rodriguez, Hughes, and Belfield (2012) study came to similar conclusions. Students who participate in a dual enrollment program (taking college courses while in high school) were likely to graduate on time from high school, attended college at a higher rate (both two- and four-year institutions), and complete their first year of college with more units than students who did not participate in a dual enrollment coursework in high school. CTE provides the foundation of making curricula relevant. However, a CTE program should not be just a sequence of classes students take at the high school level, but integrated into all aspects of the curriculum to make it meaningful to students (Meeder & Suddreth, 2012). The benefit from this would be tremendous as students see the relevance to what they are learning to the real world (Westover, 2012).

Dr. Conley, from the University of Oregon, has promoted the need to rethink what college-readiness means to ensure students are prepared for rigorous college coursework. His college-readiness framework was intended to help schools and school systems prepare students for college-level work after high school. The Framework consists of four elements: contextual

skills and awareness, academic behaviors, key content, and key cognitive skills. See Figure 1. These four elements are intended to ensure student success in college after high school (Conley, 2007, 2010). Dr. Conley's argument is that students need to possess both the academic and behavioral skills if they are to be successful in college. The academic skills include critical thinking and problem-solving, and the behavioral skills include understanding how to be successful in college. Dr. Conley's four elements of college-readiness are essential for students to "successfully complete credit-bearing coursework" and "when taken together, these elements create a model by which to interpret programs and policies in the name of college readiness," (Baber, Castro, & Bragg, 2010, p. 1).
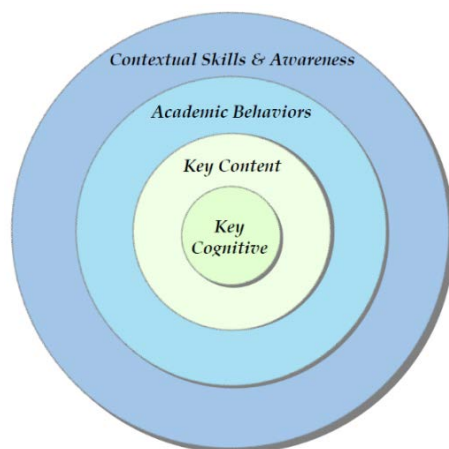
Figure 1. College readiness elements

Source: Conley, D. T. (2014). *Getting ready for college, careers, and the common core: What every educator needs to know* (1st ed.). San Francisco: Jossey-Bass

The original focus of Dr. Conley's work was on college-readiness; however, with the adoption of the Common Core, his framework is now utilized to support college- and career-readiness. Dr. Conley discusses the importance for high schools to graduate students; however, it is even more important that students graduate prepared to handle college-level coursework

without remediation and to pose the career skills needed for the 21st century workplace (Conley, 2010).

  Conley (2014) also discusses the importance of connecting classroom learning to student college and career goals. The definition of college and career preparation may not be the traditional sequence (i.e. every student goes to college right out of high school) presented to us by education and government leaders for the last several decades. Conley (2014) specifically states, "that the broader definition and conception of college and career readiness creates is acknowledging that not all students are going to follow the same path to college and career readiness," (Conley, 2014, p. 43). Thus, all students must participate in a rigorous academic program and career-readiness pathways and apply their learning to possible career interests so that they can participate in college and career when they are ready.

> Secondary schools need to be as concerned about the distinction between college ready and career ready. All students can be taught the Common Core State Standards while simultaneously acknowledging that students will demonstrate interests and strengths in particular areas and that those should be cultivated and expanded, so students remain excited about the possibilities for their future. (Conley, 2014, p. 47)

In the "Readiness Continuum" (see Figure 2), Conley (2014) defines four areas K-12 schools need to implement and measure to ensure all students are prepared for college and career. The first area, *work-ready*, is the level to "prepare students for workforce entry-level positions," (p. 48). This area of focus is based on professional behavior, which includes conduct while at work, working with others (coworkers, customers, and supervisors), and arriving to work on time. The second area is *job-ready*, and its focus is to ensure that students possess the skills to learn on the job from their employers (p. 48).
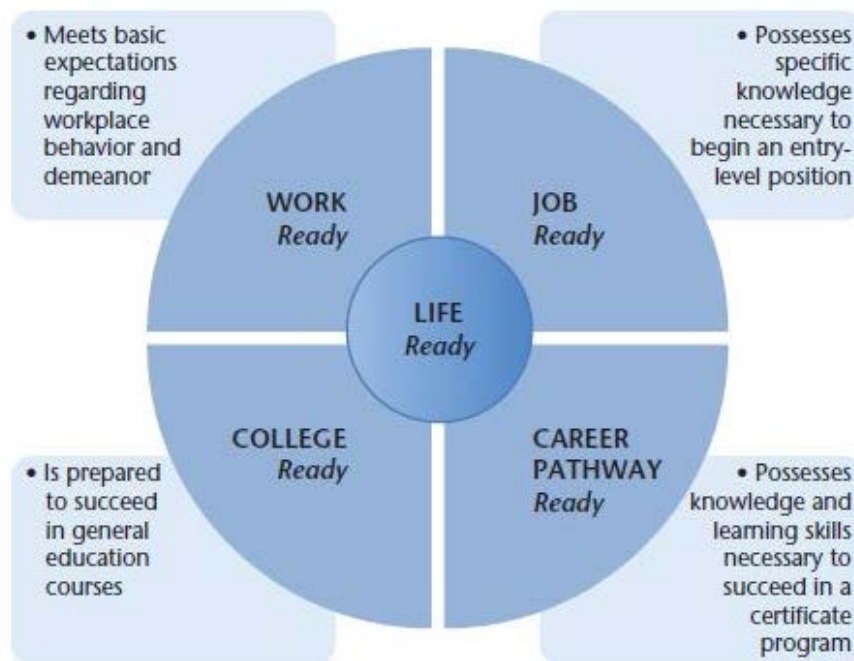
Figure 2. Readiness Continuum

Source: Conley, D. T. (2014). Getting ready for college, careers, and the common core: What every educator needs to know (1st Ed.). San Francisco: Jossey-Bass

These skills include observation, modeling, traditional classwork, and reading and writing skills specific to the employment or career area. The third area is *career pathway-ready*, and its focus is to ensure that students can demonstrate skills such as "personal control, the compliance behaviors, and the foundational communication skills necessary to function in the workplace," (p. 49). When students can enter—and demonstrate success (without remediation)—in a college or university entry-level course, they meet the fourth element: *college-ready* (p. 49). As educators include these four areas into the educational development of students, we are more likely to prepare students not just for college entry, but career success.

Research Questions

The following questions were addressed in this study:

1. If students graduate from high school unprepared for college and career after

graduation, what is the economic impact on the community?

2. Does the completion of career-related programs such as career pathways, Career

    Technical Education (CTE), or STEM prepare students for college and career?

3. Can A-G course completion, participation in honors programs, or early college or

    dual credit courses completed in high school prepare students for college and career?

Limitations

The limitations of this study were that it would focus only on one Northern California school district. This study is not designed to develop, review, or compare findings from more than one district. Nor is the study designed to establish trends between different school districts. This study will only address students who have participated in and completed their graduation programs while in high school and how their academic course completion assisted their eventual economic success as adults. College entrance (both two-year and four-year institutions) and high school to work placement will be explored. However, the study will not focus solely on these areas due to the tremendous amount of research already on these topics. The findings from this study should only be generalized with another district if it shares common demographic, socioeconomic, and educational history of the district in which this study was conducted.

The study attempts to answer the research questions by interviewing graduates from the targeted district, who graduated no earlier than 2012 and are at least 23 years old or older. This population was identified because they would have time after graduation from high school to provide answers if their high school education programs effected their college and career successes or lack thereof. The participants within this population had the opportunity to be employed full-time, part-time, unemployed, or attend a post-high school institution of learning or working and receiving post-high school education or training at the same time. Their insight into

their high school preparation provided the study with the necessary data to analyze how students'

high school programs can affect their career successes as adults.

Delimitations

College and career preparation is a broad topic and could impact various aspects of high

school education. Several delimitations were identified so that the research questions can be

addressed. The high schools in the identified district include specialty schools, dependent charter

schools, and alternative and comprehensive high schools. Private and independent charter high

schools located within the boundaries of the identified district will not be included in this study.

Participants for this study are high school graduates who are at least 23 years of age.

Non-high school graduates and graduates younger than 23 years old will not be considered

because they would not have had the opportunity to complete high school or the time to finish

college, trade school, and enter the workforce. High school staff members and their perceptions

of college and career preparation will not be an aspect of this study so that the research findings

only consider the students' points of view.

Organization of the Study

This research study is organized into five chapters. The first chapter introduces the

research problem, theoretical framework, research questions to identify, and an introduction to

the research methodology that supports the application of this research study. Chapter 2, the

review of literature, provides information that addresses the research question. Chapter 3 is an

explanation of the research instrument and how it will be applied, analyzed, and utilized to reach

a conclusion. Chapter 4 will discuss the research instrument's findings. Chapter 5 (the final

chapter) will summarize the findings from the research instrument, address each research

question, and provide recommendations for future research in the area of college and career.

Summary

In Chapter 1, the challenge of preparing all students for college and career was reviewed. High school graduates are facing the world and must have the skills to continue their learning, or they may find themselves economically limited due to the limited types of careers available to unskilled workers in the United States. This study on college- and career-readiness may benefit students, parents, schools, communities, and businesses as a means to identify strategies and methods that will help all students enter the 21st century college and career workforce better prepared. Chapter 2 will be a review of literature focused on college and career preparation at the national, state, and local levels.

CHAPTER 2: REVIEW OF LITERATURE

College and career preparation—a mandate connected to the Common Core movement—is forcing educators across the nation to ensure students have the skills to compete in the 21ˢᵗ century. The skills needed for today's workforce go beyond the traditional education that's been expected in our schools for the last hundred years. Now all (not some) of our students must be prepared for post-high school training and lifelong learning. Gone are the days in which students with low skills to learn and adapt to the workplace can find a viable career to sustain themselves and their families. Darling-Hammond (2010) states,

> Students need to design, evaluate, and manage one's [their] own work so that it continually improves, frame, investigate, and solve problems using a wide range of tools and resources, collaborate strategically with others, communicate effectively in many forms, find, analyze, and use information for many purposes, and develop new products and ideas. (p. 4)

These skills and concepts are making educators rethink how they guide or improve instruction to ensure student learning. Educators will have to realize the economic effects on our national, state, and local economies if students are not properly prepared for college and career.

The US is facing ongoing challenges to meet the workforce needs of an economy that is STEM-based. The US continues to fall behind other industrialized nations in this expanding area, causing enormous economic and workforce gaps. US industries have turned to recruiting and importing workers from around the world to fill STEM jobs that American students are unqualified for.

College and Career Preparation in the United States

As the US continues to move out of the Great Recession, the economic impact of the changing job market continues to leave a tremendous impact on citizens who are or are not college- and career-ready. Carnevale, Jaysuandera, and Gulish (2016) highlight the effects of an evolving economy in which jobs are (now more than ever) requiring workers to have some post-high school training (i.e. college). Carnevale, Jaysuandera, and Gulish (2016) also identified how the US economy is producing jobs; however, the jobs being produced are not targeted toward workers who do not hold a college degree or have college skills. According to Carnevale, Jaysuandera, and Gulish (2016), "the economy has added 11.6 million jobs since the recession bottomed out – 11.5 million, or 99 percent of them have gone to workers with at least some college education," (p. 1). However, "of the 7.2 million jobs lost in the recession, 5.6 million were jobs for workers with a high school diploma or less. These workers have recovered only one percent of those job losses over the past six years" (p. 1).

These findings from Carnevale, Jaysuandera, and Gulish's (2016) workforce report demonstrate the economic frustration many US workers face as they find that their high school educations are quickly becoming inadequate for the 21st century workplace. The report emphasized that the shift in the workplace did not start with the recession, but during the 1980s when blue-collar jobs, which only required a high school education, began to decline drastically. Thus, the US education system will have to rethink what college- and career-readiness means for all workers in the nation to ensure economic prosperity. Modification to the foundation of public school law (education code), the Elementary and Secondary Education Act, will be needed to ensure students are prepared for post-high school educational opportunities (see Figure 3).

As one of his first accomplishments as President of the United States, President George W. Bush, in January of 2002, (with the help of many members of Congress outside of his political party) signed into law, "sweeping changes to the 36-year old Elementary and Secondary Education Act," ("CHAPTER ONE," 2007). For the first time, the Federal government was holding schools across the country accountable for student academic achievement.
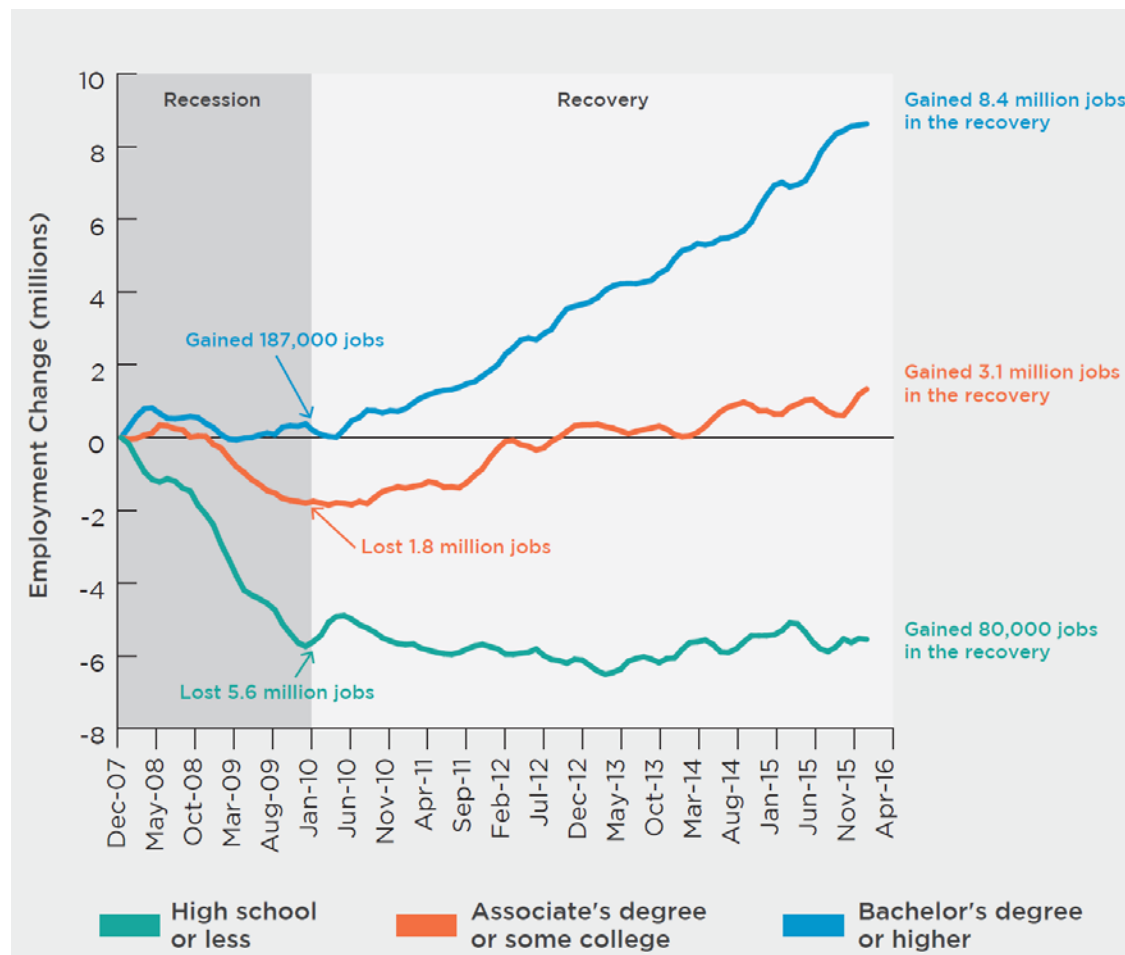
Figure 3. The Great Recession job recovery by education level

Note: Employment includes all workers aged 18 and older. The monthly employment numbers are seasonally adjusted using the US Census Bureau's X-12 procedure and smoothed using a four-month moving average.

Source: Georgetown University Center on Education and the Workforce analysis of *Current Population Survey* (CPS) data, 2007-2016.

The signing of the Elementary and Secondary Education Act (ESEA) by President Bush, which contained the No Child Left Behind (NCLB) educational reform initiatives, extended the role of the federal government into every school district in the country that accepted federal funding. NCLB, in addition to the ESEA, strengthened the federal leadership role by holding schools accountable for student achievement as measured by a standardized test.

In 1965, the first version of ESEA was passed by Congress and signed by President Johnson. This event officially marked the start of the federal government's involvement in public school education. The primary element of ESEA is the Title 1 program, designed to provide financial aid to schools with economically disadvantaged students. Over the next 50 years, ESEA was reauthorized and expanded by various presidents (with congressional approval); however, it never addressed or imposed provisions to measure student academic performance and growth.

The need to add accountability to ESEA grew from the now famous (or infamous, depending on your point of view) "Nation at Risk" report created by President Reagan's special commission to improve the American educational system. The Nation at Risk report (which some have credited as being a transformational document to improve education) stated that the United States' education system was failing its children by not providing them a rigorous education (Gardner & Others, 1983). The report called for strict standards for learning, as well as accountability for teachers and schools, to ensure that all students were learning and would be able to compete in the emerging global economy.

President Reagan and two of his successors, Presidents George P. Bush and William (Bill) Clinton, sought to expand the role of the federal government by using ESEA to hold schools accountable for student learning. It was not until 2002 when President George W. Bush signed the law renewing the ESEA Act with the inclusion of NCLB initiatives that the federal

government acquired the ability to hold schools accountable for student academic performance. The new law not only set guidelines for ESEA funding priorities, but it also required all states to accept federal funds to improve or establish educational learning standards in the content areas of math and English. The NCLB law required all students in the United States to be proficient in English and math by 2014 (Dever & Carlston, 2009).

NCLB included elements in which schools are to be held accountable for student academic performance based on standardized test scores. Each state was to establish student performance indicators and growth targets to measure student proficiency. Schools that failed to meet their student growth targets were identified as Program Improvement Schools so parents could move their children to a non-Program Improvement School (Byrnes, 2008). These elements are in addition to the requirements that all parents of students in schools receiving federal funds were informed that their child's teacher did not meet the qualifications to be designated a highly-qualified teacher. The highly qualified teacher goal within the NCLB law was an attempt to provide all students a high-quality education regardless of their SES or racial or academic background (Lyttle, 2011).

NCLB addressed ongoing concerns by the public that public school districts, schools, and teachers were not being held accountable for student achievement. Also, the law (which passed with a tremendous amount of both Democratic and Republican support) attempted to address the issue of schools that served minority and poor children that had a higher percentage of teachers who lacked the proper credentials and training needed to teach students. By requiring all teachers to be fully-certified, teacher training and employment practices changed throughout the nation.

The highly qualified teacher element of NCLB,

…mandating a basic level of qualifications for teachers of core academic subjects in all schools, NCLB has required states to develop and implement equity plans to eliminate differences in the distribution of non-highly qualified, inexperienced, and out-of-field teachers across districts and schools. (DeAngelis, White, & Presley, 2010, p. 3)

The NCLB law outlined specific guidelines for states to follow and include in their teacher certification programs. These guidelines stated that classroom teachers are to have at least a bachelor's degree, complete a teacher certification process (established within their state), demonstrate subject matter competency by passing a subject matter test, and completing undergraduate coursework in the same content area they plan to teach in or pass a subject matter test which will establish their mastery of the content (Paige, 2002). Veteran teachers were allowed to become highly qualified by participating in their states' defined professional development, which was often coursework. This program is better known as the High Objective Uniform State Standard of Evaluation (HOUSSE), and it provided veteran teachers a path to become highly qualified without having to return to school or take a subject matter test (Lyttle, 2011).

From 2002 to the present, the number of highly qualified teachers grew as school districts scrambled to meet the new federal and state requirements for teacher certification. The impact of the highly qualified teacher element of NCLB did produce more certified teachers, and literacy scores have improved since the inception of NCLB into ESEA. However, the highly qualified teacher mandates also created gaps in many urban and poor rural schools across the nation in the content areas of math and science because it did not address working conditions, teacher pay, beginning teacher support, and ongoing teacher professional development. This element was left

up to the states to address, causing teacher preparation and support certification programs to vary in effectiveness to support and improve student academic performance.

NCLB's focus to ensure that all students received their education from highly-qualified teachers was only a challenge for those who had been teaching as the law was enacted. These teachers had to return to school to complete their credentials to become highly qualified teachers. However, the idea of becoming highly qualified was in itself raising the accountability of NCLB's focus on standardized test scores and was even more of a problem for teachers. NCLB's focus on standardized tests forced many districts, schools, and highly qualified teachers to divert their skills on test-taking rather than the building and application of content skills (Noddings, 2010). NCLB's law-accountability focus was designed around the content areas of English and math, and teachers in these areas were the first to be targeted to become highly qualified. Thus, the arts, sciences, history, career technical education, and physical education (all of which are important) took a backseat during this initial implementation.

Many union and educational leaders criticized NCLB's highly qualified teacher mandate—not on its merits that all students should have a well-trained teacher, but on its focus on subject matter-testing in which a teacher is considered to be highly qualified (Karelitz, Fields, Levy, Martinez-Gudapakkam, & Jablonski, 2011). Darling-Hammond's (2003) research on teacher quality and its effects on student-learning found that teacher content knowledge is essential; however, there are other factors, such as teaching teachers how to teach the content to their students. It is important to note that states were allowed to formulate their process of training and definition of highly qualified teachers. However, many states focused on content knowledge and not teaching skills.

Karelitz et al. (2011) reviewed the No Child Left Behind (NCLB) law requirement for a highly qualified teacher and attempted to address its impact on science teachers who teach in urban schools (pp. 1, 7). This research also utilizes various case studies to explain how teacher qualifications and teacher assignment are important as well as proper formal training. The case studies—interviews with principals and teacher—and teacher surveys found that "the NCLB definition of highly qualified is understood and regarded by teachers themselves," (Karelitz et al., 2011, p. 1).

The research by Karelitz et al. (2011) placed the NCLB term of "highly qualified" within three categories. The first are teachers who meet the state guidelines to be highly qualified and teach in the content area of science. They referred to them as "teaching within their licensure," or TWL (Karelitz et al., 2011, p. 3). Teachers teaching outside of their qualifications were called "teachers outside of licensure," or TOL. The final category was new teachers who were certified to teach history courses (Karelitz et al., 2011, p. 3).

To acquire and retain high-quality teachers in our nation's classrooms will require substantial policy-change at all levels of government. The federal, state, and local levels of government will need to create teacher education programs dedicated to training teachers not just to meet the highly qualified mandates, but to educate the diverse learners of our nation.

Teachers matter for student achievement, but teacher education and certification are not related to teacher effectiveness. Verbal ability and subject matter knowledge are critical components of teacher effectiveness. Teachers who have completed teacher education programs are academically weak and are underprepared for their jobs. Alternative certification programs (ACPs) have academically stronger recruits who are highly

effective and have high rates of teacher retention. (Darling-Hammond & Youngs, 2002, p. 13)

Darling-Hammond & Sykes (2003) discuss the importance of addressing the national teacher shortage and teacher quality. As requirements to become a teacher increase and are needed to ensure the proper education of students, the demand for teachers in specific content areas of math and science increases teacher shortages throughout the nation. Teacher quality is important, and it is suggested that "No Child Left Behind provides a standard for equitable access to teacher quality that is both reasonable and feasible. Meeting this goal, however, calls for a new vision of the teacher labor market and development of a national teacher supply policy," (Darling-Hammond & Sykes, 2003, p. 3).

The No Child Left Behind law was groundbreaking, but has since expired. In 2015, Congress passed the Elementary and Secondary Education Act (ESEA), which retains elements of the highly qualified teacher element but provided more state flexibility regarding school accountability (Moser & Weissmann, 2015). Also, the 2015 ESEA, which is also known as the Every Student Succeeds Act (ESSA), pushed states to focus their assessments and accountability systems around a new set of standards (the Common Core) to better prepare students for college and career by offering them a well-rounded education. Jones and Workman's (2016) summary of the ESSA focused on the element of "well-rounded education." They stated,

> …with the passage of ESSA, lawmakers sought to encourage states to re-establish what has been coined a well-rounded education for all students, which covers a wide selection of academic subjects, including the arts, humanities, sciences and social sciences, in addition to English language arts and mathematics. (Jones & Workman, 2016, p. 2)

Another step to college and career preparation to increase the likelihood of economic success after high school is to ensure that our grading system matches student mastery of the CCSS. A student's grades in high school is an indicator for entrance into most post-high school two- and four-year institutions, trade schools, and, in some cases, the workplace. Cambell (2012) states that two "grading practices are firmly held beliefs that are near and dear to the teaching professional," (p. 30). However, grades are not accurate reflections of students' actual levels of skill-mastery. Grading practices need to be consistent, common among teachers who are teaching the same course and focus on mastery of concepts and skills, not on completion of assignments. "Inconsistencies across schools, classrooms, and even within academic departments can lead to gross inequities for students," (Cambell, 2012, p.30). Cambell (2012) makes four recommendations to improve the grading policies of schools and districts for the benefit of all students. The first is to ensure "every final grade should be based on content standards and academic achievement only," (p. 33). The second is to implement the "practice of assigning minimum grades," in which teachers could assign grades to students whose grade percentages are below 50% (p. 33). Recommendation three is for the "schools and district to implement policies around the teaching practice of providing specific feedback to students," (p. 33). The final recommendation would have "educators share their understanding of the powerful effect of consistency, clear criterion, feedback and extinguishing the gage-keeper mentality," (p. 33).

Vatterott (2015) speaks to the need of utilizing grading to identify student mastery of standards. Students will need multiple opportunities to learn and demonstrate proficiency. Thus, grading should reflect growth and mastery of the grade-level content standards. Vatterott (2015) speaks to the idea of how our grading system was established to "rank student performance" to weave out students who should not enter college (p. 8). Thus, the grading system that is

employed today was based on one intended to rank and sort students once K-12 mandatory educational laws kicked into effect, increasing the numbers of students participating in high schools between the 18th and 20th centuries. Grades, which were not part of the US educational system before the mid-1700s, were used to sort students and help universities identify which ones should proceed to college after high school.

> Letter grades were an easy, efficient method not only for telling students how they were doing but also for ability-grouping students for instruction. As the number of high school students applying to college increased, colleges starting using high school grades to screen applicants. (Vatterott, 2015, p. 8)

If the CCSS is to support and drive college- and career-readiness, then teacher collaboration and use of assessments will be an important element of student success and preparation while in high school. Pon (2015) discusses the importance of teachers working together to develop and implement common assessments, both formative and summative. This article suggests that the common core and drive to prepare students for college and career will require them to work together and collaborate on a regular basis. Their collaboration will include building, implementing, and monitoring common formative assessments. Pon (2015) also states, "diving into a formative assessment process requires teachers to step out of their comfort zones, as they analyze student work for evidence of learning and discuss what to do in their next lesson," (Pon, 2015, p. 9).

Pon (2015) provides various examples from schools and districts across the nation. In each of their cases, teachers worked together to build common formative assessments to help guide their instructions and students' successes on the Smarter Balance Assessment Consortium (SBAC). Also, various organizations, such as WestEd, have started to create training and

consulting support systems for teachers to help them design effective formative assessments to include in their Professional Learning Community (PLC) discussions. The author states that "when teacher teams use student evidence to develop their combined instructional response, it increases the collective efficacy of the whole staff and the achievement of many students," (Pon, 2015, p. 10). Furthermore, "Schools that build formative assessments cycles into their PLC work can create a shared purpose toward continuous improvement – for themselves, and for their students," (Pon, 2015, p. 10).

Guskey (2003) focused on how schools and teachers can utilize assessments to guide and assess student learning. The author makes an argument that assessments are useful tools that should be utilized to guide and modify instruction based on students' needs as identified in said assessment. Assessment review should not be at the end of the semester or school year. Assessments should be ongoing so that teachers can modify their instruction to meet the needs of their students. Guskey states that teachers need to "change both their view of assessments and their interpretation of results. Specifically, they need to see their assessments as an integral part of the instructional process and as crucial for helping students learn," (Guskey, 2003, p. 7).

After assessments, the teacher will need to utilize the information to correct or modify instruction to ensure student success. When re-teaching based on assessment data, Guskey (2003) states that the teacher must use "approaches that accommodate differences in students' learning styles and intelligence," (p. 9). Teachers should not utilize the same strategies or teaching methods and change what they did based on the students' instructional needs as identified in the assessment. Also, the author argues for providing multiple opportunities for students to demonstrate mastery and that we move away from high-stakes assessments to meet

the needs of our students. Assessments are "sources of information, following assessments with corrective instruction, and giving students a second chance," (Guskey, 2003, p. 11).

Education and work skills needed for 21st century employment in the United States

The concept of college and career preparation is not new. Our K-12 education system was and is designed to produce workers for our economy. The changing economy has created a new type of workforce that requires its workers to be highly skilled, adaptable, and able to learn throughout their careers. Employment opportunities for low-skilled individuals (both the academic- and workplace-skilled) are quickly evaporating as they are being replaced with technology (i.e. automation), or these types of professions are being sent to developing nations where the workforce is cheaper to pay than the American worker. To prepare students to be ready for the 21st century, we must go beyond preparing every student for college. College prep skills are needed; however, students have to have options to enter career training programs—such as nursing or police—that do not require a college degree. There are many non-college degree careers in high demand throughout our community, state, and nation and our students have to be prepared to enter these fields, or our nation will fall economically behind the rest of the world (Barnes & Slate, 2013).

Conley and McGaughy (2012) do not see a big difference between college and career preparation for high school students. Conley and McGaughy's (2012) historical explanation of how college and career preparation was considered separates skills in which our educational system prepared students in different schools and school programs. As the workforce demands changed and became more technical and analytical, the types of skills needed began to align to college entrance and degree completion skills. The idea that college and career are separate still resonates in American society and many educational systems today. High schools are now

challenged to develop systems and cultures that promote a "college-going culture" for all students (lifelong learning). High schools are to focus on the types of skills students will need to be successful for both college and career (moving beyond test scores as an indicator of success). High schools will need to "align course content to college and career-readiness standards" to ensure rigor and "partner with local postsecondary institutions and business" to provide students in high school the opportunity for hands-on learning and preparation for expanding careers in their community (Conley & McGaughy, 2012, pp. 31-33).

Barnes, et al. (2013) analyzed the "mantra" of college- and career-readiness for the 21st century and its real application on the US educational system over the past 15 years (p. 5). However, there are rigid state and federal accountability systems that do not address the educational needs of all of our K-12 students. The "one-size-fits-all college-readiness agenda now guides curriculum and expectations in our nation's secondary schools"—however, this approach has not resolved the achievement gap between African American and Latino students with White students (Barnes & Slate, 2013, p. 1).

Barnes et al. (2013) also stated that "politicians and educational leaders tend to lean heavily on college-readiness when curricular requirements are increased, and accountability measures become more stringent, which tends to anchor academic preparedness," (p. 1). These policies, which were created to help close the achievement gap, have only increased it as White middle-income schools and districts continue to thrive in this type of accountability system and African-American, Latino, and low-income schools and districts struggle.

Most states used the Common Core State Standards as a means to integrate reading and writing into science-based curricula because students needed more opportunities in content areas like science to investigate and write about what they learned to make the curricula feel more

"hands on," (Kaiser & Kaiser, 2012, p. 8). Students need to have multiple opportunities to demonstrate mastery. Also, how students demonstrate mastery will be on the application of concepts in which they will have to make "coherent arguments centered on themes that are justified by selected texts," (p. 9).

Kaiser and Kaiser (2012) recommend five instructional strategies that will help implement the Common Core into science classes. The first is the use of *text structure*, in which students enrolled in English or language arts courses are taught how to handle expository text (p. 10). The second is the use of *close reading* in content areas of science and social science (p. 10). The third is having students *write about reading* in all of their classrooms (p. 10). The fourth is to teach students *comprehension strategies* (p. 10). The fifth is to have the teacher model the first four strategies to demonstrate to students that these concepts can be utilized in various content areas.

Kalchik (2010) focuses on the idea of having an integrated approach to teaching in which career-based themes and subject matters are integrated into curricula and instruction. This approach, Contextualized Teaching and Learning (CTL)—also known as Contextualized Instruction—provides teachers with a

> …diverse family of instructional strategies designed to more seamlessly link the learning of foundational skills and academic or occupational content by focusing teaching and learning squarely on concrete applications in a specific context that is of interest to the student. (Kalchik & Oertle, 2010, p. 2)

CTL is an instructional method that provides hands-on activities connected to the real word to learn core curriculum content and skills. The benefit of this strategy is in helping students connect content subject matter to hands-on activities and real-world applications.

Kalchik & Oertle's (2010) connection between hands-on learning and real-world application is needed to spark the interest of students. The CTL approach provides the strategies for teachers to help students understand the connection between classroom learning and the real world. As stated in the article, "the primary goal of CTL is to utilize the context supported by traditional academics to drive instruction thus engaging students in active learning to assist them in making meaning," (Kalchik & Oertle, 2010, p. 6).

College preparation for students in the United States

Mudge & Higgins (2010) discuss the importance of access to higher education for traditional minority groups and their eventual economic success. They also provide guidelines for helping minority and first-generation college students. The first of these is to ensure "identification of human capital development barriers for first-generation students" and provide these students with guidance and support (Mudge & Higgins, 2010, p. 123). The next thing to do is to focus on the "value of family education and the creation of college-going culture, integration of college/career readiness factors within secondary curriculum" and to develop "educational strategies and program delivery features that engage and advance underserved/marginalized first-generation students," (Mudge & Higgins, 2010, p. 123).

Many minority families throughout the United States are seeking various types of educational opportunities for their children that go beyond the traditional education system of the last hundred years. The types of schools that many minorities are attending include charter schools and others that involve nontraditional instruction, such as the blended learning educational approach. College and career preparation for the 21st century must include the utilization of technology into the curriculum to support student learning and provide various types of opportunities for students to demonstrate their knowledge. However, there are different

interpretations of blended learning, and districts will need to identify which one best supports their students' academic achievement and college and career goals. School districts will have to define what blended learning will be in their district in the context of preparing students for college and career. Blended learning can be defined differently depending on how a school or district utilizes it. It is, for the most part, the use of technology (usually the internet) and traditional classroom instruction put together.

One approach to blended learning is the traditional support to classroom teaching and utilizing technology or online learning to support an individual student's instruction as needed. This type of blended learning can provide avenues for teachers and schools to individualize instruction and differentiate learning to ensure student support (Hart, 2015). It is connected to classroom instruction, and teachers can utilize technology to meet the individual needs of their students. This method of blended learning uses technology as a supportive role to traditional classroom instruction.

Another approach to blended learning is taking courses online and still meeting in a traditional classroom setting for learning support. This method is continually rising across the nation as a means to provide students with opportunities to take courses for credit recovery so they can graduate on time from high school. Additionally, this method can be used for advanced placement and college credit courses. Online learning has teacher instructional support, and the students' primary access to the curriculum is online via a program or website. This type of blended approach can provide students more flexibility within the school schedule to fit in additional courses or take courses when school is not in session (Caruso, 2008).

Having students utilize various technology tools (primarily online) to demonstrate and share their knowledge is another approach to blended learning. In this model, students go beyond

the traditional uses of presentation software such as Microsoft Office or Google Docs and utilize various technology tools (such as Blackboard, blogs, multimedia applications, social media, etc.) to share information with other students and demonstrate their knowledge. In some ways—depending on how a school or district establishes this type of blended course—this model provides students the flexibility to discover new and creative ways to share information and utilize technology tools to demonstrate their learning progress, making it more meaningful for students (Berg, 2015).

Regardless of whichever interpretation of the blended model a district or high school follows, to prepare our students for college and career (as the CCSS), we must determine how best to integrate technology into the traditional classroom model. STEM is a vast field in which many high schools have only begun to scratch the surface in utilizing technology and blended educational models to instruct students (Lynch, Peters-Burton, & Ford, 2015). STEM high schools use technology in the context of science, math, and engineering to provide meaning and application to learning. The use of technology with a career-based theme sparks the interests of students and connects their learning to real-world application.

The growth of charter schools in the United States since 1992 to increase college and career preparation for many minorities and inner-city students has been tremendous. Charter schools now serve over 2 million students nationwide, and over 6,000 charter schools have been established since their inception in 1992 (NCES, 2015). Since the passage of the first law to allow for the creation of charter schools, over 4,000 of them now exist in the United States (Zimmer & Buddin, 2009). The state with the highest number of charter schools is California (the second state to pass its charter school law), which has over 1,184 charter schools in

existence serving about 9% of its public school population, or 547, 800 students. There are another 158,000 students in California on waiting lists to attend charter schools (CCSA, 2015).

Charters schools were developed to improve student academic performance because their local TPS had failed to do so. As such, the charter model was expected to close the achievement gap between students of color and white students as well as infuse competition into the educational arena. The idea was that this type of competition would motivate TPS to improve their students' academic achievement to avoid losing pupil enrollment and the funding which accompanied it.

Charter school supporters focus on charter schools' ability to serve lower-income and minority students. However, charter schools do not operate with the same restraints and limitations as those of traditional public schools (Betts & Tang, 2011). Parents, politicians from both sides of the political aisle, and various business leaders have thrown their support into the development of charter schools. Also, charter school operators have demonstrated over the past 20 years that they can increase the achievement levels of many minority students. However, not all students are benefiting from this academic growth (Bulkley, 2012).

Many TPS that does not improve student achievement tends to serve our nation's minorities and poor. Research on charter schools' ability to narrow the achievement gap between wealthy and poor and whites with minority groups are evolving, but not perfected. Research has been conducted in only a small percentage of states that allow charter schools and tends to focus on a charter model. Few research studies have provided an analysis of the differences and similarities of charter schools in different states, how charter schools are created, or the determinants which allow charter schools to serve only a select group of students based on their specialized educational programs (O'Brien & Dervarics, 2012).

The Stanford University Center for Research and Education Outcomes (CREDO) conducted a multi-year, multi-state analytical study which reviewed charter success over multiple years. The CREDO (2009) study concluded that charter schools were only having a limited impact on student achievement as compared to the TPS in their communities. However, a 2013 and 2015 update to this study demonstrated that charter school student achievement improved from the 2009 study, and more charter schools either matched or surpassed their TPS counterparts (Cremata et al., 2013). The data from the 2013 study demonstrated that charter schools have increased their effectiveness since the initial 2009 study. Additionally, about 1/3 of the students attending charter schools are outperforming their counterparts in TPS. Another 1/3 is performing at the same levels, and 1/3 is losing ground. Many charter schools tend to have less fully-qualified and experienced teaching staffs (NCES, 2007). This factor in itself may be the reason why many charter schools have not yet reached their potential with every student they serve.

There is little to no evidence that charter schools create a competitive atmosphere in which TPS are forced to improve so that they do not lose students and revenue to charter schools. Charter schools are allowed to have specific criteria for students to attend and maintain attendance in their programs. Just like TPS, charter schools are not authorized to select which students may attend, nor can they dismiss students because they are falling behind academically. However, unlike TPS, charter schools across the nation can create their individual school programs or focus on specific academic, student, and parental expectations.

Many charter schools utilize a lottery system for admission that prevents some of the neediest students in the community from attending the school of their choice. Also, charter schools across the nation are losing students within the first year or two of their admission to the

charter, primarily due to their inability to maintain the academic achievement levels designated by the charter school. Many of these students' parents decide to remove their children because they are falling behind. In some cases, students and their parents are counseled out of the charter school by school officials. Charter school officials do not officially tell students they have to leave—because they are a public school—however, they may emphasize to parents that their children are not meeting the charter school academic expectations and will continue to fall behind. This type of attrition rate leaves only the best and the brightest at the charter school, which, some would argue, increases the overall achievement of that charter school (Blazer, 2010; Nichols-Barrer, Gill, Gleason, & Tuttle, 2014). As a result, many charters could serve only the best academic students who are capable of remaining on their campuses, which may possibly skew the data analysis of their success to prepare students for college and career.

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Career Technical Education and Career Pathway Preparation

for Students in the United States

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The importance of the application of real-world learning to student career goals is not a new concept in the American education system. This nation has long pondered how best to take the skills of science, math (specifically algebra), social studies, and English and utilize them in real-world concepts. This has not been the traditional approach of college and career preparation in the US. Hacker (2012) speaks to the concepts of skill-development in Algebra (a universal high school and college requirement) and its disconnect to the real-world preparation for students. Hacker (2012) states,

> …that the math we learn in the classroom has any relation to the quantitative reasoning we need on the job. John P. Smith III, an educational psychologist at Michigan State University who has studied math education, has found that "mathematical reasoning in

workplaces differs markedly from the algorithms taught in school." Even in jobs that rely on so-called STEM credentials—science, technology, engineering, math—considerable training occurs after hiring, including the kinds of computations that will be required. (Hacker, 2012, p. 2)

Thus, the push for STEM in schools may not yield the results we want and may possibly be "creating a barrier for students who might otherwise finish school and contribute to the global economy," (Goodwin & Hein, 2016, p. 83). Critical thinking and problem-solving skills are now a requirement in the workplace (see Figure 4).

(% respondents)

Skill	%
Critical thinking and problem solving	72
Collaboration/teamwork	63
Communication	54
Technical skills associated with the job	54
Adaptability/managing multiple priorities	48
Professionalism	32
Planning/organisational	21
Reading for information	10
Locating information	6
Networking	6
Applied mathematics	5
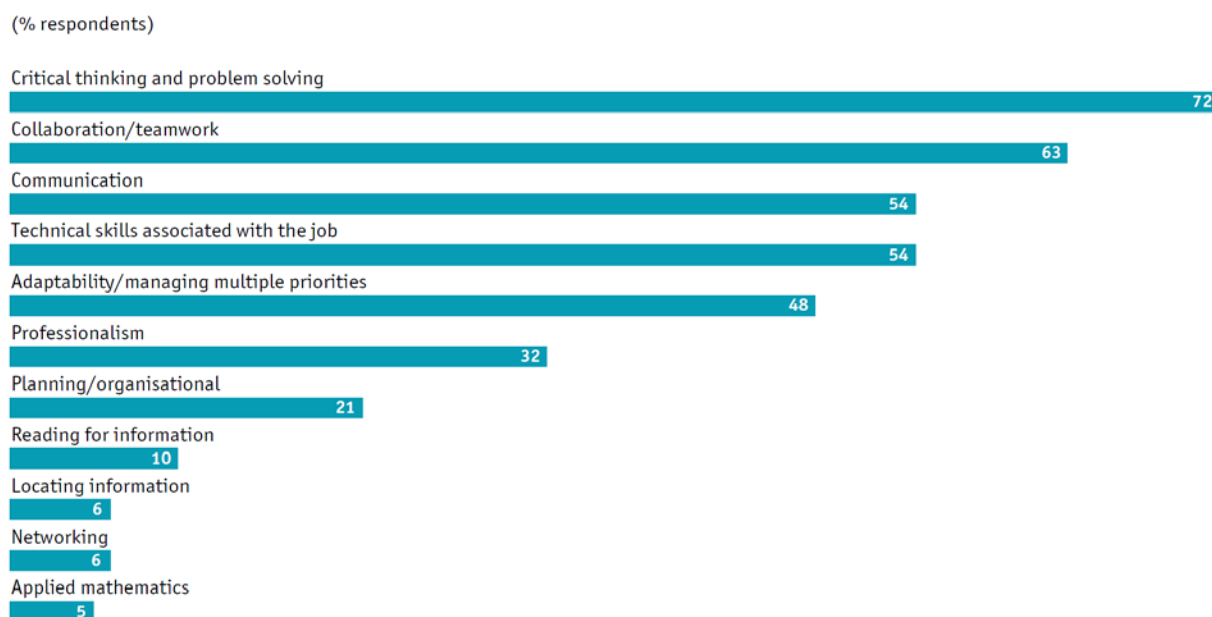
Figure 4. Workplace Skills

Source: Economist Intelligence Unit Survey and Report, March 2014

It will be important for schools to develop employees that are critical thinkers, problem-solvers, and have the ability to learn on the job and throughout their careers (Labi, 2014). This concept matches the research in Labi's (2014) report made for the Economist Intelligence Unit in which employers—who were interviewed for the report—stated that "critical thinking and

problem solving" was the number-one skill they felt students needed to have by the time they graduated from college. The Business Roundtable (2014) also discusses the need to develop the school-to-work skills on their website. They state,

> The skills gap issue will grow more acute as the economy recovers and unemployment falls. The reality is that many workers in the current pool of unemployed are not ready to fill many of today's high-skill, high-demand manufacturing, and service jobs. As labor force participation continues to decline due to demographic shifts, the search for highly skilled employees will become more desperate. By 2012, business organizations already were spending $164.2 billion to train their employees. In 2013, training budgets jumped by another 15 percent. Yet these efforts alone will not erase the skills deficit. To build the workforce needed for 21st century jobs, more must be done now to strengthen the education and training pipeline serving youth and working adults. (Business Roundtable, 2014, para. 2)

For many years, career technical education (CTE) was considered low-tech and skill education for students who could not complete complex application of content knowledge. As we move further into the 21st century, CTE is as tech-driven and applied-knowledge as any other career field. CTE must also be included in the building and planning of curricula to support the implementation of the Common Core concept of college and career preparation (Kalchik & Oertle, 2010). CTE provides the foundation for making curricula relevant to students because it is the application of knowledge to a real-world career field. These programs (like STEM) will utilize technology to support and demonstrate student learning within the course of study. However, CTE and STEM programs should not be just a sequence of classes students take at the high school level, but integrated into all aspects of the curriculum to make it meaningful to

students (Meeder & Suddreth, 2012). Professional development will be needed to assist teachers in connecting their curricula to real-world applications found in CTE pathways. The benefit from this would be tremendous as students see the relevance of what they are learning to the real world (Westover, 2012).

Meeder & Suddreth (2012) discussed the connection between CTE and implementation of the CCSS at a national level. Meeder & Suddreth's (2012) report provides several examples from various states; however, it does not explicitly define or demonstrate how CTE content fits into the Common Core. The examples given from different states do illustrate methods for utilizing CTE content to teach the CCSS and how state and local leaders can use the examples to promote CTE education in their states, counties, or districts. But a direct connection between CTE and the CCSS as it relates to college- and career-readiness is not easily made depending on the states' attempts to address CCSS and CTE.

CTE can provide students an enriched education by connecting traditional classroom learning to real-world concepts, applications, and careers (Brewer, 2004). CTE is not "your grandpa shop class! On the contrary. CTE classes give a unique reality-based dimension that vividly illustrates both the importance and practical application of their academic studies," (Brewer, 2004, p. 16). Also, CTE provides students the opportunity to apply the concepts and skills they are learning in their core classes to real-world applications and possible future career fields. When this happens, students become more engaged in school and are more likely to be prepared for college and career after they graduate from high school.

Lekes et al. (2007) found that students who participated in career pathways, internships, and college courses while in high school were better prepared once they transitioned to a two- or four-year institution. These students developed and attained higher academic and employability

skills, which then fostered student success in preparing for careers in high-demand occupational areas while in college (Lekes et al., 2007). The Rodriguez, Hughes, and Belfield (2012) study came to similar conclusions. Students who participate in career pathways with dual enrollment programs (taking college courses while in high school) were likely to graduate on time from high school, attended college at a higher rate (both two- and four-year institutions) and complete their first year of college with more units than students who did not participate in dual enrollment courses while in high school (Rodriguez, Hughes, & Belfield, 2012).

Linking CTE to career pathways is not a new concept. However, providing and sustaining resources for CTE programs continues to be a challenge for many districts because they tend to define college and career preparation as simply having all students attend a four-year university. College is important, and all students need the skills that it takes to get into college to survive in the 21st century; however, entering the traditional four-year college is not the only way to become successful, and school districts must figure out how they will address this challenge.

K-12 public school college and career programs for students in the United States

Kim (2014) research study attempted to analyze how tech prep and dual credit courses can better prepare students' skills in math, reading, writing, and college retention. The targeted population was from 273 Oregon and 339 Florida freshmen College students. The study analyzed the course offerings of these students while in high school. Two research questions were developed to investigate effects between technology preparation (tech prep) and dual credit course offerings. The first was, "What is the relationship between tech prep and dual credit?" (Kim, p. 340). The second was, "Are there interaction effects between tech prep and dual credit on college readiness and retention, after controlling for gender, ethnicity, and high school percentile rank?" (Kim, p. 340). Also, this study used a Pared t-test and correlation analysis to

see if there was a connection between the independent variables of college readiness and retention.

Based on its statistical examination (which included using an Input-Environmental-Outcome model), Kim's (2014) study found that there are positive and negative effects on college outcomes for entering students depending if they participated in tech prep (college courses or receiving college credit while in high school) and dual credit programs (college credit awarded once the student enters a particular university) in high school. Students who earned college credit while in high school—specifically in math in both Florida and Oregon—had better chances of academic achievement once they entered college (p. 344). Dual credit courses— college credit earned once students enter a particular university—had a "significant weak negative relationship" with students in Oregon (p. 344). The study also found that "results from multiple and logistic regression analyses showed that no pervasive main and interaction effects were found across the consortia," (p. 344). Kim's (2014) findings also supported the idea that students taking tech prep and CTE dual credit courses "may result in their longer stay in college," (Kim, 2014, p. 345).

The study conducted by Martinez et al. (2011) recommended that it will be necessary to "increase academic rigor and expectations across the board," (Martinez, Deil-Amen, Seglem, Garcia, & Meshulam, 2011, p. 28). It was also important to improve transition programs from high school to college to support Latino students' entrance into college and career. The focus of this study was on Latino high school student support for college and career and how it translated into first-year college success. This research study was a two-part qualitative study that was completed with two separate data collection tools. The first was an evaluation of a student self-assessment, and the second was a series of written activities and interviews students completed

during their orientation and the first year of college. The study utilized 131 Latino students who came from various socioeconomic backgrounds.

Martinez et al. (2011) found that students who came from schools that offered a high level of academic rigor and positive college and career messages from teachers and counselors felt prepared for college. Students who did not experience this level of academic challenge and support, especially lower-income Latinos, felt they were not prepared, and 15 of the 131 students in the study dropped out of the university after the first semester. Some of the lower-class students also stated in the interviews that their schools had a "college and career" focus, but they did not receive the personal support from counselors and staff that were needed to build their confidence upon entering the university. The researchers called this "gatekeeping," where teachers and counselors had a prominent role in helping Latino students' preparation—both academically and emotionally—for college (Martinez et al., 2011, pp. 7-8).

The Latino students' treatment from their high school teachers and counselors also contributed to their perceptions of their university professors. Thus, if students did not feel a connection to their high school teachers or counselors (this includes their lack of availability), they often translated this perception to their university professors. Lower-income Latino students who came from high schools with a limited focus on college and career were more susceptible to this than students from higher-income backgrounds (Martinez et al., 2011). Students recommended having

> …high school teachers, counselors, and bridge program instructors to help students improve their study habits in preparation for a full-time university workload, and (b) for high school teachers and bridge program instructors to modify the delivery of instruction to more closely align it with that of the postsecondary setting. With regard to study habits,

students in both the general and advanced curriculum from across all high school SES types, and regardless of generational status, recommended that high school and bridge program teachers place a greater emphasis on teaching specific study habits that would include time management and note-taking skills. (Martinez et al., 2011, p. 25)

Findings from Martinez et al. (2011) stated that "the messages emphasized within certain curricular tracks seemed to shape students' self-perceptions regarding their ability to attend the university and be successful once there," (p. 27). Also, the study supported the idea of "high schools and associated internalized messages appear to not only constrain or enhance students' postsecondary transition experiences but also shape their response to the academic challenges encountered in their first year of university study," (p. 27). Another significant finding was that "students return to the messages and experiences to reassess their academic abilities prior to entering into the university system." The "quality of teacher interaction and tone of those relationships matter as well," (p. 27). The students

Thinking about school resources as a form of counselor time, knowledge, negotiating, and assistance, another factor to be considered in college linking is how it intersects with curriculum placement and the relationships and experiences students have with teachers and counselors in these curricular tracks. (Martinez et al., 2011, p. 27)

College and Career Preparation in California

The economic benefits of students being prepared for college and career begin with earning a high school diploma. "The national high school graduation rate is at an all-time high, but one in five high school students still fails to earn a high school diploma on time," (The Alliance, 2013). When students fail to earn a high school diploma, the effects are not just on the individual, but the entire community and even the nation. Even though we have more students

than ever graduating from high school in the US, the dramatic effect on the individual, local, state, and national economy is tremendous. When a student fails to graduate from high school, which means they are not college- and career-ready as young adults entering the workforce, the impact is felt by everyone (see Figure 5).
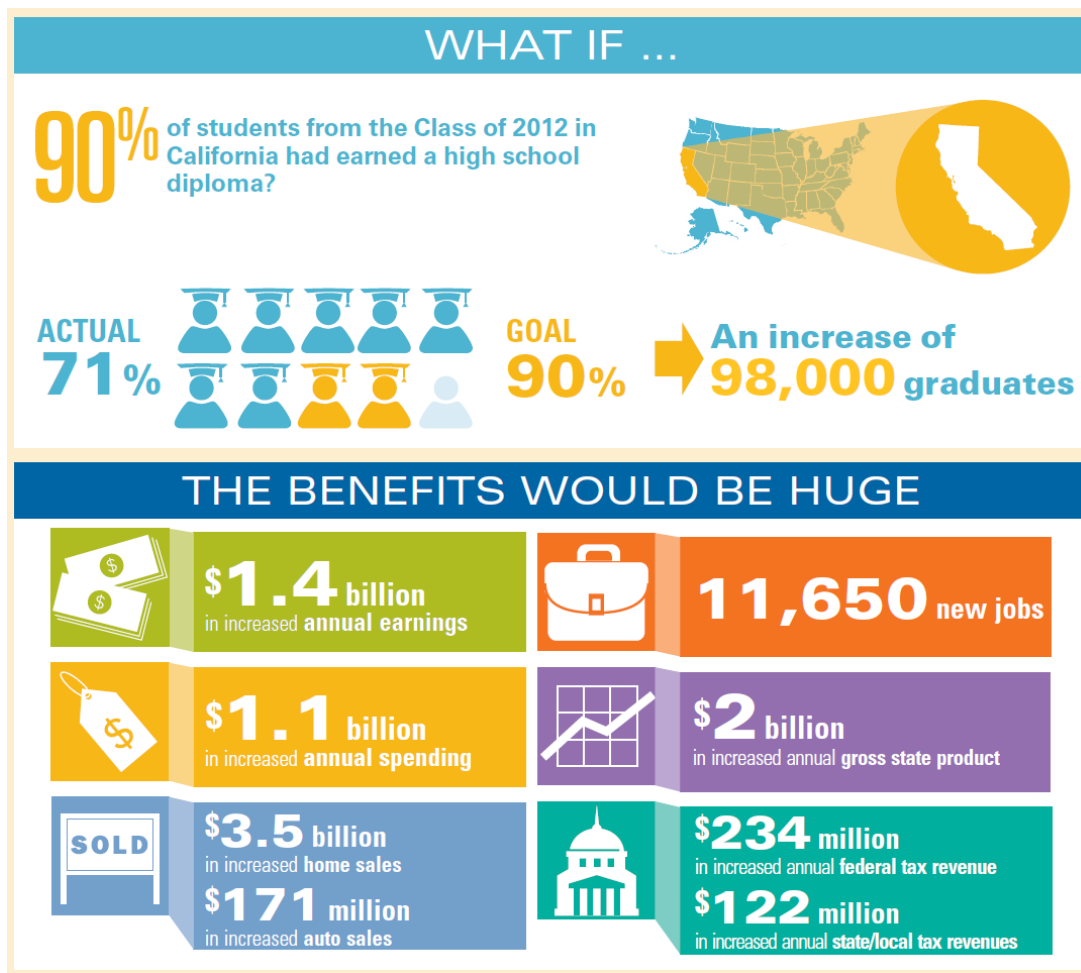
Figure 5. The economic benefits of increasing the high school graduation rate for public school students

Source: The Alliance. (2013, October 15). The Economic Benefits of Increasing the High School Graduation Rate for Public School Students in California.

California needs more college graduates. However, according to the Alliance for Excellent Education and the California Department of Education, California only graduates 82% of its students. Of those graduating from high school, according to The Alliance, only 37% are

considered college-ready, causing many high school graduates to be accepted into college to attend remediation courses. Even the four-year college graduation rate in California sits at only 64%, and "students who finish postsecondary education reap economic benefits for themselves and their communities, but far more students enter college compared to those who actually leave with a degree," (The Alliance, 2017, para. 4).

Johnson (2014) addressed the ongoing need for more California students graduating from college with bachelor's degrees to meet the growing economic demand for workers with their qualifications. The article states that in the next 10 years, "41 percent of the jobs" in California will require a bachelor's degree (Johnson, 2014, p. 1). Currently, most Californians do not have bachelor's degrees and "when we add the projected supply and demand for workers with postsecondary education short of a bachelor's degree, the total shortfall exceeds two million," (Johnson, 2014, p. 1).

Johnson (2014) discusses the need to improve the funding of postsecondary institutions to meet the demand. However, there are challenges to address, primarily from two significant demographics in the state:

Two demographic trends will undercut future increases in the number of college graduates. First, the baby boomers—a well-educated and numerous group—are reaching retirement age, meaning that for the first time ever a large number of workers with college degrees will be leaving the workforce. Second, groups with lower levels of education are a growing share of the state's population. In particular, Latinos—who now make up the largest group of young adults—have historically had low rates of college completion. And there will not be enough highly educated newcomers to California— from abroad or from other states—to close the skills gap. (p. 2)

Findings from The McKinsey Society (2009) in their study of the National Assessment of Education Progress (NEAP) address the economic connection between the achievement gap regarding our country as compared to others and African Americans and Latinos as compared to Whites. The report shares key findings on the international, racial, income, and systems-based gaps facing the United States. The report assesses the economic impact of these deficiencies for the economy as a whole and for individuals (McKinsey & Company, 2009).

As state funding for education fluctuated during the Great Recession between 2008 and 2013, college tuition rates have continued to rise, rendering many California high school graduates unable to pay for a four-year university education. Many lower socioeconomic students across California have entered or transferred to local community colleges because tuition is cheaper or their lack of academic skills—which should have been acquired during their K-12 educations—would not allow them to survive the academic rigor of a four-year university. However, "only one in 10 community college students transfer to a four-year university," thus perpetuating the problem of the lack of a college-educated workforce needed to sustain and grow our state economy (Johnson, 2014, p. 2).

To ensure students are prepared for the 21st century, CCSS's focus on college and career is an excellent first step to making sure that school systems change the way they instruct and support students. The state has taken a big step by releasing control of its funding to allow districts to meet the diverse needs of their students. Funding resources such as the LCFF will have to support curriculum and teaching methodologies that connect student learning to real world applications. Districts and school sites could utilize Professional Learning Communities (PLCs) as a foundation to monitor and improve student academic performance to ensure student success and college and career awareness. The challenge for educational leaders will be ensuring

that the LCFF funds are indeed targeted at preparing all students for college and career. Districts and schools that do this effectively will become the new high-performing districts and schools of the Common Core era.

California's new assessment system requires its schools to utilize computer-based evaluations to calculate the proficiency levels of its students. This concept is an attempt to improve the measurement of student proficiency by providing multiple opportunities to identify the student mastery level of a given standard in English or math. This new testing format is a dramatic change to the paper and pencil assessment system of the California Standardized Test (CST) of the late 1990s and first 14 years of the 21st century. The CST was a standardized multiple-choice test intended to determine student mastery for a given subject. A student could have known the answer or simply guessed, and the testing format would have no way of discerning which route the student took. The student may also have utilized a testing strategy to answer the question, which often required high levels of knowledge on the student's part. Additionally, most of the CST paper and pencil questions were lower levels of the Bloom Taxonomy (knowledge and comprehension levels) which did not support academic rigor to prepare all students for college and career. The use of online assessments is causing districts in California to integrate technology into their classrooms and lesson plans for both coursework and assessments. However, simply adding technology to a lesson does not necessarily equate success or improvement in student-learning or satisfy the new California Assessment of Student Performance and Progress (CAASPP).

With the adoption of the LCFF to provide local districts with more control of their funding, the California Department of Education has created a multiple-measure accountability system that will be put into place by the 2017-2018 academic school year ("California

Accountability Model & School Dashboard - Accountability," 2017). California's new accountability system attempts to utilize multiple data indicators based on the eight priorities of the LCFF encompassed into a new measurement called the College/Career Indicator (CCI) model. All eight of the LCFF Priorities will have accountability factors connected to them either from the state level or designed locally. Priorities 1 – 3 (Basic Services and Conditions at schools, Implementation of State Academic Standards, Parent Engagement) are measured by local indicators. Priorities 4 – 8 will use the new CCI model and include graduation rate, English-learning progress, attendance, and suspension rates (see Figure 6).

All students in the four-year graduation cohort minus students who take the California Alternate Assessment.
WELL PREPARED – To Be Determined
The College/Career Indicator (CCI) measures for "Well Prepared" will be determined following further review of potential state and local CCI measures as statewide data becomes available.[1] California Department of Education staff, with input from education researchers, practitioners, and stakeholders, will evaluate the CCI model through the first phase of the Local Control Funding Formula evaluation rubrics and will propose a revised CCI model for implementation in 2017–18.
PREPARED **Does the graduate meet at least 1 measure below?**

A. Career Technical Education (CTE) Pathway Completion **plus one** of the following criteria:
  - Smarter Balanced Summative Assessments: At least a Level 3 "Standard Met" on English language arts/literacy (ELA) or Mathematics and at least a Level 2 "Standard Nearly Met" in the other subject area
  - One semester/two quarters of Dual Enrollment with passing grade (Academic/CTE subjects)
 	
B. At least a Level 3 "Standard Met" on both ELA and Mathematics on Smarter Balanced Summative Assessments
 	
C. Completion of two semesters/three quarters of Dual Enrollment with a passing grade (Academic and/or CTE subjects)
 	
D. Passing Score on two Advanced Placement (AP) Exams or two International Baccalaureate (IB) Exams
 	
E. Completion of courses that meet the University of California (UC) a-g criteria **plus one** of the following criteria:
  - CTE Pathway completion
  - Smarter Balanced Summative Assessments: At least a Level 3 "Standard Met" on ELA or Mathematics and at least a Level 2 "Standard Nearly Met" in the other subject area
  - One semester/two quarters of Dual Enrollment with passing grade (Academic/CTE subjects)
  - Passing score on one AP Exam **OR** on one IB Exam

APPROACHING PREPARED **Does the graduate meet at least 1 measure below?**
A. CTE Pathway completion B. Scored at least Level 2 "Standard Nearly Met" on one or both ELA and Mathematics Smarter Balanced Summative Assessments C. Completion of one semester/two quarters of Dual Enrollment with passing grade (Academic/CTE subjects) D. Completion of courses that meet the UC a-g criteria
NOT PREPARED **Student did not meet any measures above, so considered NOT PREPARED**

Figure 6. California Department of Education college/career indicator model

Source: California Department of Education

The CDE has designed a color-coded chart for each of the LCFF Priorities which will (as of the 2017-2018 school year) be made public as a measure of accountability. The individual charts are to be utilized by schools and districts to target areas of need and to sustain growth. The CDE will use a five-color system (red, orange, yellow, green, and blue) within a "5X5 grid" to help determine performance for each of the LCFF Priorities (California Department of Education, 2016). The colors on these charts identify growth or lack thereof for each indicator based on the colors and the schools' current *status* and *change* from one school year to the next (see Figure 7).

Level	Declined Significantly (Change)	Declined (Change)	Maintained (Change)	Increased (Change)	Increased Significantly (Change)
Very High (Status)	Yellow	Green	Blue	Blue	Blue
High (Status)	Orange	Yellow	Green	Green	Blue
Medium (Status)	Orange	Orange	Yellow	Green	Green
Low (Status)	Red	Orange	Orange	Yellow	Yellow
Very Low (Status)	Red	Red	Red	Orange	Yellow

Blue — Highest
Green
Yellow
Orange
Red — Lowest

Figure 7. California Department of Education 5X5 accountability chart and color code

Source: California Accountability Model & School Dashboard - Accountability (2017)

California's ongoing attempts to address college and career preparation is reflected in the tremendous growth of charter schools in the state since 1995. However, state laws that require charter funding limits reflect that charter schools do not serve the same type of student

populations as traditional public schools (TPS). Charter schools in California do not have to provide all of the same kinds of services as TPS. Examples of services that charters are not required to provide include Special Day (including severe mental and physical handicaps) and the resourcing of special education services, English language development programs, and academic support courses—programs which TPS have an obligation to fund and support. Even though charters are public schools, the numbers and types of students they serve are dictated by their specialized, respective charter programs.

Winters (2014) explained that "nationwide, students with individualized education programs (IEPs) account for approximately 8 percent of students enrolled in public charter schools, as compared to 11 percent in traditional public schools," (p. 1). A 2012 report produced by the Government Accountability Office (GAO) found that special education enrollment gaps exist in almost every state, although charter schools sometimes serve more students with special needs than their district counterparts (Winters, 2014). Thus, charter schools can provide unique educational programs to students. However, various states allow charters not to support all of the same types of students that TPS have to support, regardless of their educational programs. Hill, Angel, and Christensen (2006) found that

> State laws are so different and charter schools differ from state to state in mission, funding, size, grade-level coverage, and independence from regulations and teacher contracts, that the absence of evidence from many states makes it impossible to make definitive statements about charter schools in general. (Hill, Angel, & Christensen, 2006, p. 139).

Among traditional public schools, approximately 56% of the enrolled population is comprised of students from impoverished backgrounds, whereas among charter populations, that demographic accounts for 62% (Center for Research on Education Outcomes, 2014). This is a

marked increase from 49% in 2009 (Center for Research on Education Outcomes, 2009). This increase is a result of charter lottery policy changes, which assign enrollment preferences to low-income pupils. Students with disabilities are also a part of this policy change, and an increase should also be evident statewide. However, through 2009, only 7% of charter school students were special needs pupils (Center for Research on Education Outcomes, 2009), and by 2014, that percentage was reduced to 6% (Center for Research on Education Outcomes, 2009). The information provided indicates that parents of students with special needs are not being communicated to about charter school programs (Russom, 2011). As a result, students with disabilities are not being afforded the same educational opportunities as those enrolled in traditional public schools, and this creates a situation where more special needs pupils are attending traditional public schools and thereby skewing the achievement rates. Charter schools across the state of California tend to achieve .02% standard deviations above the state average in reading (Center for Research on Education Outcomes, 2014). Conversely, charter schools across California tend to achieve .02% standard deviations below the state average in mathematics (Center for Research on Education Outcomes, 2014).

The data from the Center for Research on Education Outcomes (2014) demonstrates that there are two things apparent. First, charter schools are outperforming most TPS in reading. Secondly, TPS are outperforming charter schools in mathematics. One question that can be framed from this data is: How do charter schools perform in comparison to each other?

The study also demonstrates the impact that charter management organizations (CMO) have on the achievement of charter schools (Center for Research on Education Outcomes, 2014). On average, charters with a CMO experience a .5% increase in performance over the state average. The same schools demonstrate a .4% increase over the state average in mathematics.

Interestingly, charters that are not part of a charter management organization are averaging an achievement growth in reading of .1% and a decrease in math of .4%. The information suggests that, if a charter is not part of a CMO, then perhaps the perceived benefits of the charter are not beneficial to the achievement of the students.

In analyzing this data, one factor that must be considered is whether or not the location of the charter school impacts student achievement outcomes. Charters tend to be the most successful in urban and certain suburban areas versus rural and small towns (Center for Research on Education Outcomes, 2014). One of the reasons for this discrepancy may have to do with charters' specialized content focus in larger jurisdictions, hence the need for facilities and alternative educational settings not readily available to smaller towns (O'Brien & Dervarics, 2012). Also, research demonstrates that communities have more confidence in their local public schools than charters. As a result, more of the high-performing students are staying at the TPS and not attending the local charter schools.

From an overall picture of charter schools, the average of achievement would be significantly lower in public schools. However, this is because of the sum of averages. When one examines charters in a more localized sense, the more relevant they become in urban settings. There, they are presented as better schools to send students to attend. However, the targeted audience is middle-class families, creating a biased comparison between the two types of schools.

A study conducted by the Center for Research on Education Outcomes (2014) examined the relevance of the impact of achievement at three different life-levels and at the charters that feature them. There are significant increases in achievement in reading in charter schools which focus on kindergarten through fifth grade. Also, there are notable improvements in math

achievement in charter schools which serve students in grades six through eight. In high school charters, mathematics achievement levels are significantly lower, but there is greater progress in reading. Interestingly, charters which focus on multi-level grades have experienced decreases in both reading and mathematics (CCSA, 2015). Table 6 of Appendix B examines the statistically significant findings of California charter schools in the areas of reading and math.

Education and work skills needed for 21st century employment in California

As we start down the path of Common Core implementation, whole system reform has become a vague buzzword; however, digging deeper and accomplishing genuine reform to address the Common Core in large and complex educational systems will be extremely difficult to achieve. To make changes within a complex system—such as a school or a district—the people within that system will need to have a clear and shared vision, a common purpose, a process to reflect, and collective learning (Senge et al., 2012). If we want to prepare students for college and career and the 21st century workplace, then everyone at all levels in the system must work together.

California has made the transition to the Common Core State Standards (CCSS) in the content areas of math and English this school year and will continue the development over the next several years to include additional core content areas. Districts now have the flexibility to design a plan under the new Local Control Funding Formula (LCFF) to meet the needs of their students so that they satisfy the rigor of the CCSS. According to the California Department of Education's website, each school district is to develop, adopt, and annually update a three-year Local Control and Accountability Plan (LCAP) to improve student achievement in all of their schools (California Department of Education, 2015). The LCAP is to include all stakeholders in its formation and provide school districts in California with a new level of flexibility (with state

funds) to meet the diverse educational needs of their students; however, the loosening of state categorical funds will require school districts to have clear goals so that they can creatively use the LCFF to prepare students for college and career (Fullan, 2010).

The LCAP provides educational leaders with the ability to influence their school districts' results by defining goals and executing strategies that focus on what matters most (Westover, 2014). These district goals provide clarity for school sites so that they can collaborate to allocate resources as needed to meet the needs of their diverse student populations. Once clear goals are established, using the LCAP to develop the capacity of principals and teachers to ensure that the Common Core will be implemented successfully to raise student achievement will be the first indicator of success or failure in the application of the Common Core.

The California Department of Education has not established a clear set of learning expectations based on the CCSS nor has the state connected the CCSS to CCR. This lack of clear student outcomes may create a mixed bag of achievement across the state because districts may have built funding plans based on a set of the results or criteria to complete the LCAP and not on clearly-defined educational goals to prepare students for college and career. School districts that have a clear vision of student achievement focus on few specific goals and utilize data to improve or identify their priorities, thus allowing their leaders to modify or change the educational system to meet the needs of their diverse student body.

College preparation for students in California

Lekes et al. (2007) found that students who participated in career pathways, internships, and college courses while in high school were better prepared once they transitioned to a two- or four-year institution. These students developed and attained higher academic and employability skills which then fostered student success in preparing for careers in high-demand occupational

areas while in college (Lekes et al., 2007). The Rodriguez, Hughes, and Belfield (2012) study came to similar conclusions. Students who participated in a dual enrollment program (taking college courses while in high school) were likely to graduate on time from high school, attend college at a higher rate (both two- and four-year institutions), and complete their first year of college with more units than students who did not participate in dual enrollment while in high school (Lekes et al., 2007; Rodriguez et al., 2012).

Rodriguez et al. (2012) conducted their research on high schools that participated in the concurrent courses initiative that was supported by the James Irvine Foundation from 2008 to 2011. They researched the value of being dually-enrolled in college courses while in high school. The study compared high schools that received funding and support from the Irvine Foundation for dual enrollment and traditional high school programs. The study also measured dropout rate, grade point average (GPA), entrance in four-year universities, and success levels (units completed) while the students attended four-year universities.

The study concluded that students who participated in a dual enrollment program were successful during their high school career and more likely to graduate. Although

> CTE and non-CTE students did not differ significantly in their overall grade point
> average at high school graduation, secondary CTE students performed higher on the ACT
> specifically in the areas of reading informational text and CTE students who participated
> in work-based activities were more likely than non-CTE students to develop the ability to
> read and comprehend memos, letters, policies, and bulletins—all literacy skills required
> to do well on the Reading for Information subtest of ACT WorkKeys. (p. 3)

Also, students in dual enrollment programs attended college (both two- and four-year universities) and completed their first year or two with more units than students who did not

participate in dual enrollment. Rodriguez et al. (2012) confirm that, judging by the positive

results found by this and other studies, dual enrollment participation should be encouraged and

supported whenever possible, particularly for those students who might otherwise be unlikely to

pursue postsecondary education (Rodriguez et al., 2012).

Roe (2015) addresses the need to connect classroom learning to real-world applications

based on student interest or possible career goals. Roe (2015) also discusses the need to go

beyond traditional career-based courses and have students utilize problem-solving or inquiry-

based research to apply their skills and content knowledge. Teachers will have to go beyond the

traditional instructional support of such things as Direct Instruction to allow students to analyze

and produce solutions based on the problems they are given to solve.

> With a problem-based technique to teaching and learning, on one end of the spectrum,
>
> you have the traditional set-up where the teacher identifies the learning objective, the
>
> process by which the objective will be explored and the prescribed outcome. On the far
>
> end of that continuum is where students are presented with a problem and define the
>
> learning objective (problem to be answered), process and outcome. (Roe, 2015, p. 24)

Roe (2015) also stresses the importance of having students identify the connection of

their learning to real-world concepts. The teachers should not develop career pathways in

isolation nor do they need to be connected to a particular industry. "Specific pathway

conversation that aligns to business can be time-consuming and costly," (Roe, 2015, p. 37).

Career connection can and should be problem-based so that it is easier to complete with students.

> The biggest challenge in making these kinds of problem-based learning opportunities that
>
> are connected to business occur is the lack of a focused, risk-taking mindset from
>
> educators. The key instructional shift within the Common Core and the goal of assisting

students to be college and career ready are upon us. Yet our response tends to be

antiquated – not to the fault of teachers – but the system. Teachers do not fear change;

what they fear is not being prepared for that change. (Roe, 2015, p. 37)

Career technical education (CTE) must also be included in the building and planning of

curricula to support the implementation of the Common Core concept of college and career

preparation (Kalchik & Oertle, 2010). CTE provides the foundation of making curricula relevant.

However, a CTE program should not be just a sequence of classes students take at the high

school level, but integrated into all aspects of the curriculum to make it meaningful to them

(Meeder & Suddreth, 2012). Professional development will be needed to assist teachers in

connecting their curricula to real-world applications found in CTE pathways. The benefit from

this would be tremendous as students see the relevance to what they are learning to the real

world (Westover, 2012).

DeArcos (2009) discusses the importance of the development of high school academies

focused around the industry-sector professions needed in California. California Partnership

Academies (CPA) provide students an integrated curriculum in which they apply their learning

to one of the industry-sector careers. The CPA program increases engagement and makes their

classroom-learning applicable to a possible career choice after high school (DeArcos, 2009).

High-performing CPA programs have five characteristics that increase student

achievement. First, a CPA must have "developed integrated and relevant coursework to engage

students," (DeArcos, 2009, p. 31). Second, there must be support structure and "planned access

between students and caring adults, while simultaneously providing connections with

practitioners in the outside work," (p. 31). Third, a "collaborative leadership team is vital to

facilitating a student-centered learning environment that provides relevant experiences for

students," (p. 31). Fourth, "pre-college expectations and experiences for students is essential to creating the mindset that college plays a key in each student's future," (p. 32). Fifth, "implement rigorous curriculum and exploratory instruction to prepare students for college-level coursework and employment," (p. 32). These components are necessary to ensure systemic change to prepare all students for college and career (DeArcos, 2009).

K-12 public school college and career programs for students in California

Meeder and Suddreth's (2014) report provides strategies and examples from various states across the nation on how CTE leaders "can and should maximize this opportunity to finally break down the silos between their disciplines and collectively find ways to ensure that the new standards rigorously engage all students in both academic and CTE courses," (Meeder & Suddreth, 2014, p. 4). The report also provides specific strategies to align with the CCSS that CTE leaders can utilize to ensure that career tech education is part of the implementation of the CCSS by following eight conclusions from the report. The first is to "develop a common understanding of College and Career Readiness" by including both business and educational leaders in deciding what that means for a given community (p. 8). The second is to "form cross-disciplinary teams for CCSS planning and implementation" which will also include a district ensuring that they have representatives in statewide discussions of CCSS and CTE implementation and development (p. 10). Communication and support between CTE programs, teachers, and site/district leadership is important; the third element calls for "ramping up communications and information sharing," (p. 11). It will be important that all school districts participate in the development of CTE standards. Thus, the fourth is "creating or updating curricular and instructional resources," (p. 13). Professional development will be essential to help teachers integrate CTE into their curricula and assist their developments of academic

programs by "enhancing literacy and math strategies within CTE instruction," (p. 15). However, professional development will need to be supported by teacher collaboration that includes both CTE and general education teachers. An important goal will then be "fostering CTE and academic teacher collaboration," (p. 18). The state and local districts will need to do their parts in "establishing expectations for and monitoring CCSS integration into CTE" to ensure "continuous improvement planning" that will support CTE programs and teacher certification (p. 20). The final area to ensure CTE and CCSS integration and implementation is "involving postsecondary CTE in CCSS implementation" throughout the state and within a school district (Meeder & Suddreth, 2012, p. 21).

The use of technology in college and career preparation is another area to explore. McCrea (2015) discusses the importance of "bringing your own device" (BYOD) strategies that schools and districts will need to draft policies and strategies for so that technology can be utilized at all educational levels (McCrea, 2015). With the lower cost of technology, more and more students have access to devices that connect them to the internet and basic office-type programs. The key for schools and districts will be to set up wireless networks that will allow students to utilize these devices on their campuses while maintaining the safety and security of the network.

McCrea's (2015) article states that there are nine elements that will need to be developed and implemented by schools and districts at all educational levels. The first is to not "substitute a BYOD program for a one to one computing initiative," (McCrea, 2015, p. 28). Students' devices may vary, which will require them to have access to "traditional computers depending on their school/classroom activities," (McCrea, 2015, p. 28). The second practice is for districts to "invest in wireless networks and the technology infrastructure" which will allow students and staff to

access educational content via the web (McCrea, 2015, p. 28). A school district would have to develop the safety and security protocols needed to maintain their technology infrastructure (McCrea, 2015). The third element is to "shoot for a K-12 BYOD initiative" that includes all students (McCrea, 2015, p. 28). The fourth practice is for the district and schools to "develop a robust cloud network that provides students access to their information via the wireless network," (McCrea, 2015, p. 28). The fifth practice is to "closely monitor your network's bandwidth to ensure that the school and district network is being used for educational purposes."

This idea goes hand-in-hand with the sixth practice to ensure the network is stable in which there are no "Wi-Fi dead zones" to ensure "students and staff can access the network from anywhere in the school or district," (McCrea, 2015, p. 28). The seventh practice is to "develop and stand by an IT support approach for all devices" so that students will have a variety of devices they can bring to the school. The eighth is to "understand that in most cases, enough BYOD oversight really is enough" because students will have to learn how to "troubleshoot their personal devices, not the school or district IT department," (McCrea, 2015, p. 28). But BYOD could be overwhelming, so the final recommendation is for school districts to start with a "manageable pilot project to troubleshoot issues and problems so that all students will eventually benefit as the BYOD program grows," (McCrea, 2015, p. 28).

Plough (2015) discusses the use of technology in the classroom as a learning tool for students as it was implemented in Milpitas Unified School District via blended learning. Blended learning is defined "as an educational program in which a student learns at least in part through online learning, with some element of student control over time, path, and pace, while provided with an integrated learning experience," (Plough, 2015, p. 8). Plough also states,

"Blended Learning can be delivered in a variety of ways, and leading a Blended Learning initiative requires a multi-faceted approach," (Plough, 2015, p. 8).

The five "leadership lessons from the Milpitas model" that districts could follow to integrate blended learning include having them "foster a culture of exploration," (Plough, 2015, p. 9). This means that the "Superintendent is critical to successful technology implementation" because each school site needs to have the support to develop technology plans based on their individual needs, not a prescribed district model (p. 9). Second, there needs to be a "different professional development" based on the teachers' needs (p. 9). Third, the teachers should "define the purpose" of the use of technology in the classroom in which technology was to "make a difference in teaching and learning, and equip students with skills for the future," (p. 9). Fourth, Milpitas Unified had to ensure that they addressed all of their stakeholders (parents, teachers, administrators, etc.) and communicated what blended learning was and how it can support or increase student achievement (p. 10). Finally, the district must "provide infrastructure and resources" to ensure that the needs of the schools, teachers, administrators and students can be met (p. 10). Having technology leadership "clearly defining the purpose—explaining why we need technology in our classrooms—may be at least as important as creating a vision of mission," (p. 11). Also, "Applying the principles of differentiated learning to their professional development, will create the confidence and skill necessary for teachers to pioneer technology in the classroom," (p. 11).

Kleber (2015) discusses how "Blended Learning offers a manageable solution for effectively teaching through technology in the classroom and across the curriculum, preparing students for the real world," (p. 20). Kleber also explains that

Blended Learning offers teachers and administrators with varying levels of technology

experience a manageable and meaningful solution for moving from struggling to

integrated technology, to effectively teaching through technology at a site level, in the

classroom, and across the curriculum. (p. 20)

Kleber (2015) further stresses that blended learning is not the same as flipping a class;

this is due to the use of technology to teach concepts. Blended learning is "student driven,

teacher-supported integration of technology, curriculum and differentiation for individual

learning needs," (Kleber, 2015, p. 21). Blended classrooms "focus on some intention shifts in

curriculum, transmission methods, teacher/student roles and use of instructional time," (Kleber,

2015, p. 21). Blended learning moves the "point of essential transmission and teaching from the

initial presentation of ideas to the guided practice, independent practice, and even the assessment

portions of a traditional lesson plan," (Kleber, 2015, p. 21). Once a teacher utilizes technology to

meet the instructional needs of his or her students, blended learning can "free up the teacher to

interact with students during class time," (Kleber, 2015, p. 22). "Blended Learning does not

solve all the challenges educators face; it does provide a dynamic, evolving tool that can unite

students, teachers and administrators through technology with the goal of increasing learning and

engagement," (Kleber, 2015, p. 24).

College and Career Preparation in San Joaquin County

San Joaquin County is located in Northern California and is composed of eight different

cities: Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, Tracy, and Woodland ("Cities in San

Joaquin County, California," 2016). The United States Census Bureau estimates San Joaquin

County's 2015 population to be about 726,106; its largest city, Stockton, has an estimated

population of 305,658 ("QuickFacts Stockton City, California Population estimates," 2015). The

2010-2014 United States Census Bureau also reports that 20.7% of the people living in San

Joaquin County live below the poverty level. The "median household income" is $53,253 and the

2014 "per capita income" is $22,642 ("QuickFacts San Joaquin County, California," 2015).

The county's high poverty rate and per capita income levels are reflective of average

educational levels and high school graduation rates. San Joaquin County's average graduation

rate between 2010-2014 was 77.6% with 18.1% of the county population holding a bachelor's

degree or higher ("QuickFacts San Joaquin County, California," 2015). It is estimated that 28.4%

of the citizens in San Joaquin County work in the fields of management, business, science, and

arts occupations. However, the county's occupational and industry outlook is very diverse (see

Table 1

2010-2014 San Joaquin County occupation and industry employment levels as compared to the US

US and San Joaquin County Comparisons	United States	Percent of Population
	Estimated Percentage of US Population	Estimated Percentage of San Joaquin County Population
OCCUPATION		
Management, business, science, and arts occupations	36.4%	28.4%
Service occupations	18.2%	18.4%
Sales and office occupations	24.4%	24.4%
Natural resources, construction, and maintenance occupations	9%	12.7%
Production, transportation, and material moving occupations	12.1%	16.1%
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	2%	5.1%
Construction	6.2%	6.8%
Manufacturing	10.4%	9.6%
Wholesale trade	2.7%	4.3%
Retail trade	11.6%	12%

Transportation and warehousing, and utilities	4.9%	6.7%
Information	2.1%	1.7%
Finance and insurance, real estate and rental, and leasing	6.6%	4.9%
Professional, scientific, management, administrative, and waste management services	10.9%	9.4%
Educational services, and health care and social assistance	23.2%	21.4%
Arts, entertainment, recreation, and accommodation and food services	9.5%	8.2%
Other services, except public administration	5%	4.8%
Public administration	4.9%	5.1%
CLASS OF WORKER		
Civilian employed population 16 years and over	143,435,233	275,581
Private wage and salary workers	79.1%	78.2%
Government workers	14.6%	15.2%
Self-employed in own not incorporated business	6.1%	6.5%
Unpaid family workers	.2%	.1%
INCOME AND BENEFITS (IN 2014 INFLATION-ADJUSTED DOLLARS)		
Total households	116,211,092	217,343
Less than $10,000	7.2%	6.1%
$10,000 to $14,999	5.3%	5.7%
$15,000 to $24,999	10.7%	11.4%
$25,000 to $34,999	10.2%	10%
$35,000 to $49,999	13.5%	13.8%
$50,000 to $74,999	17.8%	18.1%
$75,000 to $99,999	12.2%	12.1%
$100,000 to $149,999	13%	13.7%
$150,000 to $199,999	5%	5.6%
$200,000 or more	5%	3.5%
Median household income (dollars)	(X)	(X)
Mean household income (dollars)	(X)	(X)
With earnings	77.9%	79.5%
Mean earnings (dollars)	(X)	(X)
With Social Security	29.3%	27%

Mean Social Security income (dollars)	(X)	(X)
With retirement income	17.8%	17.1%
Mean retirement income (dollars)	(X)	(X)
With Supplemental Security Income	5.3%	8.3%
Mean Supplemental Security Income (dollars)	(X)	(X)
With cash public assistance income	2.8%	6.3%
Mean cash public assistance income (dollars)	(X)	(X)
With Food Stamp/SNAP benefits in the past 12 months	13%	13%
Families	76,958,064	162,293
Less than $10,000	4.7%	5.5%
$10,000 to $14,999	3.2%	3.8%
$15,000 to $24,999	8%	9.8%
$25,000 to $34,999	8.9%	9.3%
$35,000 to $49,999	12.9%	13.7%
$50,000 to $74,999	18.9%	18.6%
$75,000 to $99,999	14.2%	13.3%
$100,000 to $149,999	16.2%	15.7%
$150,000 to $199,999	6.5%	6.4%
$200,000 or more	6.6%	4.1%

Source: United States Census Bureau

San Joaquin County is diverse, and student achievement data matches many of the challenges around the nation. African-American and Latino students lag far behind White and Asian college- and achievement-levels, as demonstrated in Table 2 ("High School Graduates Completing College Preparatory Courses, by Race/Ethnicity: 2006 - 2015," 2015). Providing an educated workforce in the county is a generational problem in which high school graduation rates and college (four-year institution) rates are slowly improving, but not on par with many other parts of the nation.

San Joaquin County	Percent									
Race/Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
African American/Black	10.8%	16.6%	16.7%	16.4%	17.9%	21.2%	18.4%	16.4%	19.1%	23.5%
American Indian/Alaska Native	LNE	16.3%	16.3%	LNE	20.3%	20.8%	18%	LNE	LNE	28.7%
Asian American	21.1%	31.9%	36.6%	33.8%	41.3%	43.1%	47.1%	38.5%	43.3%	46%
Filipino	24.3%	35.6%	34%	35.2%	38.9%	47.8%	44.1%	35.1%	42.9%	49%
Hispanic/Latino	12.1%	15.9%	16.5%	16.9%	20.6%	21.9%	20.3%	17.7%	19.3%	25.9%
Native Hawaiian/Pacific Islander	LNE	LNE	LNE	31.3%	LNE	LNE	LNE	28.4%	LNE	LNE
White	33.8%	29.6%	31.8%	29.4%	32.4%	34%	31.9%	32.8%	31.7%	31%
Multiracial	N/A	N/A	N/A	LNE	LNE	LNE	33.9%	LNE	40.2%	32.7%

Table 2. High school graduates completing college preparatory courses by race/ethnicity: 2006 – 2015

Definition: Percentage of public school 12th grade graduates completing courses required for University of California (UC) and/or California State University (CSU) entrance, with a grade of “C” or better, by race/ethnicity (e.g., in 2015, 71.8% of Asian American 12th grade graduates in California completed courses required for UC and/or CSU entrance).

Source: As cited on kidsdata.org, California Dept. of Education, California Basic Educational Data System (CBEDS) (Jun. 2016)

Education and work skills needed for 21st century employment in San Joaquin County

Rodriguez (2010) discusses the importance of having schools and school leaders develop programs and activities to keep students from dropping out of high school. Rodriguez (2010) focuses specifically on Latino students and their need to feel connected to the school culture, feel supported and encouraged by their teachers, and receive effective instruction. Rodriguez (2010) takes the experiences of a Latino student (Ramon) and his connection to his local high school,

leading to his "dispositions and progressive detachment and disengagement from school." From this student's experiences—along with other research—Rodriguez (2010) developed strategies schools can use to connect to minority students and provide support for them to stay in school and learn effectively.

Rodriguez (2010) describes three strategies schools and school leaders can implement to ensure the support of their students. The first strategy is to develop "dialogues about school culture" by student groups to address the need to have all students connected to the school community. The second is to create "forums for student voices" to identify school issues, develop strategies to address those issues, utilize data to see if they are successful, and inform the school teachers of their progress. The third strategy is to "zero in on relationships" to ensure all students are successful. Adults at the school (i.e. teachers, counselors, administrators, etc.) need to recognize, inspire, motivate, and support students so that they are part of the school community that is focused on their success (Rodriguez, 2010).

College preparation for students in San Joaquin County

College and career preparation starts with the completion of A-G course requirements for CSU and UC programs. As Table 3 demonstrates, in San Joaquin County, African-American and Latino students lag far behind other ethnic groups when it comes to completion of these requirements. This may be due in part to the graduation rate of some schools and access to CSU- and UC-qualifying courses.

San Joaquin County	Percent					
Race/Ethnicity	2010	2011	2012	2013	2014	2015
African American/Black	17.9%	21.2%	18.4%	16.4%	19.1%	23.5%
American Indian/Alaska Native	20.3%	20.8%	18.0%	LNE	LNE	28.7%
Asian American	41.3%	43.1%	47.1%	38.5%	43.3%	46.0%
Filipino	38.9%	47.8%	44.1%	35.1%	42.9%	49.0%
Hispanic/Latino	20.6%	21.9%	20.3%	17.7%	19.3%	25.9%
Native Hawaiian/Pacific Islander	LNE	LNE	LNE	28.4%	LNE	LNE
White	32.4%	34.0%	31.9%	32.8%	31.7%	31.0%
Multiracial	LNE	LNE	33.9%	LNE	40.2%	32.7%

- **Definition:** Percentage of public school 12th grade graduates completing courses required for University of California (UC) and/or California State University (CSU) entrance, with a grade of "C" or better, by race/ethnicity (e.g., in 2015, 71.8% of Asian American 12th grade graduates in California completed courses required for UC and/or CSU entrance).
- **Data Source:** California Dept. of Education, California Basic Educational Data System (CBEDS) (Jun. 2016).
- **Footnote:** Years presented are the final year of a school year (e.g., 2014-2015 is shown as 2015). LNE (Low Number Event) refers to data that have been suppressed because there were fewer than 20 graduates in a given racial/ethnic group completing courses required for UC and CSU entrance with a grade of "C" or better. N/A means that data are not available

Table 3. 2010-2015 San Joaquin County high school graduates completing college preparatory courses by race/ethnicity

Source: Kidsdata.org

Trilling (2009) attempts to address the dropout crises in California by arguing for the

need to improve the engagement-levels of students to make their learning meaningful. The

author argues that "a growing body of research has shown that one of the biggest factors for

students both dropping out and needing remedial education is disengagement. Students simply

don't see a real-world connection to their studies and find school boring," (p. 16). At the time

that Trilling's (2009) article was written, California and the entire nation was in the midst of the

Great Recession, which has become the worst economic crisis since the Great Depression

("Chart Book: The Legacy of the Great Recession | Center on Budget and Policy Priorities,"
2016). Even though financial times were tough, Trilling (2009) states that as the economy
improves, it will be the right time to reshape teaching and learning in California. Economic
crises can be an opportunity to change our education system and become more innovative to
ensure that all students in California receive a high-quality education and are prepared for the
21st century (Trilling, 2009).

Courses at the middle school and high school levels integrate 21st century skills to ensure
student engagement and motivation as they apply their skills to real-world concepts. Trilling
(2009) quotes Mary Jo Conery, associate superintendent for 21st century learning in Catalina
Foothills School District in Tucson, Arizona:

> Emphasis on 21st century skills promotes learning by doing, talking, and processing in
> teams…students are ripe for these kinds of experiences. They want and need engaging
> work that stimulates their curiosity, involves them in decision-making, provides some
> autonomy and choice in learning, improves self-regulation, and allows opportunities for
> creative expression. This kind of learning environment will not only motivate and
> challenge…students but aid them in discovering who they are, who they want to be. (p.
> 18)

To support this argument, Trilling (2009) uses the 2003 Partnership for 21st Century
Skills (referred to as the P21 Project) to support the changes needed in education to prepare
students for 21st century learning. The P21 Project found that there was a need to "integrate 21st
century skills deliberately and systematically into the teaching of core subjects appears to
empower educators to make learning relevant and to help students be successful," (Trilling,
2009). These skills included integration and the use of information, media, and technology

(Trilling, 2009). Media allows students to demonstrate intelligent reasoning, positive attitudes, and practical skills that enables them to learn and achieve at higher levels," (Trilling, 2009). Trilling (2009) states that life and career skills also need to be integrated so students can demonstrate their abilities to take the initiative, be flexible, adaptable, accountable, and lead and become productive using their skills and knowledge learned in class.

Even though Trilling's (2009) article was written at a time of economic uncertainty, the economy provides an opportunity to innovate and change the educational system for the better to ensure all students are prepared for the 21st century. To "innovate change" in our educational system, leaders need to support 21st century teaching (Trilling, 2009). Ongoing professional development is important for 21st century teaching and learning methods. Also, each state will need to "continue building an active coalition of business, education, nonprofit and community organizations and parents to further develop a shared vision of knowledge and skills" for the 21st century (p. 19).

Scott and Birdsall (2009) address the importance of utilizing career technical education courses provided by California Regional Occupational Centers and Programs to connect classroom curricula to real-world applications. They state that

> Positive educational outcomes are more likely when students: learn what it feels like to think and do by applying math, science or language arts knowledge and skills in a career sector, experience what it's like to work in an actual business, and take courses in which the teacher comes directly from the industry providing working knowledge of that career field. (Scott & Birdsall, 2009, p. 28)

Scott and Birdsall (2009) made an argument to utilize CTE and ROP programs to provide students with real-world application experience to motivate them to learn, be successful in

school, and become better prepared after graduating from high school. However, CTE and ROP programs cannot be utilized as a form of alternative education or for students who do not plan to attend college. Scott and Birdsall (2009) state, "work-based learning, career pathways, career guidance, and course articulation agreements that connect students to multiple postsecondary career paths have been shown to positively influence all students, not just those considered at greatest risk for dropping out," (p. 29). Scott and Birdsall (2009) go on to state that "all too often, CTE has been subverted by an artificial and harmful dichotomy suggesting that thinking and doing are independent, and thinking is more important than doing," (Scott & Birdsall, 2009, p. 29). This was a fundamental change in how ROP and CTE programs were viewed in the past and how all students can benefit from them as part of their educational experiences while in high school.

Hoachlander (2008) discusses the importance of including career technical education (CTE) in high school education systems. Hoachlander (2008) argues and cites research that students involved in CTE coursework can still "complete and participate in college preparatory academic" programs and are more successful when CTE coursework is included in their high school educational programs. Hoachlander (2008) also states that we need to "begin fashioning new options for students that connect challenging technical courses with demanding academics. In the career and technical education field, we call these new options multiple pathways," (Hoachlander, 2008, p. 23).

K-12 public school college and career programs for students in San Joaquin County

The county office of education has designed CTE programs based on the "15 industry sectors" to focus on "preparing students to enter current or emerging high-skill, high wage, and high-demand occupations," ("Career Technical Education," 2016, para. 2). The program is

designed from the CTE guidelines from the California Department of Education. The 15 industry

sectors are:

- Agriculture and natural resources

- Arts, media, and entertainment

- Building trades and construction

- Education, child development, and family services

- Energy and utilities

- Engineering and design

- Fashion and interior design

- Finance and business

- Health science and medical technology

- Hospitality, tourism, and recreation

- Information technology

- Manufacturing and product development

- Marketing, sales, and service

- Public services

- Transportation

    ("Career Technical Education," 2016, para. 4)

    The San Joaquin County of Education's (SJCOE's) "model curriculum standards for CTE

for grades 7-12 integrated the state's academic content standards with industry-specific

knowledge," ("Career Technical Education," 2016).

College and Career Preparation in a Northern-Central California School District

The economic impact of students graduating from high school with the skills and abilities to learn either in the workplace or a formal setting (i.e. college, university, or trade school) is vital for any community. The Alliance for Excellent Education's website, "The Graduation Effect," states that "the national high school graduation rate is at an all-time high. However, one in five high school students fails to earn a high school diploma on time," ("Alliance for Excellent Education | The Graduation Effect for California," 2016). Thus, if the city in which the targeted school district for this study increased its graduation rate for the 2012 class, the positive economic impact on the city would be tremendous (see Figure 8). This includes higher income, home ownership, and tax revenue.
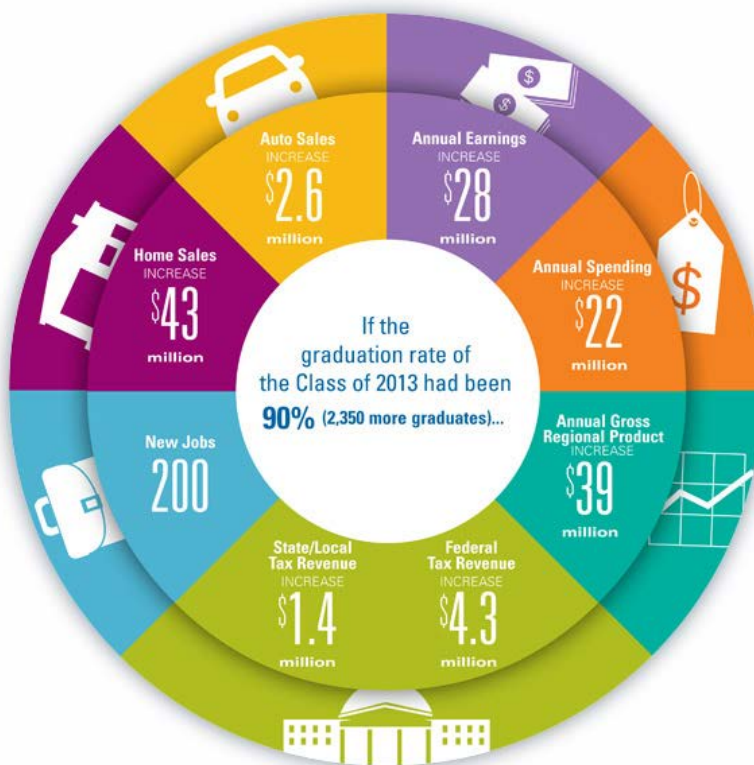
Figure 8. The economic benefits of increasing the high school graduation rate for public school students in Stockton, CA metro area

Source: Alliance for Excellent Education (2016)

Over the last 12 years, the district chosen for this study has had nine different superintendents and two different CTE directors. From 2010-2013, the budget and the CTE programs were entrusted to the assistant superintendent of secondary education. This individual did not have a CTE background. Also, over a 12-year period, the district has had over 15 different school board members (about one new school board member every two years). Various leaders have allocated funding priorities of the district (restricted funds, grants, and general funds) to numerous programs and initiatives that they felt were important. The district CEO discovered when she entered the district in 2012 that funds were utilized in "various creative ways" without any planning on expenditures or at the whim of the previous superintendents over the last 12 years. The district CEO gave an example of the budget focus to help create several charter schools (stated above), and many of these schools have never met their Average Daily Attendance (ADA) goals to support their costs. However, due to the leadership of various superintendents and their drive to create and sustain charter schools in the district, these schools continued to operate. These schools have smaller class sizes, allocate additional resources, and are allowed to release or counsel students back to their home schools if they do not consistently perform academically. Both CEOs of the district stated that several school board members and former superintendents felt the use of funds to support charter schools was justified because the schools produce high standardized test scores and graduation rates. The early college high school was selected by the US News & World Report publication as the "31st rigorous high school in California and the 181st in the nation," ("Top California High Schools | Best High Schools | US News - US News," 2015).

Another example of how district resources have changed as district leadership evolved over the years was the lack of a clear understanding or definition of college and career

preparation. From 2008-2012, the district was awarded a $3.5 million dollar federal grant to develop small learning communities ("Smaller Learning Communities Program," 2002). This grant was designed at the federal level to increase CTE career pathways in its comprehensive high schools to better prepare students for college and career (Roe, 2015). These funds were to supplement current regional occupational programs (ROPs) and CTE programs already in the district, create new CTE career pathways (based on local business and community needs) for students, and to better train teachers (both CTE/ROP and general education teachers). Grant funds were intended to supplement the $420,000 in Perkins funding that the district receives annually from the state. However, during the life of the SLC grant, the district had four different superintendents, and four out of seven school board members' seats changed hands. The superintendent who originally applied for the grant—who will be called Superintendent A—wanted the funds solely for the district's small specialty schools, which did have a CTE career pathway focus; however, the SLC grant was targeted to help reform large comprehensive schools and provide scores of inner city students with college and career preparation. Superintendent A moved forward with the application of the grant and started SLCs and CTE career pathways in all four comprehensive high schools. The newest of the four comprehensive high schools already began the SLC and CTE career pathway journey. After two years of service and the first year of grant implementation, Superintendent A retired from the school district.

The next superintendent, who will be called Superintendent B, also attempted to start SLCs and CTE career paths in all comprehensive high schools; however, he faced serious challenges from the teachers' union and several board members who thought his leadership style was too aggressive. Also, Superintendent B utilized general funding to start the early college charter school and used carryover state and federal categorical funds for a reading program

called Success for All. This program was not on the California English Language Arts adoption list, and his utilization of the state funds to help purchase the materials was considered a misuse of categorical funds. This lead to his firing and the appointment of a third superintendent, who will be called Superintendent C.

Superintendent C was a former assistant superintendent and interim superintendent before Superintendent A, and his return marked the end of the SLC and CTE career path movement for the comprehensive high schools. Superintendent C utilized the remaining SLC grant funds for the small specialty schools, charter programs, and various other training not directly connected to CTE career pathways or college and career preparation. Also, Perkins funding support was primarily directed at the charter schools and small specialty schools. By the start of the 2011-2012 school year, only one comprehensive high school was continuing with the SLC and career pathway focus. However, that was challenged by a new interim superintendent—Superintendent D—who attempted to end all SLCs in the district to save money during budget cuts coming from the state level during the Great Recession. No state or federal funds were allocated for career pathways or CTE programs unless it came from Perkins funding or the school was a specialized charter; by this time, the health-focused high school opened and had several CTE courses in its academic program.

With the national and statewide movement towards the Common Core, CTE career pathways once again came back into focus in the district during the 2013-14 school year. This was also due to the changing of state-allocated funds to allow districts more flexibility to meet the needs of their communities and prepare their students for college and career. With the inception of Local Control Accountability Plan (LCAP) and its nine areas of focus, which

included CTE, funding resources for CTE career pathways district-wide are becoming the focus once again.

According to the district CTE director, whom we will identify as Dr. Career, the district receives about $420,000 in Perkins funding every year; however, the funds between 2010 and 2013 were directed primarily to the district's small specialty high schools. From 2006 to 2013, students in the four comprehensive high schools only received about 25% of the Perkins funding even though most of the CTE programs and career pathways existed in the large comprehensive schools which had more students enrolled in CTE courses.

The focus of various school superintendents on the smaller specialty high schools and district charter schools created a huge imbalance of Perkins funding support. However, with the adoption of the Common Core and drive to prepare all students for college and career, the district leadership has had no choice but to figure out how to support CTE career pathways for all students. This included the re-hiring of a CTE director and re-allocation of Perkins funding among all district high schools.

Senge et al. (2012) state that schools and districts can "improve by involving everyone in the system to express their aspirations, building their awareness, and developing their capabilities together," (Senge, 2012, p. 5). They further explain that the people within the system need to have a collective vision that they created together and that is based on a unified purpose for their schools. They must then have a process for reflection to improve or sustain success. Schools and districts can improve by "involving everyone in the system to express their aspirations, building their awareness, and developing their capabilities together," (Senge, 2012 p. 5). This "Mental Model" concept will help people within a school district to become interdependent and

strengthen their resolve to address the ongoing challenges of increasing student achievement (Senge, 2012 p.5).

To provide a methodology to college and career readiness in all schools, the Professional Learning Communities (PLC) process was adopted to help schools interpret and analyze student achievement data to prepare their students for college and career. One method of ensuring good conversations around student achievement data, a district could employ the data team process. Peery (2011) developed a structured PLC process to review student data, develop SMART (specific, measurable, achievable, realistic, and timely) goals, and identify educational strategies and outcomes to meet the instructional needs of students. The data team discussion within our PLCs can allow teachers to follow a process to help guide our discussions around student work and formative assessment data to support and improve instruction to increase rigor and student achievement (McNulty & Besser, 2011; Peery, 2011).

The targeted district of this study has initiated Professional Learning Communities (PLC) throughout all school sites. This initiative has caused serious changes to both the district and site levels. District leadership has provided multiple opportunities for their principals to collaborate and build clear school visions and PLCs to support student academic performance. The PLC focus in the targeted district produced growth in our graduation rates, CAHSEE scores, attendance, increases in internships connected to career pathway themes, and increases in our advanced placement, honors, and early college courses (college courses taught on campus and available to students to take while still in high school). There was also dramatic reductions in our suspension and expulsion rates. However, establishing and maintaining rigor—i.e. having students produce and complete high-level coursework that is at Webb's Depth of Knowledge levels of three and four, or the "analysis" level or higher on Bloom's Taxonomy—continues to

be a challenge in many of our classrooms, as seen in our inconsistent CST, SAT, ACT, and advanced placement scores. The collective purpose and vision of career and college preparation courses are well established; however, how to ensure rigor in every classroom every day to prepare for career and college has been a challenge. As Senge points out,

> …visions that tap into a school system's deeper sense of purpose have a unique power to engender aspiration. The practical goal of such ideas is to invite people continuously to renew their commitment to the people of the school, particularly the children and students. (Senge et al., 2012, p. 87)

By rethinking the PLC's four essential questions, PLC teams can have structured conversations that can strengthen their capacities to meet the diverse needs of their students. The DuFour PLC question regarding what it is that we want our students to learn is now integrated into the collecting and charting data (step one). How we will know if each student has learned it is integrated into the analyzing of the data (step two). The last two DuFour questions ("How will we respond when some students do not learn?" and "How do we respond when they demonstrate proficiency?") is integrated into the analyzing of the data and prioritizing needs, setting SMART goals, and selecting common instructional strategies (steps two, three, and four).

School districts will need to provide opportunities for PLC teams to meet to analyze data and discuss the best instructional practices to increase student achievement so that they can build the collective capacity at all grade levels. The focus of these PLC discussions are to be around four essential questions:

> What do we want our students to learn, how will we know if each student learned it, how will we respond when some students do not learn it, and how can we extend the learning

for students who have demonstrated proficiency. (DuFour, DuFour, Eaker, & Many, 2010, p. 59)

These questions helped stimulate conversations; however, the questions are open-ended and may lead to answers that do not consistently produce quality discussions to improve the rigor and student achievement (DuFour, 2004). Fullan (2006, p. 1) pointed out, "Collaborative cultures are ones that focus on building the capacity for continuous improvement and are intended to be a new way of working and learning. They are meant to be enduring capacities, not just another program innovation."

However, implementation of PLCs at the site level in the district has been inconsistent at best. District support has been based on providing an overall training method instead of individual school site needs. Site principals also struggle with PLC implementation to address college and career skills as the California state accountability system remains focused on standardized, computer-generated tests.

To improve a district to meet the 21st century needs of their students, Sergiovanni (2007) concentrates on the moral dilemmas facing school and district leaders as they attempt to improve their instructional systems to increase student achievement. Sergiovanni (2007) addresses the various leadership challenges to see how successful leadership practices are based on the individual and organizational values and ideas rather than on personal wants or professional gain. Sergiovanni's (2007) review of transactional and transformational leadership in schools and districts states,

Leadership needs to be viewed as an investment that contributes to the expansion of social, intellectual, and other forms of human capital. This investment quality of leadership is particularly important in schools that purport to be learning communities.

Emphasizing substitutes for leadership helps us to think about leadership as an

investment. The more effort a leader invests in substitute for leadership, the more likely is

she or he to be cultivating a self-managing culture in a school. Further, substitutes help

build commitment to norms and ideas. And norms and ideas have a moral quality to

them, calling on teachers, parents, students, and administrators to do the right thing. (p.

64)

District leadership needs to lead the development of PLCs to allow schools to become

learning communities focused on student achievement. Sergiovanni (2007) states that "as a

school becomes a learning-centered community it also becomes a community of relationships,

community of place, community of mind, community of memory, community of practice and a

community of action" as the school develops its ability to collaborate and support student

achievement (p. 120). Also, this directly connects to the idea of "value added leadership," in

which the leader attempts to better prepare schools to address academic challenges (p. 141). The

school or district leaders have to build the "organizational competence" that will help them

improve. This way, everyone participates and has a role that provides reciprocal accountability to

themselves and others so that they grow together (pp. 141-142). For leaders to keep their schools

in an ongoing cycle of improvement, the author also states that

Value-added school finds itself in the business of creating and improving capacity. The

school does this by directing its energy and resources to continuous learning of teachers.

Quality learning experiences and opportunities are viewed as an investment in schools

and school faculties that pay dividends in student learning. (p. 141)

School leaders must identify what they need to implement and support at their schools or

districts to ensure there is a focus on student achievement. This moral obligation is essential as

schools and districts modify themselves over time for various reasons. It will be the moral leaders who will keep their educational systems focused on student achievement and not on personal gain.

Fullan (2010) provides successful reform initiatives in the United States and abroad to support actions to improve a school or district. The actions described in his book have established conditions and methods to avoid systematic mistakes and provide ideas for new reforms at the local, state, and national levels that can improve student learning. The idea of whole system reform "produces higher levels of education performance on important cognitive and social learning goals, and it does so while reducing the gap toward a more equal public education system," (Fullan, 2010, p. 25). The main ideas from this book are that all children can learn, a small number of key priorities (by schools and districts), resolute leadership, building collective capacity, developing and maintaining strategies with precision, intelligent accountability to ensure success, and that we improve the entire system and not just part of it.

Fullan (2010) states that "the system" discusses the complexity of school systems at all levels—local, state, and national—and that leaders need to understand the system if they are working to change it to improve student achievement. This means that

It is possible with focused effort that effective schools and systems can virtually eliminate the role of socioeconomic status (SES) in determining educational attainment. The correlation between SES and education success can at least be significantly reduced if not eliminated altogether. But first, we need to address what not to do mainly because it wastes valuable resources while the clock continues to tick downward. (p. 35)

Part two, titled "Getting There," provides methods and strategies to move an organization forward to make changes to improve while not destroying the organization or members within it.

Fullan (2010) describes eight characteristics of effective school districts in this part of the book. The first of these is for the school board and district leadership to have a clear understanding or "focus" on student learning. The second characteristic is for the district to utilize student data to monitor and improve instruction and other educational programs. The third is the development and support of school site leadership models in which everyone can share the best practices to improve student outcomes in the classroom, school site, and district. The fourth requires resources to be divided up in an equitable manner to support student achievement. The fifth characteristic is to reduce distractors that limit the focus on student achievement by creating unnecessary programs, meetings, or bureaucratic processes. The sixth is developing and maintaining connections with parents and the community. Characteristic seven is clear and consistent communication in all aspects of the district to ensure that everyone is informed and on the same page. The final characteristic is called "Esprit de Corps," which is used to describe the learning community of professionals in the district willing to work together to improve.

Part three, "A New Era," provides an outline for leaders to consider at the national, state, and local levels. To be successful in the school systems, we must go beyond "standards, assessments, and accountability," (Fullan, 2010). The government's responsibility is to design the direction in which it wants its schools to go. The government is also to provide opportunities for partnerships to grow between itself and the school districts. Fullan (2010, p. 100) states that the government working with its local districts is intended to measure results based on a "small number of key priorities." Other levels of the sector, districts, and schools must become more proactive on the new agenda, engaging vertically and horizontally in purposeful networks. Put differently, local levels need to "exploit" (in the most positive sense of this word) policies for the betterment of their students.

McNulty and Besser (2011) guide school leaders to implement and guide data teams within their PLC structures. McNulty and Besser (2011) also discuss the sustainability of data teams at the district and school site levels. A data team monitors data, analyzes strengths and obstacles, establishes goals, selects instructional strategies, and determines results indicators for individual students. In short, data teams are collaborative, structured, scheduled meetings that focus on the effectiveness of teaching and learning (McNulty & Besser, 2011). Data teams can also be at all levels of the school district.

At the district level (DDT), the data team's design is to provide support and feedback to school sites to help them sustain success and identify areas for improvement. DDT consists of stakeholders from all areas of the district, including the superintendent, school board members, central office staff, principals, union leaders, parents, and local business and community leaders. The DDT provides a clear vision of high expectations, high performance, and high-quality instruction (this includes what good instruction looks like). DDTs are to provide feedback to school site data teams to ensure that they know—based on common assessments, programs, initiatives or instructional practices—if they are successful, how to sustain success, and how to improve. When the building and the district are making progress, it is the district data team's responsibility to analyze what contributed to this success and to assess if it can be replicated. When the building or the district is not making progress, it is the district data team's responsibility to assess whether this is caused by a lack of implementation. The DDT also "evaluates if it has provided" the supports or "other potential causes, and then to make recommendations regarding how to rectify this," (McNulty & Besser, 2011, p. 75).

The Building Data Team (BDT) guides the focus of ongoing schoolwide student performance and improvement of instructional practice. The BDT works to "focus on the

ongoing performance of students and the quality of instruction. By constantly examining the performance of all students in the building," (McNulty & Besser, 2011, p. 96). Also, the BDT "assesses the overall effectiveness of the Instructional Data Teams," (p. 96). The members of the BDT "consist of the principal, representatives from each grade level or department, other school or program leaders, union officials and any other "opinion leaders" who are influential at the school site (p. 5).

Instructional Data Team (or IDTs) are department members who meet annually to collaborate, focus on a common standard, and review student assessment data, both formative and summative. IDTs "examine student work generated from common formative assessments, which is measured with a common scoring guide or answer key," (p. 111). IDTs follow a six-step process:

1. Collect and Chart the Data

2. Analyze and Prioritize

3. Set SMART goal/s

4. Select Common Strategies

5. Determine Result Indicators

6. Monitor and Evaluate Results

    (McNulty & Besser, 2011, p. 112)

K-12 public school college and career programs for students in A Northern-Central California School District

The targeted Northern California district chosen for its college- and career-preparation in its comprehensive high schools has focused on the traditional model of helping students meet A-G UC/CSU college requirements, advanced placement testing, or International Baccalaureate

programs. The focus of the schools' changes to meet the college and career needs of students has taken the form of several dependent charter schools opened in the district over the last eight years.

The study conducted by Holley, Lueken, and Egalite, (2013) attempted to explain the reforms inner city school district officials have experienced based on the creation of both independent and dependent charter schools in their cities. The study examines 12 large urban school districts throughout the United States. The districts are divided up into four quadrants—West: Phoenix, Los Angeles, and Denver; South: Washington, DC, New Orleans, and Atlanta; Midwest: Indianapolis, Detroit and Chicago; Northwest: Newark, Harlem, and Boston—in an attempt to measure if the growth of charter schools has led to educational reforms and increases in student achievement in traditional public schools. Each of the schools targeted in the study had at least 6% of their students in what the authors call "school of choice," (Holley et al., 2013, p. 30).

Three criteria were developed to examine the influence of charter schools on the various public school districts. The criteria included reviewing charter proposals, school board agendas, state laws, local print media, and online media sources over a five-year period (2008 to 2013). The study conducted by Holley et al. (2013) evaluated the information gathered based on two elements they identified as "constructive response, obstructive response, and no response." Constructive response was when school officials implemented reforms to use resources more efficiently, improve the overall quality of education within the traditional public schools, and increase responsiveness to student needs due to charter school growth. Obstructive response was when public school officials may have attempted to block the increase of charter schools by limiting access to buildings and information, adding burdensome bureaucratic requirements, or

supporting legislation that would hinder the development of such schools. No response measures was when a district did not provide a particular action to address charter school growth.

The study conducted by Holley et al. (2013, p. 35) found that most school districts fell into the "no response" category, in which they made no major changes to their operating procedures, fiscal management, or school reforms to address charter school competition. This lead the authors to conclude that

> Public schools are aware of the threats posed by alternative education providers, but they are analyzing the moves made by competitors and demonstrating that they may have the savvy to reflect, replicate, experiment, and enter into a partnership with school choice providers. (p. 35)

Research by Kempie & Scott-Clayton (2004) demonstrated that students who participated in an "integrated curriculum combined with work-based learning and career guidance can lead to high wages after high school, as well as improvement in other student outcomes," (Hoachlander, 2008, p. 26).

Symonds and Gonzales (2009) argue that high school students should be exposed to rigorous career-based pathways while in high school. Embedding work-based learning into the curriculum will develop students' skills for career and college. The authors state that work-based learning will "address the most important reason high school students drop out: the feeling that school is boring and irrelevant to their future," (p. 20). This model, they argue, is not the traditional CTE program in which students take a series of courses before graduation; it instead provides students with "options and choices with career education ranging from business to engineering and health care. The key to success is insisting that these programs meet high-quality standards," (p. 21).

Work-based learning is a component of the "multiple pathway strategy," and high school students need to experience opportunities to have job-shadowing and internships integrated into their educational experiences (Symonds & Gonzales, 2009). The author argues that, when this happens, these programs "increase student engagement and attendance, raise high school graduation rates, and encourage persistence into postsecondary education," (p. 22). Also, these experiences provide them with 21st century skills and meaningful connections to the adult world of work. Symonds and Gonzales (2009) provide several examples of successful schools and programs that can be utilized to support career pathway exploration, incorporate the application of content skills, and maintain rigorous coursework. These schools and programs include High Tech High School, National Academy Foundation, Project Lead the Way, and Cisco. Community colleges also play a part in pathway design. Community colleges have an ongoing connection to the workforce—not just the UC and CSU system—which will be important to help meet the ongoing demands of the 21st century workforce. Many professions will require some college work, not just a high school diploma, post-high school training, or even four-year degrees. High schools will have to incorporate multiple pathways and rigorous coursework into all high school students' careers or they will not be prepared for the 21st century workplace.

Linked Learning was another method the targeted Northern California district's high schools utilized to connect college and career skills. Stam (2011) describes Linked Learning as a career-based integrated curriculum that allows high school students to see the connection of their content (math, English, science, etc.) to real-world career fields (Stam, 2011, p. 12). Linked Learning is intended to change the traditional high school experience by linking a college preparatory course sequence with demanding technical education to real-world experiences with classroom learning to help students gain an advantage in high school, postsecondary education,

and careers (Stam, 2011). Students involved in Linked Learning follow "themed pathways" in various careers needed at the state, county, and local levels (Stam, 2011, p. 13). These pathways connect learning with students' interests and career aspirations, leading not only to higher graduation rates, but also to increased postsecondary enrollments, higher earning potentials, and greater civic engagement. The author provides the main ideas and components of building and sustaining "industry-themed pathways" at the school site and district levels based on the ConnectEd organization's (funded by the Irvine Foundation) research and work with various high schools and districts in California (Stam, 2011).

Stam (2011) connects students' preparation for career and college by joining their possible career interests (which is identified while in high school) to theme-based career pathways and curricula so that they see the connection to their learning to real-world applications. Stam (2011) states, "Any school can be theme-based, but the difference with pathways is that academic course content is coordinated with and reinforces technical course content and vice versa." Students can now connect their learning to understanding the "why do we have to learn this" types of questions as their classroom-learning connects to real-world applications or careers (Stam, 2011, p. 15).

Summary

As we continue down the path of college and career preparation for all students, whole system reform has become a fantastic buzzword. However, changing the education system will be required as there is a need to update how traditional education programs and school structures prepare students for college and career. High school graduation is not enough in the 21st century. All school systems must ensure all students are college- and career-ready by the time they graduate from high school to ensure that they learn the skills needed to adapt to the 21st century

workplace, which will be difficult to achieve. College and career preparation is forcing educators to ensure students have the skills to compete in the 21st century to ensure their communities' and the nation's economic prosperity. According to Darling-Hammond (2010), students need to

> Design, evaluate, and manage one's own work so that it continually improves, frame, investigate, and solve problems using a wide range of tools and resources, collaborate strategically with others, communicate effectively in many forms, find, analyze, and use information for many purposes, and develop new products and ideas. (p. 4)

These skills and concepts are making educators rethink how they guide or improve instruction and school programs to ensure all students are prepared for college and career. If we truly want to prepare students in this manner, then educators at all levels in the system must design or redesign an education system that goes beyond the traditional model that is becoming more and more antiquated the further we progress into the 21st century.

CHAPTER 3: METHODOLOGY

The mixed methods research study was a "multi-instrument" case study designed to investigate "a real-life, contemporary" case of a student who matches the participant criteria and can address the research questions (Creswell, 2013). The targeted school district is in north-central California in an urban city area. This district has a total of 11 high schools that vary in instructional program type, school size, teacher to student ratio, and instructional bell schedule. The graduation and dropout rates have improved over the last five years with the district's 2014-2015 graduation rate at 82.9% in which 11.8% of the students did not graduate. The county in which the district is located had a graduation average that was the same as California's state average: 82.3% for the 2014-2015 school year. However, the county dropout average is 10.6%, and the state average is at 10.7% (California Department of Education, 2016).

The graduation rate is an improvement from the last five years, where it was once as low as 71% for the 2010-2011 and 2011-2012 school years. However, only 36.4% of the district's students met the UC/CSU requirements. The state UC/CSU completion average was 46.9% (California Department of Education, 2015). Four of the high schools are large traditional comprehensive high schools (CHS) with an average graduation rate of 85.4% for the 2015 graduating class (California Department of Education, 2016). Three of the high schools in this district are dependent charter school (DCS) programs, and their graduation rate for 2015 was 98%.

Each of the CHSs has an average student to teacher ratio of 3:1. All four CHSs have a unique magnet program (science, International Baccalaureate, journalism, and music and performing arts), honors programs, and a certified Advancement Via Individual Determination (AVID) program, in which one high school is an AVID national demonstration school. Two of

the four CHSs provide access to college courses on their campuses during the traditional school day. Three of the four CHSs are organized on a traditional six-period bell schedule, and the other is on a 4X4 term bell schedule where students take four classes at a time for half of the school year or term and then take an additional four classes. The 4X4 high school has all of its students participate in one of five career pathways: law, health, STEM engineering, stagecraft, or communication technology. Two of the five pathways are National Academy Foundation (NAF)-certified and two are connected to STEM or science, technology, engineering, arts, and math (STEAM) curriculum themes. Only three of the four CHSs utilize career technical education (CTE) programs for students. The other three CHSs have integrated at least one career pathway in the fields of engineering, technology, or law. Also, except the CHS with the IB program, the other three comprehensive high schools provide advanced placement (AP) courses, and two of the CHSs provide students opportunities to attend San Joaquin Delta College courses on their campus during and at the end of the instructional day.

Each of the DCSs have their themes and areas of focus (health, early college, and law), honors, and AP courses. The DCS graduation rate average for 2014 was 98.13%, and 100% of their students participated in A-G UC/CSU course requirements (SUSD, 2015). Only one of the three DCSs has a CTE program. Also, one of the three DCSs, as of 2015, had English language-learners, and none of the DCSs had Special Day students within a special education program. The teacher to student ratio at the DCSs averages around 20:1 (California Department of Education, 2015). The early college DCS is designed to have students complete their AA degrees or first two years of college while in high school. Also, their academic calendar mirrors a local city college that provides college professors for the program. The second DCS is focused on health, and students are provided unique opportunities for internships and work-based learning in

the health fields. The third DCS is focused on law and is connected to a local private university law school program through which students can enter the university and be on track to enter its law school upon completion of their bachelor's degrees.

Purpose of the Study

The purpose of this study is to identify if the participant's high school experience provided the skills needed to be prepared for college and career after graduation, ensuring their economic prosperity as adults. High schools will need to ensure that students' academic skills prepare them for post-high school graduation training and learning. High school graduates will need to have the skills to learn both on the job and in a formal setting in a post-high school institution. Also, high schools will need to align course content to college- and career-readiness standards to ensure rigor. High schools will also need to "partner with local postsecondary institutions and business" to provide students with opportunities for hands-on learning and preparation for expanding careers in their community to ensure their post-high school economic success (Conley & McGaughy, 2012, p. 33).

Research Questions

Three research questions were the focus of this study to determine how students' high school programs can or cannot increase their economic and career success as adults. The instrument is in two parts for this mixed methods study. A questionnaire was utilized for the quantitative aspect of the study. The qualitative piece was interviewing six participants. The responses were used to address the following research questions.

1. If students graduate from high school not prepared for college and career after graduation, what is the economic impact on the community?

2. Does the completion of career-related programs such as career pathways, Career

Technical Education (CTE) or STEM prepare students for college and career?

3. Can A-G course completion, participation in honors programs, early college or dual
   credit courses completed in high school prepare students for college and career?

Participants

The participant pool consisted of the district pool of graduates who were at least 23 years of age and graduated before 2012. Demographic categories were identified to reflect the diversity of the district accurately and to disaggregate the data findings. This type of purposeful sample was identified based on the participants' ethnicities, high school careers at either comprehensive or non-comprehensive high schools (charter, specialty, or adult education programs), and family SES while they were in high school. This sampling method provided a way in which the identified "population are represented in the sample in the same proportion that they exist in the population," (Lunenburg & Irby, 2008, p. 170). Each case was typical of the sample population to be connected to the quantitative survey of this research study (Flipp, 2014b).

The school district serves about 40,000 students of the 145,000 school-age students in its county (California Department of Education, 2016). According to the California Department of Education's 2016 data, this district's student population is very diverse; over 90% of the student population is non-White (see Table 4). Latinos and African Americans combined account for approximately 75% of the student population as compared to the rest of the state and county averages, where these students comprise just below 60% of the student population.

Level	District	San Joaquin County	California
Hispanic or Latino of any race	25,880	74,545	3,360,562
American Indian or Alaska Native, not Hispanic	847	1,376	34,704
Asian, not Hispanic	3,691	15,651	551,229
Pacific Islander, not Hispanic	200	1,044	30,436
Filipino, not Hispanic	1,688	6,431	156,166
African American, not Hispanic	4,361	11,961	361,752
White, not Hispanic	2,625	29,516	1,500,932
Two or more races, not Hispanic	945	4,368	192,146
Not reported	87	868	38,810
Total	40,324	145,760	6,226,737

Table 4. California Department of Education district, county, and California demographics

Source: California Department of Education

Sampling Procedures

The high school graduate population is diverse, consisting of about 2,500 of the district's

10,000 high school students. The number of high schools has dramatically increased over the last

10 years, which has diversified the participant group high school experience and college and

career preparation. There are 11 high schools in the school district that include the Adult

Education High School, of which four of the charter schools opened in the last seven years, and

one of the district comprehensive high schools opened 12 years before the writing of this

research study.

A quiet, comfortable location was chosen by the participants so that the interview could

be conducted. Before the start of the interview, specific demographic information was asked to

enable disaggregation of the information from the participants. Participants' race, sex, income

(family income in high school and current income), current educational level, parents' education

level, and college and career experiences after high school graduation were all taken into account when analyzing the data. The researcher redirected the conversation as needed whenever participants strayed from the subject.

At the conclusion of the interview, the researcher transcribed the information from the recording and added additional notes as necessary. Based on the discussion, the researcher then coded the information from the text into "categories of information" that would help provide insight to addressing the research questions of the study (Creswell, 2013, p. 184). The identification of themes within the notes after the interview was concluded ensured a "true picture" of the interviewees' answers so that the research study questions were addressed (Robinson & Media, 2015).

Utilizing the participant pool of graduates who were at least 23 years of age and graduated before 2012, the researcher targeted 600 graduates for the qualitative questionnaire. From this group, a stratified random sampling design was used to identify a sample population from the 600-participant pool. Subgroup categories are represented to disaggregate the data. The sample population was identified based on the participants' ethnicities, high school careers at either comprehensive or non-comprehensive high schools (charter, specialty, or adult education programs), and the participants' families' socioeconomic statuses while they were in high school. This stratified random sampling provided a way in which the identified subgroups in the "population are represented in the sample in the same proportion that they exist in the population," (Lunenburg & Irby, 2008).

The researcher had a difficult time reaching the targeted goal of 600 participants as multiple methods were attempted over a four-month period. The researcher first used his social media account (Twitter) to advertise the questionnaire. Then he, being a graduate of the targeted

Northern California school district, reached out—in person, by phone, and on social media—to friends in the community who met the research criteria. Also, the researcher gave flyers to any individuals he came into casual contact with at stores, restaurants, or gas stations and asked them to complete the survey if they met the research criteria.

The researcher also received permission from the targeted Northern California school district to contact the alumni associations of its ten high schools. Contact was made via email and through each school principal who passed the information onto the alumni or alumni association. Eight of the high schools and the Adult Education High School had alumni who met the research criteria. However, two of the high schools, both dependent charter schools, did not have alumni who met the study research criteria as both schools have only had four to six graduating classes as of the writing of this study.

The researcher approached the principal and assistant principal of athletics of the four large comprehensive high schools to have the flyers passed out at athletic events, including their homecoming football game (if possible). These schools are the only ones in the targeted Northern California school district with athletic programs. The researcher gave the flyers to the schools, and they were then distributed to adults who purchased tickets to the sports events.

The researcher then contacted principals throughout the targeted Northern California school district and asked if they would pass on the quantitative questionnaire to staff members who were graduates from the school district and met the research study criteria. Principals were provided a link and a formal email request they could use to pass onto their staff. Each principal—who was contacted by phone, email, or in person—was asked to pass on the request to both certified and classified staff.

The researcher also reached out to the mayor of the city and asked for him to take the quantitative questionnaire and to pass it along to other city departments and friends. The mayor requested from the researcher if he could place the information for the questionnaire on social media, and the researcher approved it. The researcher encouraged everyone who participated in the qualitative questionnaire to pass it on to friends and family who met the research criteria via social media.

Several local business managers and church leaders who were graduates of the targeted Northern California school district were asked to complete the quantitative questionnaire. These leaders were then provided a flyer to keep at their churches or businesses for anyone who wanted to participate in the study. A few business owners allowed the flyers to be placed in their business break rooms, and some church leaders left the flyers out where their parishioners would have access to them.

The researcher used his family to help spread the word out into the community. The researcher, the researcher's wife, and many of her family members are products of the targeted Northern California school district. These family members were contacted in person, by phone, by text message, and by email. The family members who did not meet the research study criteria were not contacted or asked by the researcher to complete the questionnaire. Various family members then placed the link and information about the research study on their various social media accounts, including SnapChat, Twitter, and Facebook. Ultimately, 126 participants took the survey, and six people were interviewed.

Limitations

The limitations of this study were that it would focus only on one Northern California school district. This study is not designed to develop, review, or compare findings from more

than one district. Nor is the study designed to establish trends between different school districts. This study will only address students who have participated in and completed their graduation programs while in high school and how that completion assisted their eventual economic success as adults. College entrance—both two-year and four-year institutions—and high school-to-work placement will be explored. However, the study will not focus solely on these areas due to the tremendous amount of research already on these topics. The findings from this study should only be generalized with another district if it shares common demographic, socioeconomic, and educational history of the district in which this study was conducted.

The study also attempts to find answers by questioning graduates from the targeted district, who graduated no earlier than 2012 and are at least 23 years old or older. This population was identified because they would have had time after graduation from high school to provide answers regarding if their high school education programs affected their college and career successes or lack thereof. The participants within this population had the opportunities to be employed fulltime, part-time, unemployed, attend a post-high school institution of learning or working, and receive post-high school education or training at the same time. Their insight into their high school preparation provided the study with the necessary data to analyze how students' high school programs can affect their career successes as adults.

Delimitations

College and career preparation is a broad topic and could impact various aspects of high school preparation. Several delimitations were identified so that the research questions could be addressed. The high schools in the identified district include specialty schools, dependent charter schools, and alternative and comprehensive high schools. Private high schools and independent

charter high schools located within the boundaries of the identified district will not be included in this study.

Participants for this study are high school graduates who are at least 23 years of age. Non-high school graduates and graduates younger than 23 years old will not be considered because they would not have had the opportunities to complete high school, college, or trade school and enter the workforce. High school staff and their perception of college and career preparation will not be an aspect of this study so that the research findings only consider the students' points of view.

Validity

To ensure validity, the instrument—a multi-question survey based on the review of literature—was reviewed and edited by high school graduates who matched the study profile (age 23 or older and at least five years out of high school) and by one 13-year-old. However, the test participants were not graduates of the targeted district, and the minor was involved to verify the instrument's readability for low-skilled high school graduates. This group provided input to decrease researcher bias, ensure proper wording, eliminate questions that could produce the same types of responses, and illuminated any ambiguity that would keep a participant in the study from answering the questions. The instrument also includes demographic information so that the data gathered from the participants could be disaggregated based on race, sex, income (family income in high school and current income), current educational level, parents' education level, and college and career experience after high school graduation. Both quantitative and qualitative questions were utilized in the survey (see Appendices A & B).

Instrument

The questionnaire was based on the review of literature of college and career preparation in high school. The instruments' questions were organized in a Likert-type scale format to give the participants a range of options that could provide illicit data that correctly represents their college and career experiences while in high school (Likert, 1932). McLeod (2008) stated that "A Likert-type scale assumes that the strength/intensity of the experience is linear, i.e. on a continuum from strongly agree to strongly disagree, and makes the assumption that attitudes can be measured," (McLeod, 2008). Depending on the question, various Likert scales were used to gain the participants' truthful responses (McLeod, 2008). Questions included Likert scales ranging anywhere from four to eight answer selections.

Additional questions were organized into seven categories. The first—Career Interest in High School—was designed to identify the participants' career interests when they attended high school. The second section of the survey—High School Learning Priorities—was designed to identify the participants' personal educational outcomes during their high school careers. The third section—High School Support—was designed to identify the types of college and career support and guidance systems that were provided by the participants' high schools. The fourth section—College and Career Goals—was designed to establish the participants' supportive structures at home and in their high schools. The fifth section of the survey—High School Learning Experiences—was designed to divulge the participants' opinions of their college and career preparation based on their high school educations. The sixth section of the survey— College and Career Application—was meant to evaluate the participants' perceptions of their college- and career-readiness after graduating from high school. The final section—High School

Choices—was designed to establish the types of academic programs (magnet, charter, alternative, or comprehensive) at the participants' high schools and which ones they attended.

The questions within the quantitative questionnaire were divided into seven categories: career interest in high school, high school learning priorities, high school support, college and career goals, high school learning experiences, college and career application, and high school choices. Each item on the questionnaire, except for the demographic information, was developed using a Likert scale to ensure participants provided an answer for each question. The final section was dedicated to gathering demographic information from the participants to disaggregate the findings.

The research study is a multi-instrument one, meaning it was designed to investigate "a real-life, contemporary case of a student who matches the participant criteria and can address the research questions," (Creswell, 2013). The researcher asked the participant all the questions, took notes, and organized the data into themes so that conclusions could be made based on the participant's responses. Each interview was recorded to ensure accuracy.

The questions were open-ended to allow the participant to provide a short response. If the response was not clear or needed additional information, the interviewer asked for further input. The questions for the qualitative interviews included:

1. Are you in the career of your choice? If so, can you describe your pathway to your career from your high school experience, college, or on-the-job training? Please describe your current career and your work responsibilities.

2. Please include the types of education or training you need to have for your current career.

3. What level of economic status (poor, middle-income, wealthy) would you consider yourself, and what factors contributed to your current economic standing?

4. Does your career require additional education or training? If not, why? If so, what type of training or education did you need?

5. Before starting your career, what type of education or training did you need to complete after high school?

6. Please explain the types of classes you participated in while you were in high school. Please include how these classes did or did not help you build your skills to enter your current career.

7. Please explain the types of college prep programs you were in while in high school. Include any honors, AP, or early college courses you completed. If you did not participate in a college prep program, why?

8. Please explain the types of career programs or training you participated in while in high school, such as ROP, CTE, or a career pathway. If you did not participate in a program, why?

9. How did or did not your high school classes prepare you for the real world (i.e. college and your current career or job)?

10. What type of high school academic programs do you think are needed to prepare students to enter 21st century careers?

After the interview, the researcher made a written copy of the recording and divided it into "categories of information," (Creswell, 2013, p. 184). The identification of themes within the notes ensured a "true picture" of the interviewees' answers (Robinson & Media, 2015).

The qualitative questions were a separate discussion with the participants that allowed them to "provide different perspectives" that "usually complement each other," ("Quantitative Vs. Qualitative Research," 2010, para. 9).

The qualitative interviews consisted of six individuals who met the same criteria as the quantitative questionnaire. The researcher contacted each of the six participants in person to attain their permission to be interviewed. The researcher explained to each participant the purpose of the study and let them know that the interview would take between 30 and 60 minutes to complete. The researcher also disclosed that all of the answers would be recorded and organized so that conclusions could be more effectively made based on the participants' responses.

Data Collection

Survey data was collected via the online survey program, Survey Monkey. A cover letter was sent to the participants' email addresses, and flyers were distributed to each school alumni that was provided access to the survey. The letter and flyer explained the study, its purpose, and how the data would be utilized. Participants in the survey were then sent a second email link in which they were able to log onto the Survey Monkey website to complete the survey.

Survey Monkey allowed the participants to pause and restart the survey at any time as long as they completed the survey in the time provided. Data collection started in the autumn of 2016 and was completed in January 2017. Each participant had 30 days to complete the survey. Email reminders were sent to the participants every five days to remind them to complete the survey if they hadn't already done so. Data analysis took place between January 2017 and February 2017.

Quantitative Analysis

Data accumulated from the 126 participants was organized by the demographic information they provided. There were four demographic groups that were analyzed. The first was by participant ethnicity, and the second was by their participation in high school in a career pathway, regional occupational program, or career technical education program. The third group was organized based on participants' post-high school educations or job training. The final group was organized by the participants' current socioeconomic statuses.

Data was examined by using a causal-comparative research analysis. There were two independent variables. The first was the participants' enrollment in an early college course, regional occupation program, or career technical education pathway while in high school. The second was the participants' current economic statuses.

The researcher placed the Survey Monkey responses into the Statistical Package for Social Sciences' (SPSS's) computer program to complete the statistical analysis. The SPSS program was used to run the Analysis Of Variance (ANOVA) statistical analysis method to identify if the survey responses supported the research questions. ANOVA's statistical analysis allowed the researcher "to compare differences among many sample groups" and to "design experiments in which the independent variable is manipulated through a whole range of values," (Sprinthall, 2012, p. 330).

Qualitative Analysis

Data accumulated from the interview instrument was placed into a computer-based program to preserve information, help the researcher identify themes, and have the themes uploaded to a statistical analysis program (SPSS) to be later analyzed and compared with the quantitative aspects of this mixed study design. Due to the multiple cases included in this study,

the researcher utilized a "triangulation" method to bring together the individual themes of each qualitative case with the common themes that were found in all cases in the study. The researcher completed each interview separately and not on the same day. The notes from the interviews were highlighted based on the participants' common statements and themes. These themes were then analyzed to identify how or if the participants properly answered the interview questions. This process was repeated for each case so a "cross-case analysis" could identify commonalities (Flipp, 2014a). The interview data was then interpreted to demonstrate what was learned from each case.

Mixed Method Data Analysis

A convergent parallel method was applied to compare the data gathered from both the qualitative interviews and quantitative questionnaire. The researcher then interpreted and organized the data into trends and commonalities to address the research questions.

Reliability and Validity

The researcher developed the quantitative and qualitative instruments for this study. The researcher then examined the study instruments with seven test participants who met the research criteria save for one detail; they were not graduates from the targeted central California school district and one of them was an 8th grade student who was also the researcher's oldest son. This test group provided the researcher with feedback on the readability of the quantitative questionnaire and to see if the questions on both qualitative and quantitative instruments would address the research questions. The researcher explained to each test subject the purpose of the study and that their feedback would help establish if the questionnaire could be completed by anyone who met the study's targeted population and address the research questions. Each test

subject was also asked for their feedback regarding the quantitative questionnaire so appropriate modifications could be made.

A criterion-related validity method was utilized to connect the participants' high school experiences to their current career and economic successes. This process ensured the validity of the instrument because the questions on the survey produced data that determined the "actual relationship between variables that purportedly are related" to each other ("What is criterion-related validity?" 2015, para. 1).

To ensure the instrument's reliability, Cronbach's alpha was used to evaluate the survey and its responses. By doing this, the researcher ensured that "all items on an instrument relate to all other instrument items and the total instrument," (Lunenburg & Irby, 2008, p. 182).

Ethics

Each participant was kept anonymous to ensure honesty and to protect them from any concern that their answers might lead to negative feedback from their community or peers. The researcher, who is a graduate and was an employee of the targeted district when the study was conducted, had to separate his experiences from the selection of the participants and the study's findings to avoid any personal bias.

Summary

The study provided insight into the effectiveness of high school programs regarding current career statuses. The participants' answers to the survey and interview questions yielded detailed information to assist in making specific recommendations for the types of courses, programs, and high school experiences that can positively contribute to a student's eventual career success.

CHAPTER 4: FINDINGS

The link to the questionnaire was provided to participants via text message, Twitter, flyers, and email. High school principals and district leaders were approached and asked to pass out the survey to their staff members and alumni. The researcher also asked local businesses to place the flyer in their break rooms so district graduates would have access to it. Also, participants were asked to pass on the questionnaire to others they knew who met the criteria of the study.

10 questions were asked during the interviews (see Appendix A). Demographic information was embedded in the questions, except for the participants' ethnicities. Before the interview began, the researcher asked the participants which ethnic group(s) they identified with (African-American/Black, Latino, White, Asian, Multi-Racial, Pacific Islander, Native American or Alaska Native, or any other). The researcher then asked each participant the age group they belonged (21 to 25 years of age, 26 to 30 years of age, 30 to 35 years of age, 41 to 45 years of age, 46 to 50 years of age, or 51 or older) to ensure disaggregation of the findings and comparison to the qualitative questionnaire.

Each of the 10 questions were open-ended. If the initial responses weren't clear enough to address the question, the interviewer asked for additional information.

Qualitative Analysis

Participant #1 (P1) was an African-American male whose age fell into the 41 to 45 years old range. At the time of the interview, he worked in the field of education within the targeted Northern California school district. Participant #2 (P2) was a Latina female whose age fell within the 30 to 35 years old range. She also worked in the targeted Northern California school district in the clerical field. Participant #3 (P3) was a Latino male between 26 and 30 years old who

worked in law enforcement. Participant #4 (P4) was an African-American male between 41 and 45 years old. He worked at a local hospital as a manager in the food services department. Participant #5 (P5) was a Filipino female aged 50 or older. She is currently retired; however, she had worked at a local factory (which closed down) and clothing store. Participant #6 (P6) was a Filipino and Portuguese male between 46 and 51 years old. He works as a refrigeration and boiler technician and supervisor. It should be noted that P6 is the son of P5.

The first question was, "Are you in the career of your choice? If so, can you describe your pathway to your career from your high school experience, college, or on-the-job training? Please describe your current career and your work responsibilities." The responses to this question are recorded in Table 5.

Participant Code	Response
P1	"I can't say I am in the career of the choice because I did not start off to become an administrator. Currently, I am an assistant principal of a high school, and I originally went to college to be. When I graduated from college, I took the mortgage broker test and received my real estate field. While I did that, I substitute taught and coached and completed my teaching credential. I spent three years in real estate but substituted to stay in contact with kids. After watching the movie *Coach Carter* with my girlfriend, I decided to go back into education full-time."
P2	"Yes, I am in the career of my choice because I wanted an office career. I am currently a student data technician at a local high school. My job includes working in the office with parents, students, and staff in person, on the phone or email. I also have business or accounting responsibilities as part of my job as well. While in high school I only had one course in business which is the only class that connected to my career because it gave me basic computer skills and check balance skills. I completed my AA degree at HEALD College in business which helped me in my current career as well."

P3	"I always wanted to be a police officer. In high school, I thought I wanted to go into a business area and was in my school ABLE program. In college, I took psychology courses, and as I worked for Staples (for seven years after high school), I completed my BA Business degree. I was not satisfied with my career in Staples and decided to go into law enforcement."
P4	"I am a manager in the food services at my hospital. My duties include ordering, catering, and managing the food services provided to the hospital. In high school, I worked at Carl's Jr., which helped me become a leader as well as learned from the previous hospital food services manager when I started there."
P5	"Tried to be a nurse. Ended up working in fields and California Cedar Products for 14 years. I then worked for Kohls department store for 12 years. I am currently retired."
P6	"Started off as fish and game and then switched to refrigeration. Went to Delta College to receive training. Classes were there to go and take hands-on shop classes at Delta College." "My current responsibility is as Head Operator for Cargo Meat Solutions and supervisor for the refrigeration units. I make adjustments to compressors, make sure everyone does their readings, ammonia in the system, check refrigeration tubes, no leaks, valves operational, fans and belts are not cracking, ensure my guys are doing their job, give them test and they know how to fix the leak. We order what we need and make sure the system is working including contractors. Have to make sure the fans are working, and doors are and can close so that the food freezes."

Table 5. Career of Choice

Participants were then asked, "Please include the types of education or training you need

to have for your current career." The responses to this question are recorded in Table 6.

Participant Code	Response
P1	"I only had to complete my credential when I decided to enter teaching full time. Later on, I completed my master's degree and administrative credential."

Participant Code	Response
P2	"I received training in basic computer skills in areas such running reports, typing letters, mail merging, and spreadsheets. I also had to learn customer services, money management skills, and learn how to do complete journal entries."
P3	"I had to complete my high school diploma, meet minimum physical requirements, not be in heavy financial debt, and have no legal issues (any misdemeanors). A college degree helps for my job, but it is not needed."
P4	"I learned from my previous manager. Not in a school or training. I learned how to order items, receive inventory, and how to put stuff away (that was delivered) properly."
P5	"Only high school. Nothing else was needed."
P6	"I had to go back to school to learn how to do the boiler. I took training at Fresno State and got my certification. I had to take a bunch of classes. It was for welding and boiler."

Table 6. Current career training or education

The third question asked, "What level of economic status (poor, middle-income, wealthy) would you consider yourself, and what factors contributed to your current economic standing?"

Participant Code	Response
P1	"I consider myself middle class. I make a decent living. What helped with that was growing up middle class and being taught and shown people who are poor. I was taught not to be poor."
P2	"I consider myself middle class. I received my AA degree, which helped me get my current job. But I want to go further than my AA degree."
P3	"Middle income. I have a BA which increases my salary.In high school, I tested well in areas of grammar, spelling, and math which helped me get accepted into the academy. I have a strong work ethic from my upbringing and values taught at home."

P4	"I am 100% better than I was in high school. I feel I am average or middle income. In high school, I did poorly, but learned by working while in high school and after high school."
P5	"I was not poor, but not rich. I wouldn't call it middle."
P6	"Upper middle income. I am a supervisor, and I make very good money."

Table 7. Economic status

The fourth question was, "Does your career require additional education or training? If not, why? If so, what type of training or education did you need?"

Participant Code	Response
P1	"I consider myself a life-long learner. So learning new methods on how to serve students, improved teaching practices to help my staff, or learning about programs like AVID are areas I see as additional training."
P2	"Does not require more training. My AA degree is enough because it taught me the skills I needed. A high school degree would not have been enough."
P3	"I have ongoing training which includes learning about new policies and laws. I also have to learn and train on my shooting skills on the gun range, CPR, first responder, hazmat, and search and seizure. Training is completed both in my department and outside of the department. Some training is up to me to learn if I want to learn or specialize in a specific area."
P4	"I do have to learn food safety because we are always inspected, and laws change. But the training is on the job. I do not have to take a class or go to a training."
P5	"I learned on the job. I learned everything by working my way up. I worked in the children's department and all departments of the store at Kohls."

Participant Code	Response
P6	"Got to keep my certification up every year. I have to go to industrial refrigeration and boiler training. They give you the books, pay for the testing, and give you time, but you do it on your own."

Table 8. Ongoing career training or education

Question five asked each participant, "Before starting your career, what type of education or training did you need to complete after high school?" The responses to this question are found in Table 9.

Participant Code	Response
P1	"I received brokerage training after high school to be a real estate broker. Once I decided to go into teaching, I completed my teaching credential, master's degree in Education, and admin credential. It was my teaching, admin and masters degree that provided me the theory on what to do in education." "Both my mother and father pushed me to enter education and provided guidance once I decided to enter into education."
P2	"I completed courses at HEALD College which included business courses. I also finished my AA degree at HEALD."
P3	"No additional training was needed after high school. But a college degree would be good to have in law enforcement. On my own, I did complete drivers training for law enforcement and physical fitness to be prepared to enter the academy."
P4	"Had to figure it out myself by learning from my other jobs and my old manager."
P5	"I took bookkeeping classes while in high school and math courses as well. But that was it."
P6	"I took classes at Delta to learn refrigeration. Then my compony paid for me to go to Fresno State to get trained."

Table 9. Prior career training and education

Question six asked each participant to "Please explain the types of classes you participated in while you were in high school. Please include how these classes did or did not help you build your skills to enter your current career." The responses to this question are found in Table 10.

Participant Code	Response
P1	"I was on a college track in high school. My courses qualified me to go to a four-year college because I came from a family of educators. I think these courses help build a solid foundation for college helping to build my study skills."
P2	"I had one business course in high school for a semester that I think helped. It helped me understand business concepts, but it was only for one semester in high school. Classes like art, teacher assistant, were not relevant to my career even though I was always interested in business."
P3	"High school program that helped me was the ABLE because it helped my study skills. I also took college prep classes in English and math which helped when I did go to college and enter into Highway Patrol."
P4	"Never took classes that helped my career in high school. Math classes were the closest to helping me because I need to take inventory and problem solve."
P5	"Math, PE, the basic courses needed. Participated in clubs and watched sports."
P6	"Just the basic classes. I was good with my hands and took some ceramic classes because they told me I was good with my hands. A teacher told me that. "These classes did not help me with my current career. I wanted to get into Fish and Game. Then met the Delta College professor and took the summer classes for refrigeration."

Table 10. High school coursework

Question seven was, "Please explain the types of college prep programs you were in while in high school. Include any honors, AP, or early college courses you completed. If you did not participate in a college prep program, why?"

Participant Code	Response
P1	"I was on a college prep track, but I did not take Advance Placement courses because they did not have them. Because my family was educators, I was guided to classes that would help me get into college."
P2	"I did not take any college prep or honors courses in high school. I did not know of them and did not hear of them. It was never brought up to me by my counselor. I only saw my counselor once a year. So I did not know about it."
P3	"The Able program I started in high school was an IB program for going to college. I did not complete it and transferred to the TLC program. But I continued to take college courses and had a great history and English teacher in the TLC program that challenged me to apply my learning to the real world. They would take some problem and have us talk about it, research it, write about it, and present it."
P4	"I had a regular school program. I was lazy and feared to fail, so I did not push myself. I wanted to take the easy road to graduate from high school."
P5	"Not many courses for college that I knew of and could take for college."
P6	"No, I did not. I was Filipino oriented and figured I was going to go to work and not go to college. My grandfather was a farm worker, and I was going to take his place."

Table 11. High school college preparation

Question eight was, "Please explain the types of career programs or training you participated in while in high school, such as ROP, CTE, or a career pathway. If you did not participate in a program, why?"

Participant Code	Response
P1	"I did not participate. I cannot think of any specific reason."
P2	"I did not participate. I do not know why."
P3	"I did not sign up for ROP or CTE courses in high school Those classes did not line up with what I wanted to take."
P4	"I knew about ROP and knew people in the auto program. But I did not want to take the courses."
P5	"Took some vocational courses in automotive. Not many."
P6	"Did not take any courses. I took art and ceramic classes to meet graduation curricular requirements."

Table 12. ROP or CTE experience

Question nine was, "How did or did not your high school classes prepare you for the real world (i.e. college and your current career or job)?" The answers from each participant are provided in Table 13.

Participant Code	Response
P1	"High school alone did not prepare me for my current career but gave me some skills to get into college which is needed for my career. I could have earned my brokerage license with only a high school education, but once I decided to go into education, I needed to go to college which was a bigger impact on my career."
P2	"High school just gave me a basic overview. High school did not give me the details or depth I need for my current career."
P3	"High school made college easier. ABLE and TLC program made me have to think about stuff. We did projects and had competitions in the TLC program that helped me learn how to problem solve and get things done. One of my teachers in the TLC program always said that we had to learn how to figure things out because no one was going to do it for us."

P4	"In high school, I wanted to hang out and have fun. I was not ready after high school. I did love my economics class because it was about money and the real world, but that was it." "I did not get a lot type of guidance or help from the school beyond knowing what to take to graduate."
P5	"I did it by myself. But high school did help. I interviewed and qualified for the jobs by passing the test."
P6	"None of the classes really helped me. Teachers told you about taking classes to graduate. Classes were overcrowded, people did not care, and if you showed up, you showed up."

Table 13. High school preparation for career

Table 14, 21st Century College and Career Preparation, displays each participant's answer to the final question, "What type of high school academic programs do you think are needed to prepare students to enter 21st century careers?"

Participant Code	Response
P1	"I think programs like AVID and using WICOR strategies all students need to learn and use. Students need to learn how to be organized and AVID teaches them that. I am a big advocate for AVID and think it is a great program for students." "STEM programs are also needed for students. Students need programs like this to give them a leg up. STEM helps them enter into the career of their choice because it provides more rigor."

"All students should have to take Leadership courses in high school. Students in leadership learn how to plan, organize, use information to get things completed, and meet deadlines. That's important for all students."

P2

"There should be more business courses that teach kids office skills and basic business skills. That would have helped me in high school." Students also need to know how to write and apply their math. More English classes that teach writing and math classes that build on basic math skills. Students who have basic math skills should have more courses to help them gain skills that will help them as an adult."

"Technology is important and part of everyday life. That needs to be part of student learning in their classes."

"Students need college planning and support. I had to learn that all on my own. Counselors and teachers need to help with that. Parents and kids may not know what to do, or how to get to college."

P3

"Students need to learn how to be responsible and take responsibility. I see this a lot in my job where people do not take responsibility for their actions. Or they have the feel sorry for me attitude. The more they can learn about responsibility, the better."

"Leadership and public speaking skills are important as well. Students need to know how to communicate and work with people from all walks of life. They also need to know how to work with each other and problem solve. Schools need to focus on that."

"Kids need trips to places so that they can see what they want to do. Trips to places like Hospitals if they want to be a doctor or nurse or to a technology company will help. They need to experience that while in high school."

P4

"We need to have more hands-on experiences for them. They need to use what they learn doing something that is real, or they would do at work."

"They should be learning things for a good job. Nursing, doctor, or medical group, they should learn about what they want. That's where the money is. They should learn what they want to learn about."

P5

"I hear them say things like it is not their cup of tea. But they need to learn about things that make money."

"I think high schools should tell people what they want to be or do in life. Tell them more than just taking a class or test to graduate. It does not get you really ready for the future. They tell you what to take, but don't ask what you really want to be. They never tell you that you can go to college unless you ask them. Need to inspire students to go to Delta College and start on your career."

P6   "If you want to start your career, they should tell you where to go and take classes here or at Delta in your major. They (high school) don't tell you anything about that. They don't tell you about scholarships."

"Half of my class did not graduate because they did not find out about a month or two before graduation that they were short on credits. They had to go to summer schools. Kids need to know where they are at during their senior year. Tell them to go to class and get their credits. Or put them in continuation high school to get their credits."

Table 14. 21st century college and career preparation

Quantitative Analysis

The "Career Interest in High School" category was designed to identify the participants' career interests when they attended high school. Of the 126 respondents completing the survey, 111 (88%) indicated that they had a career interest in at least one of the 15 sectors listed, signifying that most respondents were at least aware of their impending entries into the working world after high school. Eight respondents (6%), however, selected three or more industry sectors, possibly indicating interests to diffuse to high school course-taking or a postsecondary course of action (see Table 15). Of the 126 respondents, the largest proportion (34%, $n = 43$) indicated that, during high school, their career interests were in the education, child development, and family services sector. This was followed by the health science and medical technology sector, which was selected by 19% ($n = 24$) respondents, and the finance and business sector, which was selected by 16% ($n = 20$) respondents. A significant number (15%, $n = 19$) indicated that they were undecided about what career to enter while in high school, but

even 3 of these respondents still chose to name at least one specific career sector (in addition to

selecting *undecided*).

Which of the following 15 California industry sectors best describes your career interests when you were in high school?	*N* Respondents	% Respondents
Education, Child Development, and Family Services	43	34%
Health Science and Medical Technology	24	19%
Finance and Business	20	16%
Was undecided which career to enter while in high school	19	15%
Public Services	18	14%
Arts, Media, and Entertainment	17	13%
Information Technology	8	6%
Agriculture and Natural Resources	4	3%
Building Trades and Construction	4	3%
Engineering and Design	4	3%
Fashion and Interior Design	3	2%
Hospitability, Tourism, and Recreation	3	2%
Manufacturing and Product Development	3	2%
Marketing, Sales, and Services	2	2%
Transportation	2	2%
Energy and Utilities	1	1%

Table 15. Industry sector of career interest during high school

The "High School Learning Priorities" category was designed to identify which

educational outcomes were of priority to respondents during their high school careers, such as

completing honors courses or courses that connected to their career interests (see Table 16).

Response options were organized on a 6-point Likert-type scale, from *Not a Priority* to *Essential*

Priority.

My priority as a high school student to prepare myself for college and career was	N of *High* or *Essential Priority*	% of *High* or *Essential Priority*
Apply to a two- or four-year university or college	76	64%
Complete UC/CSU A-G requirements for college	54	46%
Earn the highest grade point average possible	50	42%
Complete courses in high school that connected to my career interests	48	41%
Complete one or more honors, AP, or IB courses	39	34%
Attend one or more classes that would enable me to receive college credit while in high school	29	25%
Complete the Regional Occupational Program (ROP), Career Technical Education (CTE), or any other type of career pathway	10	9%
Apply to a trade school after graduating	10	8%
Apply to serve in the military after high school	9	8%
Complete four years of the AVID program	7	6%

Table 16. High school learning priorities

The "High School Support" category of questions quantifies the college and career support provided by the respondents' high schools (see Table 17). Response options to the seven questions comprising this category were arranged on a 5-point Likert-type scale ranging from *Never* to *A great deal*.

My high school…	Min	Max	Mean	SD
Promoted the importance of graduating from high school	1	5	4.16	1
Promoted the importance of college and career preparation to ensure my future economic success	1	5	3.54	1.19

	Min	Max	Mean	SD
Promoted for all students to take honors, advanced placement (AP), or college credit courses while in high school	1	5	2.64	1.25
Staff promoted career pathway courses	1	5	2.85	1.31
Promoted the completion of Regional Occupational Programs (ROP) or Career Technical Education (CTE) programs	1	5	2.23	1.22
Promoted the importance of science, technology, engineering, and math (STEM) throughout my high school career	1	5	2.65	1.4
Provided guidance or extra support if I was not sure of my college and career goals	1	5	3.04	1.28
OVERALL SUPPORT RATING	1	4.71	3.01	.89

Table 17. High school support

The "College and Career Goals" category was designed to disclose the participants'

supportive structures at home and in their high schools by determining how frequently

respondents communicated with key people in their lives regarding their postsecondary goals.

Response options to the seven questions comprising this category are arranged on a five-point

Likert-type scale ranging from *Never* to *Many Times* (see Table 18).

During your high school career, how often did people talk to you about your college goals?	Min	Max	Mean	SD
My parents or family about my career goals	1.00	5.00	3.51	1.41
My parents or family about admission to college	1.00	5.00	3.25	1.55
My high school counselor about my career goals	1.00	5.00	2.94	1.48
My high school counselor about admission to college	1.00	5.00	2.88	1.52
One of my high school teachers about admission to college	1.00	5.00	3.20	1.58
My friends about my career goals	1.00	5.00	3.50	1.28
My friends about admission to college	1.00	5.00	3.32	1.41
OVERALL COLLEGE/CAREER GOALS SUPPORT	1.00	5.00	3.23	1.14

Table 18. College and career goals

The "High School Learning Experiences" category of questions was designed to establish how well participants believe their high school educations prepared them for their lives after graduation. Respondents were provided with a list of eleven high school learning experiences supportive of college and career preparation and asked to rate them on a 5-point Likert-type scale. Respondents were also afforded a *Does Not Apply* response option (score point 6) that was not factored into item averages or overall average ratings (see Table 19).

When I think about my high school career, my high school…	*Min*	*Max*	*Mean*	*SD*	*Agree/ Strongly Agree*
Classes were rigorous and prepared me for life after high school	1.00	5.00	3.21	1.3	50%
Classes connected classroom learning to real-world applications that helped prepare me for college and career	1.00	5.00	2.95	1.3	40%
Courses provided the skills I needed to be prepared for college and career after high school	1.00	5.00	3.32	1.3	53%
Promoted completing the Regional Occupational Program (ROP) or Career Technical Education (CTE) programs, which helped prepare me for college and career	1.00	5.00	2.47	1.1	12%
Promoted completing a career pathway	1.00	5.00	2.82	1.2	28%
Suggested that I participate in the AVID (Advancement Via Individual Determination) program for all four years of high school	1.00	5.00	2.43	1.3	22%
Counselor met with me regularly to discuss high school graduation requirements	1.00	5.00	2.71	1.4	32%
Counselor met with me to discuss my college and career goals	1.00	5.00	2.78	1.4	36%
Counselor regularly reviewed various scholarships and financial aid options with me for college and career after high school	1.00	5.00	2.37	1.3	24%
Counselor reviewed with me my high school transcript after every semester to monitor my credits, graduation requirements, UC/CSU requirements, and college and career goals	1.00	5.00	2.33	1.3	25%

Promoted classes I could earn college credit in prior to graduation, such as advanced placement classes, dual credit courses, or junior college courses	1.00	5.00	2.40	1.4	25%

Table 19. High school learning experiences

The "College and Career Application" category was designed to evaluate the participants' perceptions of their skills to be college- and career-ready after graduating from high school. Respondents were provided with a list of 10 skills necessary for college and career success and asked to rate the extent to which they agreed that they needed additional support, guidance, schooling, or training after high school. Response options comprised a 7-point Likert-type scale including *Does Not Apply* (score point 4). For this analysis, *Does Not Apply* responses were omitted, and *Agree*, *Strongly Agree*, and *Very Strongly Agree* were adjusted to reduce the instrument to a continuous 6-point scale.

Since all but one item in the instrument rated deficits in preparation, responses were recoded so that *Very Strongly Agree* was assigned a value of 1, and *Very Strongly Disagree* was assigned a value of 6. The sole item that asked respondents to rate a strength in preparation, "…I knew my academic strengths and weaknesses and what I needed to do to accomplish my career goals," remained with *Very Strongly Disagree* as score point 1 and *Very Strongly Agree* as score point 6.

As I entered into college, the workplace, or both after high school graduation, I...					*Disagree /Strongly Disagree /Very Strongly*
	Min	*Max*	*Mean*	*SD*	*Disagree*
Needed additional training/education in applying math skills to the real world	1.00	6.00	3.54	1.5	47%
Needed additional training in using technology to gather, interpret, and use information as needed	1.00	6.00	3.51	1.4	45%
Learned how to organize my time and tasks that I needed to complete	1.00	6.00	2.86	1.2	20%
Knew my academic strengths and weaknesses and what I needed to do to accomplish my career goals	1.00	6.00	4.07	1.2	77%*
Learned the importance of not giving up and sticking through difficult situations	1.00	6.00	2.37	1.1	10%
Learned how to work with other people to complete a task	1.00	6.00	2.53	1.1	12%
Learned about employment opportunities that matched my career interests after graduation	1.00	6.00	3.01	1.3	32%
Needed additional training/education in applying writing skills to the real world	1.00	6.00	3.21	1.3	43%
Needed additional training on how to write a résumé and on my interview skills	1.00	6.00	3.00	1.4	25%
Needed additional training/education in career networking skills	1.00	6.00	2.70	1.3	19%
OVERALL COLLEGE CAREER APPLICATION RATING	1.56	5.00	3.08	.64	--

*indicates % *agree/ strongly agree/ very strongly agree*

Table 20. College and career application

The "High School Program" category was designed to evaluate the types of high school

programs the participants were involved in as they worked to earn their high school diplomas.

High School Program	N	Mean Satisfaction	SD
Traditional	82	4.10	1.79
Charter	7	3.86	2.23
Magnet	15	5.2	1.87
Alternative	5	4.40	1.36
Career Technical Education (CTE)	7	4.43	1.99
Regional Occupational Program (ROP)	5	3.00	1.79
OVERALL	102	4.15	1.82

Table 21. High school program

"High School Choices" was designed to identify the participants' college and career

opportunities after high school graduation. Respondents were provided with the option of

selecting what they "chose to do" after high school. For this analysis, the responses were placed

into percentages.

After I graduated from high school, I chose to...	Did not consider doing this	Right After high school	2 to 5 years after high school	6 to 9 years after high school	10 or more years after high school
Attend a two-year junior college	29%	56%	11%	2%	2%
Attend a two-year junior college and then transfer to a four-year university	43%	32%	13%	5%	6%
Attend a four-year university	35%	27%	28%	6%	3%
Serve in the military	86%	8%	3%	2%	0%
Enter the workforce part-time	34%	54%	11%	0%	0%
Enter the workforce fulltime	35%	30%	28%	6%	0%

Table 22. High school choices

The responses demonstrated that the majority of the participants (84%) entered the

workforce right after high school, either part- or fulltime. This is significant because over half of

the participants also entered a two-year junior college, and another 27% entered into a four-year

university. Thus, a correlation could be made in which most participants worked either part- or fulltime as they received their college educations. It also explains why 6 to 10 years after graduation, the percentage of participants who entered the workforce was 6% or less because the vast majority of participants were already working 2 to 5 years after graduation.

To determine the impact of high school career pathways when preparing for postsecondary endeavors, the following items were removed from questions 4 and 6:

- Question 4: My high school staff promoted career pathways courses while in high school

- Question 6: When I think about my high school career, my high school promoted completing a Career Pathway while in high school would or did help prepare me for college and career

| | Post-Secondary Preparation | | | |
| | Q10. Satisfaction with post-secondary preparation at high school | | Q11. Willingness to send own child to same high school given post-secondary prep | |
	N	r	N	r
CTE/ROP				
Q3. ROP/CTE was my priority in high school	98	-.06	98	-.03
Q4. Completing ROP/CTE was promoted at my high school	102	-.10	102	.15
Q6. My high school promoted ROP/CTE programs that helped me prepare for college/career	83	.37*	83	.15
Q9-1. Participated in CTE	102	.04	102	.03
Q9-2. Participated in ROP	102	-.14	102	-.13
Career Pathway				
Q4. My high school promoted career pathways	101	.45*	101	.29*
Q6. My high school promoted completing a career pathway that would help me prepare for college/career	89	.48*	89	.22*

	Post-Secondary Preparation			
	Q10. Satisfaction with post-secondary preparation at high school		Q11. Willingness to send own child to same high school given post-secondary prep	
	N	r	N	r
STEM				
Q4. My high school promoted STEM	102	.38*	102	.23*
AP/Dual Enrollment				
Q3-1. To prepare for college and career, my priority was completing one or more AP or IB courses in high school	98	.22*	98	.03
Q3-2. To prepare for college and career, my priority was attending one or more classes with college credit in high school	99	.18	99	-.05
Q4. My high school promoted honors, AP, or college credit courses	102	.48*	102	.24*
Q6. My high school promoted classes I could earn college credit in prior to graduation	92	.62*	92	.26*
A-G Completion				
Q3. My priorities as a high school student to prepare myself for college and career included completing UC/CSU A-G requirements for college	100	.31*	100	.02
Q4. My high school emphasized the importance of meeting A-G requirements regardless of my college and career goals	101	.46*	101	.27*

*$p < .05$

Table 23. Pearson product moment correlations for high school areas of focus and postsecondary preparation

Summary

The qualitative interviews and quantitative questionnaire demonstrated that the graduates' high school preparations varied based on the levels of their academic programs and support systems while in high school. Although the participants had varied educational experiences, the programs, program supports, and future career needs were indicators of the

successes or lack thereof for various participants. The data provides the insight to support the purpose of the study: determining if the participants' high school experiences provided the skills necessary to be prepared for college and career after graduation and to ensure their economic prosperities as adults.

CHAPTER 5: DISCUSSION

The move to the Common Core by most states in the US was to ensure that all students developed the skills needed to be successful in the 21st century workplace. This has produced the new buzz phrase, college and career preparation. Students not only need to pass the necessary academic courses to graduate from high school, but also need to develop critical thinking, application, and problem-solving skills. Students need to explore possible career interests while attending high school to ensure that their learning is meaningful, applicable, and will improve both their academic and occupational skills to prepare them for life after high school (i.e. college and career skills).

The concept of preparing students for the workplace is not new. Our public educational system was designed during the 1800s to produce workers for the agricultural and industrial revolutions (Vatterott, 2015). However, as we continue to move deeper into the 21st century, we must ask ourselves if the traditional public education model is still producing graduates who are ready to compete and thrive in the workplace. This study's research instruments and questions were designed to determine if public high schools in a Northern California school district, which has been in existence for over 100 years, has prepared its graduates for college and career and future economic success. The importance of high schools preparing students for post-graduation learning and training is illustrated in Figure 9.
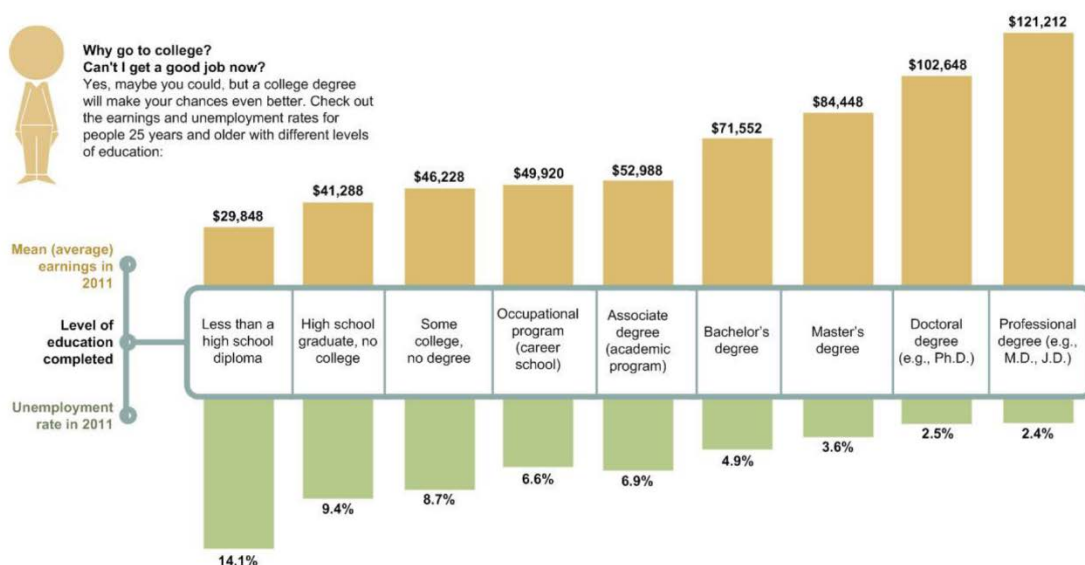
Figure 9. College degree and social economic success

Source: Bureau of Labor Statistics, Current Population Survey, unpublished tables, 2012 with the
    US Department of Education report: ¡Gradúate!: A College Planning Guide to Success,
    2016

       The qualitative study interviews demonstrated that many of the individuals who attended

college did so to improve their SES. A report from the US Department of Education regarding

the type of support Latino students need to access college stated, "college is an investment in

oneself. College enrollment and completion yields significant economic, social, and health

benefits for students who take advantage of this opportunity," (US Department of Education,

2016, p. 2).

       The district that is the focus of this study is in a city in a prime Northern California

Central Valley location. The San Joaquin River flows through the city, connecting it to the

Pacific Ocean. Two major California highways, Interstate 5 and Highway 99, connect the city to

various locations throughout the state, including the northern and southern state borders, and is

within 90 minutes of most of Northern California's major cities, such as San Francisco, San Jose

(a.k.a. Silicon Valley), and Sacramento. However, the city's location has not translated to its

economic success; the unemployment rates fall between 8% and 10% any given year. The ongoing economic problems are a direct result of the present educational struggles of the city's largest school district, which is also the second largest employer in the county.

In 2005, the identified Northern California district was called a "dropout factory" due to the graduation rates of its three comprehensive high schools, one specialty school, and adult education programs—the only high schools at the time—which fell below 65% (Carlson, 2014). The low achievement and graduation rates had a direct correlation on the city economy and the individual prosperity of the district's high school graduates and non-graduates. Even though the city rests in a prime business location in Northern California's Central Valley, most students entered the workforce, college, or both unprepared because they did not graduate from high school or were not prepared for college and career while in high school. This caused serious economic issues for the community and individual families, the state, and the nation.

Summary of the Study

High school preparation for college and career will be different in the 21st century; new systems of learning will need to be adopted and applied throughout the K-12 educational system. The high schools of this district will need to create and maintain a college-going culture for all students. The district's students need to become lifelong learners focused on 21st century skills essential for both college and career, moving beyond test scores as indicators of success. The K-12 experience must "align course content to college and career-readiness standards" to ensure rigor, and "partner with local postsecondary institutions and business" to provide students in high school the opportunity for hands-on learning and preparation for expanding careers in their communities (Conley & McGaughy, 2012, p. 33). Thus, the purpose of this study was to

determine if the participants' high school experiences provided the skills needed to be prepared for college and career after graduation and ensure their economic prosperity as adults.

Qualitative Summary

The six participants for the qualitative interviews were graduates from the identified Northern California school district spanning the last 40 years. Each participant was born and raised in the identified district and matched the demographics of the majority of the students within that area. Two of the participants were Latino, two were African-American, one was Filipino, and the other was of a mixed racial background of Filipino and Portuguese. Four of the participants were male, and two were female.

All six participants still live within the city limits of the targeted school district. Five of them had children attending school in the district at the time of the interview. One participant does not have children as of the writing of this study.

All the participants attended traditional comprehensive high schools in the targeted district. Two of them received college degrees. One of these participants also completed their master's degree. Two of the six participants earned their Bachelor of Arts degrees, including the one who earned a master's. Two of them have associates' degrees. Three of the participants did not attend college at any level; however, one participant has earned several certifications in refrigeration and boiler maintenance through college or university campuses (see Figure 10, produced by the researcher).
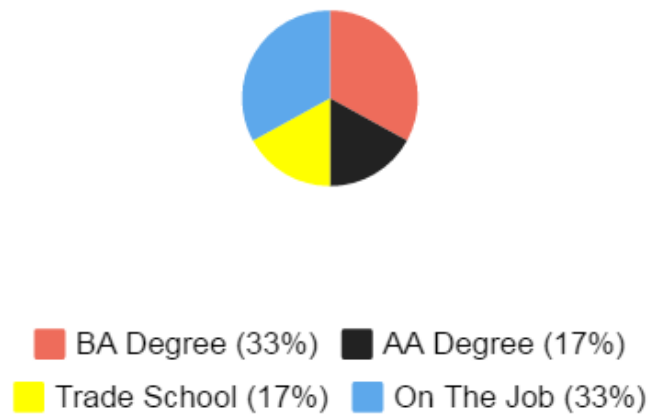
Figure 10. Qualitative participant post-high school educational attainment

Five of the six participants considered their current family incomes to be middle-class even though their personal salaries varied as low as $20,000 to as high as $110,000 per year. All six considered themselves to be in the profession of their choice; four of the six attended courses in college or trade school in their current career fields. This demographic information provided insight into whether the participants' experiences were varied or similar even though they graduated from high school during different decades. This supports the findings from the Alliance for Excellent Education (2016), in which a higher graduation rate was found to be connected to socioeconomic growth. The Alliance for Excellent Education calls it "the Graduation Effect, " and if a school district has a higher graduation rate, then the entire community can benefit from it (see Figure 11, produced by the researcher).

Why Are You Middle Class?

Six Qualitative Particpants

High School Graduation

Career of Choice

Career Training and Education After High School
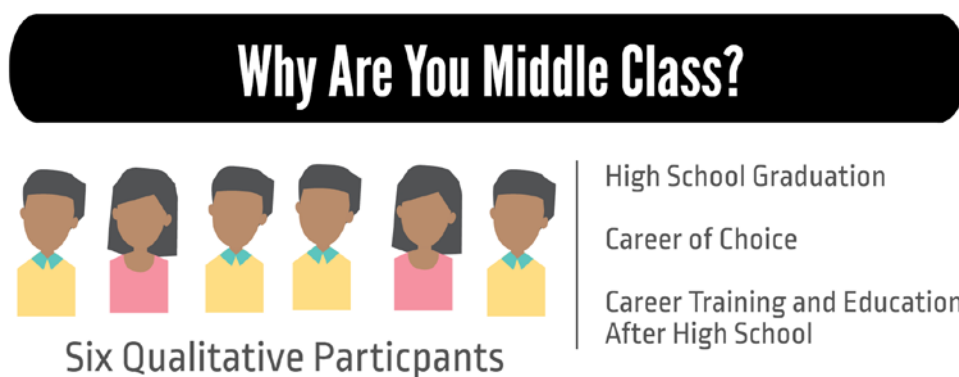
Figure 11. Career of choice and social economic succes

All of the participants stated that they are in their career of choice. However, that was only after receiving training or completing formal education, such as trade school or college-level work, before entering their current professions. Except for P2, five of the six participants worked in other career fields before entering their current ones. This was due to their educational opportunities after high school. Three of the participants (P1, P2, and P3) attended college and completed degrees (associates', bachelor's, or master's) and seemed to have had the most flexibility over their lifetimes to change into their current careers of choice. P4 and P5's career opportunities for advancement or change were due solely to on-the-job training, motivation to change their careers to improve their SES, or a change in the marketplace that rendered their previous careers no longer viable. P6, however, received several certifications allowing him to climb the socioeconomic ladder over his career. The idea that post-high school training is necessary is supported by Barnes & Slate (2013), in which college preparation while in high school is important, but not the only path to economic success. As demonstrated by P4, P5, and P6, students must attain skills while in high school that will help them become learners out in the workplace so that we have workers who can meet the many non-college degree careers needed within our economy.

The lack of ROP or CTE program participation was not an indicator of success for the participants of the qualitative element of the study. Only one of them participated in an ROP program, and three of the six did not know of any such programs at the high schools they attended. However, participation in a rigorous academic program did benefit P1 and P3, who were both enrolled in honors courses while in high school, and of the six participants, their incomes ranked them in the top three. Only P6, who did not participate in any honors programs in high school, considered himself to be upper-middle class. This finding connects to Meeder and Suddreth's (2014) report that stated that students would need to have CTE courses as part of their academic programs to help guide them to a career of their interest.

P1, P2, and P6 are the only participants whose careers are in fields that are directly connected to their formal educations or training post-high school. P1's career in education required him to complete his bachelor's degree to become a teacher and then his master's degree to enter into school administration. P6's certifications in industrial refrigeration and boilers directly connected to his current career title, a field that he has been involved in for over 30 years. P2's business focus when earning her associate's degree also connected to her work as an office worker in one of the high schools in the targeted Northern California school district. However, the other participants did not require college degrees to enter their current career fields and still considered themselves to be successful and middle-income. Even though P2 works in a school, P3 is in law enforcement, and P6 has several industrial-level certifications, theirs and P4's current fields did not require them to complete any specific types of post-high school training or education.

P2 and P3 were the only participants who believed that their high school education programs connected or provided training or support for their current careers. However, their high

school education programs were not specific to their careers since their classes did not connect to the real world (see Figure 12, produced by the researcher). P2 attended one course in business, and P3 only made the connection to his current career by connecting the problem-solving and high-order thinking skills he developed in the IB program as an asset to his current career in law enforcement. Except for P2 completing one business class in high school, most of the participants did not see a specific path or enroll in a high school training program to prepare them for their current careers or economic successes. P6 specifically stated that his high school experience lacked involvement or support systems. Many of his friends did not know they were off-track from graduation or what types of education programs were offered at their school beyond the traditional sorts.

How did or did not your high school classes prepare you for the real world?

★ = Not at all
★★ = Rarely
★★★ = Occasionally
★★★★ = A Moderate Amount
★★★★★ = A Great Deal
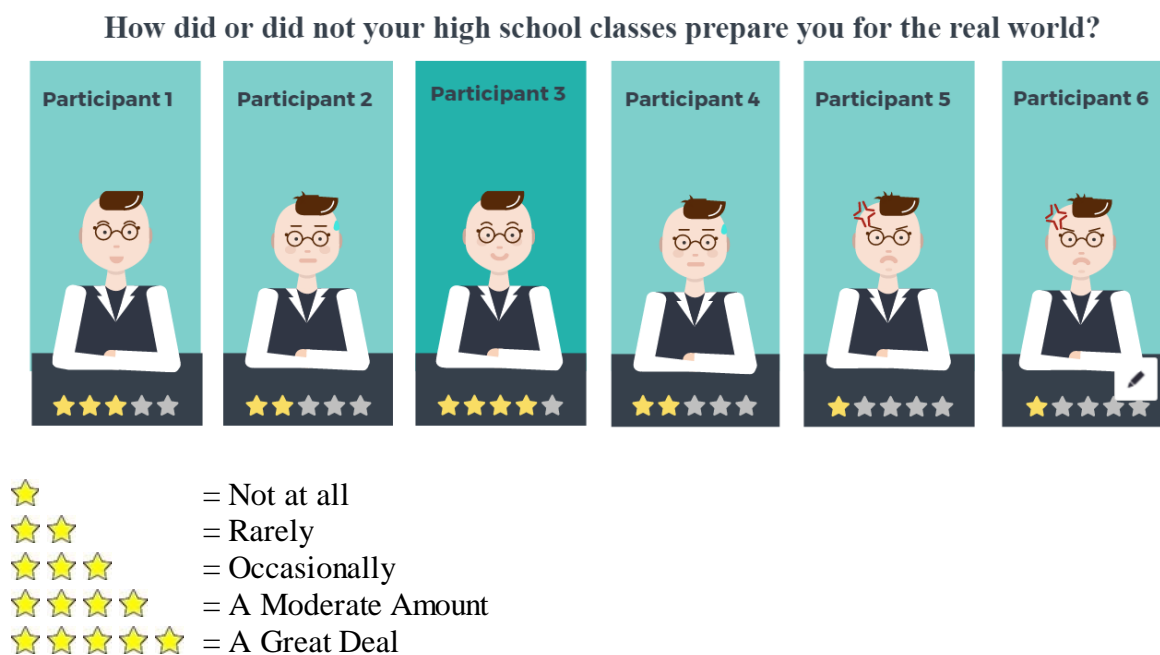
Figure 12. High school program, support & satisfaction

Five of the six participants believed that their current SES was better than that of their parents. P5 and P6 were mother and son, and their socioeconomic perspectives were different even though they both lived in the same household. P5, the mother, considered herself middle-

income even though she did not have any formal education or training after high school and worked primarily in the service industry below the management or ownership levels. However, her son, P6, did not see his childhood as middle-income. During the qualitative interview with P6, he saw his career goals as "going into the family business" as farmworkers. His father (he did not mention his mother during the interview) was a farmworker, and while he was in high school, he saw that path as his future career goal once he graduated. He credited his socioeconomic improvement from when he was a child to him earning his industrial refrigeration and boiler certification. This was a common theme among the six participants; all of them stated that they did have some post-high school training in the workplace via a certification program or at a formal two- or four-year college. This element supports Carnevale et al.'s (2010) Georgetown University research study that found that post-high school training in a college, trade school, or workplace is no longer optional, but essential to a person's future socioeconomic success. Specifically, the study states that:

> …the implications of this shift represent a sea change in American society. Essentially, postsecondary education or training has become the threshold requirement for access to middle-class status and earnings in good times and in bad. It is no longer the preferred pathway to middle-class jobs—it is, increasingly, the only pathway. (Carnevale, Smith, & Strohl, 2010, p. 13)

Each of the participants stated the importance of high school graduation and its connection to their current socioeconomic statuses. The traditional model of high school preparation for college was not cited by any of the participants, including those who attained an associate's, bachelor's, or master's degree. None of the participants mentioned the importance of completing A-G requirements for college eligibility. Also, dual credit programs were not

mentioned by any of the qualitative participants as this may be due to it not being an option when they were in high school. However, academic programs that included career interest connections, STEM fields, building academic skills, and technology were mentioned by four of the six participants in the qualitative interview.

P6 specifically spoke to the importance of schools, teachers, and counselors working with students throughout their high school careers so that they are prepared to graduate. P6 stated that he had many friends who "did not know they were not going to graduate until a month or two before graduation." P3 and P4 both said similar things, and all three (P3, P4, and P6) spoke of the importance of students connecting their learning to the real world or possible career interests. This is an important element of college and career preparation that could be overlooked.

Quantitative Summary

The quantitative questionnaire yielded more information regarding the participants' high school experiences and connections to their current careers and socioeconomic levels. In the qualitative interviews, five of the six respondents considered themselves *middle class* even though their annual incomes suggested otherwise, and three of the six participants made less than $60,000 in annual income in their current careers. The participants in the quantitative questionnaire had varied economic statuses as well; however, over 50% of the participants' earned income was over $60,000 a year. This could explain why a majority of the participants in the qualitative survey felt that their high school classes were rigorous enough to prepare them for life after high school (see Figure 13, produced by the researcher).
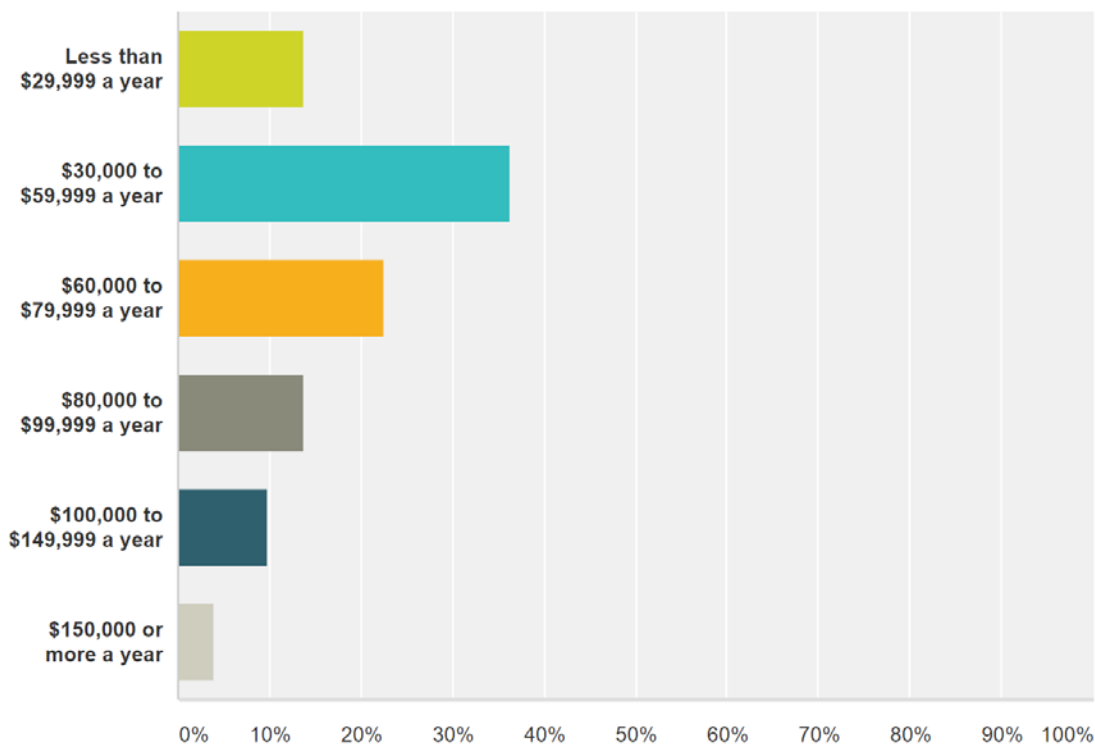
Figure 13. Quantitative participant annual income

When respondents were asked about their high school grade point averages, most (65%, *n* = 82) indicated that they were *B* students (GPA range 3.0 to 3.9). Many others (25%, *n* = 31) identified themselves as *C* students (GPA range 2.0 – 2.9). Few students indicated that they were *A* students (7%, *n* = 9) with GPAs at or above 4.0; even fewer students identified themselves as *D* students (3%, *n* = 4) with GPAs from 1.0 to 1.9. This indicates a reasonably high level of school engagement among respondents and it lends credence to the possibility that school-based career guidance and course offerings could potentially impact career-readiness.

The respondents' average overall support ratings for their *High School's Support* ranged from 1.00 to 4.71 (see Table. 11). The mean of these respondents' average ratings was 3.01—in the range of *Occasionally* (score point 3). The only area with an average rating between 4.00 (*A moderate amount*) and 5.00 (*A great deal*) was "My high school promoted the importance of graduating from high school," which averaged 4.16.

Each of the 10 educational outcomes listed for *High School Priorities* (see Table 16) received a priority rating from between 116 and 119 respondents. The highest proportion of respondents ($n = 76$) indicated that applying to a two- or four-year college was a *high* or *essential* priority. Educational outcomes strongly connected to college admission were also frequently considered *high* or *essential* priorities, such as completing A-G requirements ($n = 54$) and earning the highest GPA possible ($n = 50$). Interestingly, fewer than half of the respondents ($n = 48$, 41%) indicated that taking courses connected to their career interests was a *high* or *essential* priority. This represented more respondents that prioritized taking honors/AP/IB classes ($n = 39$, 34%) or classes offering college credit ($n = 29$, 25%).

The respondents' average overall college and career goals support was rated at 3.23—slightly above *Occasionally* (score point 3) but less than *Once or Twice* (score point 4) for the "College and Career Goals" focus questions (see Table 18). The standard deviation of 1.14 for overall college and career goals support indicates that, on average, respondents discussed their college and career goals with key support people *Occasionally* or *Once or Twice* during high school. The infrequency of these conversations is highlighted by the fact that 38% of respondents completing this section ($n = 43$) did not indicate talking *many times* to any of the key sources of support listed in the instrument. The source of support that respondents most frequently indicated talking to *many times* was parents or family regarding career goals (41%, $n = 46$), followed by parents or family regarding admission to college (35%, $n = 40$).

Interestingly, half of the respondents agreed that their classes were rigorous enough to prepare them for life after high school sufficiently (see Table 19). A similarly high proportion (53%) agreed that their high school courses provided the skills needed to be prepared for college and career after high school. The lowest agreement (12%) resulted from respondents reflecting

on the promotion of regional occupational programs (ROP) or career technical education (CTE) programs. Additionally, less than a quarter of respondents (22%) agreed that they were encouraged to participate in AVID, indicating that promotion of structured postsecondary preparation programs and pathways is an area that could be improved upon in high schools.

Respondents were very positive about their academic preparations for "College and Career Application" questions, with 77% agreeing that they knew their academic strengths and weaknesses and what was needed to accomplish career goals, and 47% disagreeing that they needed additional training applying math skills to the real world (see Table 20). This is consistent with responses in the High School Learning category, where respondents indicated that they were pleased with their academic preparations for college and career. Interestingly, perseverance and interpersonal skills emerged in the areas where respondents required the most support or training after high school. Only 10% disagreed that they needed to learn the importance of not giving up and sticking through difficult situations, and 12% and 19%—respectively—indicated that they had to learn how to work with others to complete a task, or needed additional training on career networking.

Implications for Practice

High school graduation is one of many steps to socioeconomic success as an adult. Students who enter the 21st century workplace will need a diverse range of skills to allow them to adapt and grow with an economy that is in constant change due to the integration and use of technology. Manyika (2017) connects the evolving workplace to the progression of technology in a report developed by the McKinsey Global Institute:

> The development of automation enabled by technologies including robotics and artificial
> intelligence brings the promise of higher productivity, increased efficiencies, safety, and

convenience, but these technologies also raise difficult questions about the broader impact of automation on jobs, skills, wages, and the nature of work itself. Many activities that workers carry out today have the potential to be automated. Job matching sites such as LinkedIn and Monster are changing and expanding the way individuals look for work and companies identify and recruit talent. Independent workers are increasingly choosing to offer their services on digital platforms including Upwork, Uber, and Etsy and, in the process, challenging conventional ideas about how and where work is undertaken. (Manyika, 2017, p. 1)

The current buzz phrase of college- and career-readiness is more than a catchy statement made to make everyone feel that students will be ready for formal or workplace training after high school. College and career is not a new concept and has been part of our public-school education system since mandatory participation required children of the United States to attend a school program ("Compulsory Education," 2017). The US education system has been and continues to be modified and redesigned to prepare its citizens for the workplace since the Industrial Revolution. However, unlike the current educational system designed to sort most students into menial jobs that require low skills or education because they are not college-ready, the 21st century requires all students to be highly-skilled learners who can adapt to the ongoing changes in the workplace. Vatterott (2015) states

The world we are preparing our high school students for has changed. In the past, we were preparing them for an industrial world and top-down management—obey, meet deadlines, follow rigid rules, punch the time clock. Today we must prepare them for the world in which they must know how to take the initiative, self-advocate, solve problems, be creative, and accomplish tasks without minute-to-minute supervision. (p. 24)

Wile's (2017) web article quotes entrepreneur and multi-media billionaire Mark Cuban's address of the changing 21ˢᵗ century workplace and the types of skills employers will be looking for over the next decade, particularly "creative thinking" skills (Wile, 2017). This is due to the ongoing changes in the workplace, where technology can now provide the information, but employees must be able to take that information and utilize it in creative ways.

Both Wile's (2017) and Vatterott's (2015) statements can be connected to the findings from Manyika's (2017) study for the McKinsey Global Institute and other research studies on the ongoing changes within the workplace that our students will enter after graduation from high school. Manyika (2017) found that over one-half of the current workplace skills will disappear by the year 2015 due to changing technology (Manyika, 2017). This finding is supported by Frey and Osborne's (2013) Oxford University research study that attempted to identify the types of jobs that are in danger of being lost due to technological advancements. Frey and Osborne's (2013) study found that

> 47% of US employment is in high risk" of being automated or computerized and that the study "model predicts that most workers in transportation and logistics occupations, together with the bulk of office and administrative support workers, and labour in production occupations, are at risk. (Frey & Osborne, 2013, p. 48)

To ensure the economic stability and growth of our nation, it will be essential to rethink the types of skills and abilities high school students will need to learn upon graduation. Today's high school students must develop skills that will prepare them to meet the evolving changes in the workplace to ensure their social and economic success. High schools' instructional programs must go beyond the traditional goals of graduation and college preparation. Based on the findings of this study, every high school students' experiences must include five elements of

what the researcher will call the 21st Century High School Graduate College and Career Success Traits. Figure 16's infographic provides a visual of the traits all high school graduates will need to be successful in the 21st century workplace. "Rigorous Course of Study" is the brain in which our skills and knowledge resides. "Meaningful Curriculum" is the smiling face connected to student interest. "Academic Support & Motivation" are the muscles in the arms to hold or pick oneself up. "Workplace Skills" are the hands that allow us to perform the work. And "Determination and Perseverance" are the legs that allow us to move in any direction needed to ensure student success (see Figure 16, produced by the researcher).

All high school students must participate in the course of study that not only meets high school graduation and college requirements, but involves the application of skills and concepts to real-world settings, possible career interests, and supports the skills needed in the 21st century workplace. Thus, every high school graduate needs to experience a "Rigorous Course of Study" while in high school. This includes four years of math, English, and science. All high school coursework, including tests and assignments, must build up the students' skills so they can eventually demonstrate their learning at higher levels. The students' coursework or "assessment task is increasingly more difficult as the level often increases requiring multiple steps to complete," (Meador, 2016, para. 3). Also, their courses of study must include participation in a career pathway, which should include CTE courses, based on possible career interests after high school. Completion of a career pathway, which should include job-shadowing and internship opportunities, will allow students to make informed decisions after high school regarding the careers they may or may not want to pursue. The career pathway experience will allow students to prioritize so that they do not spend their money, time, and efforts trying to find their ways in life (Lekes et al., 2007; Rodriguez et al., 2012; Westover, 2012). To further ensure rigor in high

school, honors courses, advanced placement, International Baccalaureate, or dual enrollment courses need to be part of the high school experience and have demonstrated that participation in these courses can increase student success in college (Lekes et al., 2007; Rodriguez et al., 2012).

If high school coursework is rigorous, challenging, and connected to possible career interests, students will need to be guided and supported throughout their high school careers. This trait, called "Academic Support and Motivation," will help students develop the skills to know how to self-advocate when facing challenges while maintaining their motivations to reach their goals. High school support systems will need to include teachers, counselors, administration members, and parents/guardians to help guide students through their high school experiences towards their college and career goals. Counselors' support and guidance to students and their families—especially those from poor or underrepresented minority groups—is essential as they can provide invaluable aid to help students reach their college and career goals (Dockery & McKelvey, 2013).

Student motivation can be supported via coursework that is connected to the real world. This trait, called "Meaningful Curriculum," connects classroom curricula to meaningful applications of the Common Core State Standards by allowing students to demonstrate their learning to real-world applications or possible career interests after high school.

Conley's "Readiness Continuum" includes elements of what he calls "Work-Ready and Job Ready" skills that students need to have to qualify for "entry-level positions" and to learn on the job (Conley, 2014 p. 48). This was evident with all of the qualitative questionnaire participants as they all have or are required to learn on the job from the moment they are hired. These two elements are essential the high school experience, which leads us to the next trait: being "Workplace Ready." High school graduates need to develop skills—such as how to handle

an interview and how to create and maintain a résumé—before graduation to effectively enter the workplace. To succeed in the working world, students will also need to have learned other such skills as understanding the importance of punctuality, working on a team, adaptability, the ability to communicate using various mediums, meeting deadlines, resourcefulness, accepting feedback, and dressing appropriately (Doyle, 2017).

With this new educational challenge comes the importance of helping high school students learn to overcome the obstacles they will face both in and out of the classroom or workforce. The final trait, "Determination and Grit," builds and supports the students' abilities to self-advocate, move towards their goals regardless of the challenges, and to learn from mistakes. High school graduates will need "passion and perseverance for long-term goals" to be successful, which can be defined as *grit* (Duckworth, 2016). This trait is important and evident in the qualitative questionnaire participants as they all considered themselves middle-income as they persevered through the workplace, college, or both to sustain the level of success that they enjoyed as of the writing of this research study.

Figure 14 is a graphic, produced by the researcher, which illustrates these points.

Rigorous Course of Study

High school four-year course program which includes four years of Math, English, Social Science, and Science courses. The course of study includes A-G completion, Honors, Advance Placement, Dual Enrollment, and Career Technical Education courses

Meaningful Curriculum

High school course work and activities connect CCSS to real world applications. Students also participates in a Career Pathway course sequence in which the curriculum is directly connected to a possible career interest after high school graduation

Academic Support & Motivation

High school support and guidance (in and out of the classroom) to help or maintain student motivation towards their college and career goals after high school graduation

Workplace Skills

High school program supports the development of workplace entry, sustainability, and growth skills (working on a team, taking advice/critique, adaptability, meeting deadlines, etc.)

Determination & Perseverance

High school guides students to develop their ability to learn from failure, persevere through difficult situations, and understand how to identify next steps, set goals, and to keep moving forward toward success

Figure 14. 21st century high school graduate college and career success traits

Recommendations for Further Research

California's new high school accountability system is designed to prepare students for

college and career and not just high school graduation or a test score. Starting for the 2017 –

2018 school year, students who graduate in California will need to meet several other criteria to be considered college- and career-ready. This new indicator model (see Figure 15) will include students graduating and meeting several other criteria to identify their levels of preparation after high school ("Assessment and Accountability Network (AAN) Meeting," 2016). The CDE's "College/Career Indicator Model" will need to be researched to identify if this new accountability system is preparing all California students for both the workplace and a formal education at a two- or four-year college.

College/Career Indicator Model
All students in the four-year graduation cohort minus students who take the California Alternate Assessment.

WELL PREPARED – To Be Determined
The College/Career Indicator (CCI) measures for "Well Prepared" will be determined following further review of potential state and local CCI measures as statewide data becomes available.[1] California Department of Education staff, with input from education researchers, practitioners, and stakeholders, will evaluate the CCI model through the first phase of the Local Control Funding Formula evaluation rubrics and will propose a revised CCI model for implementation in 2017–18.

PREPARED – Does the graduate meet at least 1 measure below?
Student must obtain High School Diploma and any one of the following:

- Passing Score on two Advanced Placement (AP) or International Baccalaureate (IB) exams
- Completion of two semesters or three quarters of Dual Enrollment with passing grade
- Level 3 "Standard Met" on both ELA and Math Smarter Balanced Summative Assessment
- a-g completion + Passing score on one AP or IB exam
- a-g completion + One semester or two quarters of Dual Enrollment with passing grade
- a-g completion + At least one level 3 & one level 2 on Smarter Balanced Summative Assessment
- a-g completion + CTE Pathway completion
- CTE Pathway + At least one level 3 & one level 2 on Smarter Balanced Summative Assessment
- CTE Pathway + One semester or two quarters of Dual Enrollment with passing grade

APPROACHING PREPARED – Does the graduate meet at least 1 measure below?
Student must obtain High School Diploma and any one of the following:

- Completion of one semester or two quarters of Dual Enrollment with passing grade
- Level 2 "Standard Nearly Met" on one or both ELA and Math Smarter Balanced Summative Assessments
- a-g Completion
- Career Technical Education (CTE) Pathway Completion

NOT PREPARED
Student did not meet any measures above or did not graduate, so considered NOT PREPARED

[1] **Future Local and State College/Career Measures**

Note: The following measures will be explored as statewide data becomes available:
- Articulated CTE Pathway
- Work Experience/Career Internship
- AP/IB Career Program
- State Seal of Biliteracy
- Golden State Seal Merit Diploma

Further Exploration on the following:
- Course Information
- Industry Certificate
- Additional career related data elements (e.g., Career Pathways Trust and CTE Incentive Grant)
- Pilot career ready assessments (i.e., National Occupational Competency Testing Institute)

Figure 15. California Department of Education college/career indicator model

Source: Santa Clara County of Education

The study did not explore the specific college preparation courses or programs needed to attend a two- or four-year college. Even though college and career preparation was part of this study, specifically researching the type of coursework would need to be further explored. Also, the CSU and JC systems have adopted California's school accountability t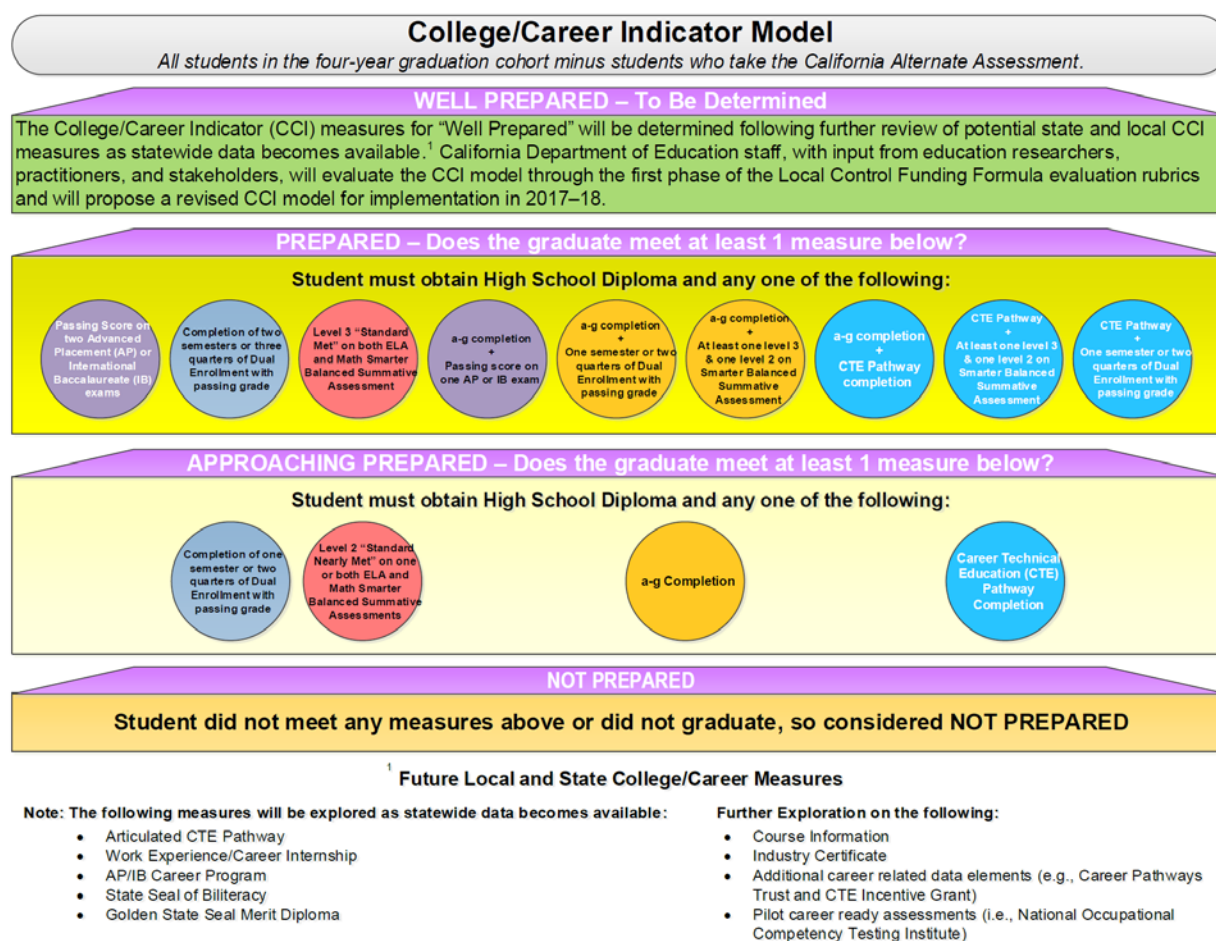est (the SBAC) as one of the indicators of acceptance to their colleges and universities. Both the CSU and JC systems have stated that the SBAC will or can be utilized as a college-readiness exam in which students who score proficiently would not have to attend remedial courses while in college. Other states' two- and four-year colleges have also joined in using the SBAC for this purpose. These states include Delaware, Hawaii, Kentucky, Nevada, North Dakota, Oregon, South Dakota, Washington, and West Virginia ("Higher Ed Approved," 2016). However, as of the writing of this research study, there is no evidence of longitudinal research that connects the proficiency of the SBAC to college success and completion.

Colleges utilize various measures for acceptance. Typically, the ACT, SAT, AP, or IB exams are included in the multiple measures to evaluate students' college-readiness. This study did not explore the success rate of students who entered college or the workplace with high or passing scores on the SAT, AP, IB, or ACT exams. Modifications have been made to college board examinations, such as the SAT and AP assessments, to address critical thinking skills and to move away from standardized test-taking preparation (Gumbrecht, 2016). The changes took effect in the spring of 2016's administrations of the AP and SAT exams. How or if the new format produced better-prepared students for four-year universities should be researched.

A student's grade in a class or his/her overall GPA can be an indicator of success when the course is rigorous and when the grading accurately reflects learning (Guskey, 2015; Vatterott, 2015). However, there is a need for additional research on grading practices and its

effects or connections to college and career preparation for the workplace, rather than only for college. Specifically, how can a teacher ensure that a student's grades—that are reviewed by post-high school institutions as an indicator of preparation and eventual success—reflect the mastery of skills and concepts addressed in the class' content area and state standards and not other, nonstandard-based components such as attendance or participation? However, research also needs to be conducted in the area of soft skills (i.e. participation, working with others, and being on time to class) in relationship to grading and college and career preparation.

The effectiveness or lack thereof regarding classroom instruction on a student's college- and career-readiness was not explored deeply in this study. Although the review of the literature did contain evidence of some research on instructional methodologies, the study's qualitative and quantitative instruments did not ask or attempt to ascertain the types of classroom instructional strategies that the participants identified as reasons for their college and career successes, their lack of thereof, or their current economic levels.

<center>**Conclusions**</center>

As the Carnevale, Jaysuandera, and Gulish (2016) and Manyika (2017) reports demonstrated, a high school's instructional program must provide the skills needed for students to graduate with the abilities to adapt, learn, and grow in an ever-changing workplace that will require post-high school education and training. Thus, the purpose of this research study was to determine if the participants' high school experiences prepared them for college and career to ensure their economic prosperity as adults. The results of the study yielded information that can help improve the instructional program of schools to ensure post-high school success.

The study demonstrates that college and career preparation will not be easy; new district, school, course, and curricula structures will need to be created to support the changing workforce

market. The modern school district will need to begin "updating its higher education goals, increase alternatives to traditional degrees, decide how to provide adequate funding to achieve its goals, collect information to ensure that progress is being made and establish a new high education coordinating body," (Johnson, 2014, p. 5). These steps will help address the need to increase the number of Californians receiving their bachelor's degrees to meet our workforce demands as many of the newly-created jobs since the 1980s require a two- or four-year college degree (see Figure 16).

To inform Research Question 1 ("If students graduate from high school not prepared for college and career after graduation, what is the economic impact on the community?"), several variables were converted into scales and compared to two key outcomes of the quantitative questionnaire. Question 20 was, "Explain your current professional standing," and Question 21 was, "Describe your current annual income."

Question 4, regarding high school support, was converted into a 9-item scale to indicate preparedness for postsecondary endeavors in terms of the guidance received during high school. The reliability analysis yielded a Cronbach's alpha of .88 (see Appendix A), which is well above the commonly accepted cutoff of .7 for internal consistency for a social science scale. There was a slight, negative Pearson correlation between High School Support and current annual income, $r = -.21$, $n = 102$, $p = .03$. This indicates that, to a slight degree, higher levels of High School Support correspond to lower levels of current income. There was no correlation between High School Support and the professional status of "employed full-time" versus "not employed" ($p > .05$). The lack of robust correlations with the outcome variables indicates that preparation for college and career as measured by the High School Support scale did not improve students' economic impact on the community.

Question 5, concerning college and career goals, was converted into a seven-item scale to indicate preparedness for postsecondary endeavors regarding having a broad base of support during high school for future achievement. The reliability analysis yielded a Cronbach's alpha of .89, indicating a high internal consistency among the items comprising the scale. Regarding the relationship of College and Career Goals with question 20, current annual income was not statistically significant ($p > .05$). Likewise, there was no correlation between High School Support and Professional Status of "employed full-time versus not employed" ($p > .05$). The lack of statistically significant correlations with the outcome variables indicates that preparation for college and career as measured by the College and Career Goals scale was not a factor in students' economic impact on the community.

Question 6, regarding high school learning, was converted into an 11-item scale to indicate preparedness for postsecondary endeavors in terms of having rigorous academic and career-related coursework in high school. The reliability analysis yielded a Cronbach's alpha of .90, indicating high internal consistency among the items comprising the scale. The relationship of High School Learning with Question 20, current annual income, was not statistically significant ($p > .05$). Likewise, there was no relationship between High School Learning and Professional Status of employed full-time versus not employed ($p > .05$). The lack of statistically significant correlation with the outcome variables indicates that preparation for college and career as measured by the High School Learning scale was not a factor in students' economic impact on the community.

Question 7 of the quantitative questionnaire, College and Career Applications, was converted into a 10-item scale to indicate additional preparedness for postsecondary endeavors required after high school for college or career. The reliability analysis yielded a Cronbach's

alpha of .57, indicating low internal consistency for the scale. Additional analyses were conducted to determine whether the omission of any of the 10 items comprising the scale would improve the scale's internal consistency; however, removal of no single item improved the scale's reliability to .7 or above. Due to the lack of internal consistency for the scale, no correlations were explored between the outcome variables and College and Career Applications.

Finally, a relationship was explored between the students who expressed satisfaction with their high school preparation and the two outcome variables. Question 10 asked respondents to describe their satisfaction with a seven-point Likert-type scale ranging from *completely dissatisfied* (score point 1) to *completely satisfied* (score point 7). In an alternate measure of satisfaction, Question 11 asked the respondents if they would send their children to their old high schools. There was no statistically significant relationship between either of the variables measuring the respondents' satisfaction (Questions 10 and 11) and their current annual incomes or employment statuses ($p > .05$).

This first research question was intended to determine "if students graduate from high school not prepared for college and career after graduation, what is the economic impact on the community?" As demonstrated in both the qualitative and quantitative data, most participants felt that their high school experiences did help prepare them for the workplace. However, preparation was dependent on the types of high school academic programs experienced by the participants in the study. The qualitative interviews helped explain this area of mixed results; the disconnect from the focus on high school graduation and preparation for college and career was primarily due to the lack of courses or career pathways that connect to the career fields the participants entered after high school. As demonstrated with P2's answer to the qualitative interview question, "high school just gave me a basic overview. High school did not give me the details or

depth I need for my current career."

Several individual items were analyzed in the quantitative questionnaire to investigate Research Question 2, "Does the completion of career-related programs such as career pathways, Career Technical Education (CTE) or STEM prepare students for college and career?" The questions were analyzed using the Pearson correlation to two measures of postsecondary preparation in the survey: Question 10 (respondent satisfaction with postsecondary preparation in high school) and Question 11 (respondent willingness to send child to same high school given his/her own level of postsecondary preparation).

To determine the impact of CTE/ROP on postsecondary preparedness, the following items were pulled from Questions 3, 4, 6, and 9:

- Question 3: My priorities as a high school student to prepare myself for college and career were to complete the Regional Occupational Program (ROP), Career Technical Education (CTE), or any other type of career pathway.

- Question 4: My high school promoted the completion of Regional Occupational Programs (ROP) or Career Technical Education (CTE) programs.

- Question 6: When I think about my high school career, my high school promoted completing Regional Occupational Programs (ROP) or Career Technical Education (CTE) programs which would or did help prepare me for college and career.

- Question 9-1: Did you participate in any of the following educational programs while in high school? CTE

- Question 9-2: Did you participate in any of the following educational programs while in high school? ROP

The relationships between responses to several items in the survey provided some support to the claim that completion of career-related programs such as career pathways, career technical education (CTE), or STEM prepared students for college and career. There was a positive correlation between respondents whose high schools promoted ROP/CTE programs that would help them prepare for college and the satisfaction level of those students with their postsecondary preparation while at high school $r = .37, p < .05$.

For both of the items related to career pathways in high school, there was a positive correlation between the high schools promoting career pathways and the respondents' satisfaction with them ($r = .45$ and $.48$, respectively; $p < .05$). There was also a positive correlation between the high schools promoting career pathways and the respondents' willingness to send their children there.

To determine the impact of high school STEM programs on preparation for postsecondary endeavors, the following item was pulled from Question 4:

- Question 4: My high school promoted the importance of science, technology, engineering, and math (STEM) throughout my high school career.

There was a positive correlation between respondents reporting that their high schools promoted STEM and their satisfaction with their postsecondary preparation and willingness to send their children there ($r = .38$ and $.23$, respectively; $p < .05$).

The second research question, "Does the completion of career-related programs such as career pathways, Career Technical Education (CTE) or STEM prepare students for college and career?" did not yield significant results. Most participants either did not participate in a CTE/ROP or STEM program or did not know what it was when asked via the quantitative questionnaire or qualitative interviews.

Research Question 3 asks, "Can A-G course completion, participation in honors programs, early college, or dual credit courses completed in high school prepare students for college and career?" To determine the impact of AP and dual enrollment options on preparation for postsecondary endeavors, the following items were pulled from Questions 3, 4, and 6 of the quantitative questionnaire:

- Question 3-1: My priority as a high school student to prepare myself for college and career was to complete one or more honors, AP, or IB courses.

- Question 3-2: My priority as a high school student to prepare myself for college and career was to attend one or more classes that would enable me to receive college credit while in high school.

- Question 4: My high school promoted for all students to take honors, advanced placement (AP), or college credit courses while in high school.

- Question 6: When I think about my high school career, my high school promoted classes I could earn college credit in prior to graduation, such as advanced placement classes, dual credit courses, or junior college courses.

The strongest correlation in the study is between respondents reporting that their high schools promoted classes that offered college credit and their satisfaction with their postsecondary preparation ($r = .62$, $p < .05$). The item was also positively correlated with respondents' willingness to send their children to their old schools ($r = .26$, $p < .05$). Other items related to satisfaction with postsecondary preparation include having AP or IB course enrollment as a personal priority ($r = .22$, $p < .05$) and the school promoting honors, AP, or college credit courses. ($r = .22$, $p < .05$).

Finally, items that indicate whether an emphasis on A-G completion relates to satisfaction with postsecondary training that respondents received while in high school were pulled from Questions 3 and 4 of the quantitative questionnaire:

- Question 3: My priority as a high school student to prepare myself for college and career was to complete UC/CSU A-G requirements for college.

- Question 4: My high school emphasized the importance of meeting A-G requirements regardless of my college and career goals.

Responses to both items indicate that the respondents' satisfaction with the postsecondary preparation they received while in high school is related to the importance of A-G offerings. There is a positive correlation between respondents who indicated that completing A-G requirements was a high priority during high school and their satisfaction with the postsecondary preparation they received while there ($r = .31, p < .01$). There is an even stronger correlation between respondents' perceptions that meeting A-G requirements was an area of emphasis at their high schools and their satisfaction with the postsecondary preparation they received there ($r = .46, p < .01$). Interestingly, this latter item has a relationship to the secondary satisfaction measure: respondents' willingness to send their children to the same high schools ($r = .27, p < .01$).

The final research question attempted to identify if traditional college preparation programs can still prepare students not just for college, but also career. Findings suggest that students who attended post-high school two- or four-year colleges and earned degrees did see that their high schools provided support for college entrance. However, the findings also suggest that participants who did not attend college did not necessarily share that opinion. Also, most of the participants in this study did not experience dual credit courses limiting the effect of this

element as part of college and career preparation.
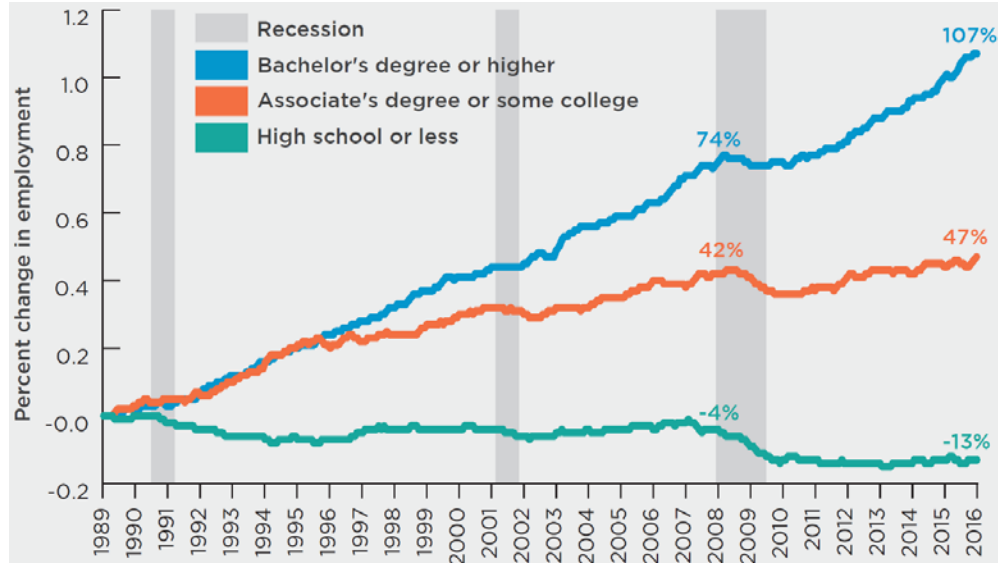
Figure 16. Education attainment and employment opportunity since 1989

Source: Georgetown University Center on Education and the Workforce analysis of *Current Population Survey* (CPS) data, 1989-2016.

The movement to the CCSS and assessment system to monitor students' CCSS mastery levels will require more than the traditional measurements of test scores. If students are to be prepared for college and career via the CCSS, it will mean students will have to demonstrate the abilities to analyze, interpret, and apply their content knowledge or skills to various types of real-world situations via high levels of Bloom's Taxonomy and Webb's Depth of Knowledge. Current curricula will need to be modified to ensure that this happens for all students. The LCFF will have to support professional development—not just the purchasing of the curriculum—to help teachers integrate the literacy and college- and career-readiness elements of the CCSS. Students will need to have multiple opportunities to demonstrate their knowledge, and teachers will need to incorporate various literacy strategies to help students utilize the curriculum and apply it to real-world concepts (Kaiser & Kaiser, 2012).

Summary

As we build the plane while we are flying it, district- and school-level leadership will have to train their staff to broaden the definition of student achievement to include college- and career-readiness in the CCSS era (see Figure 16). The movement to the CCSS and assessment system to monitor the levels of student mastery will require more than the traditional measurements of test scores. If students are to be prepared for college and career via the CCSS, it will mean they must prove they can analyze, interpret, and apply their content knowledge or skills to various types of real-world applications via high levels of Bloom's Taxonomy and Webb's Depth of Knowledge. Current curricula will need to be modified to ensure that this happens for all students.

Research by Carnevale, Smith, and Strohl (2010) and McKinsey (2009) demonstrates that receiving a high school education alone will not prepare students for future career and economic success. As stated in the report by Carnevale, Smith, and Strohl,

> Technology automates repetitive tasks, leaving more complex non-repetitive tasks to more highly educated postsecondary workers. Moreover, these changes have been occurring in the context of new networked organizational formats driven by measured outcome standards. These performance-driven networked systems are more flexible, efficient, and innovative, and they also require a more skilled workforce. (Carnevale et al., 2010, p. 13)

As our nation continues to move away from the Great Recession, the types of career opportunities will continue to depend on post-high school education and training. This finding will mean that today's students will need more than a high school diploma to be competitive in

the workforce as more students are earning college degree or certification via post high school training (see figure 17). Carnevale, Smith, and Strohl (2010) state,

> In 2016, for the first time, workers with a Bachelor's degree or higher comprise a larger proportion of the workforce than those with a high school diploma or less. Workers with a high school diploma or less now make up 34 percent of the workforce, five percentage points less than in 2007, when the recession began. (Carnevale et al., 2010, p. 15)
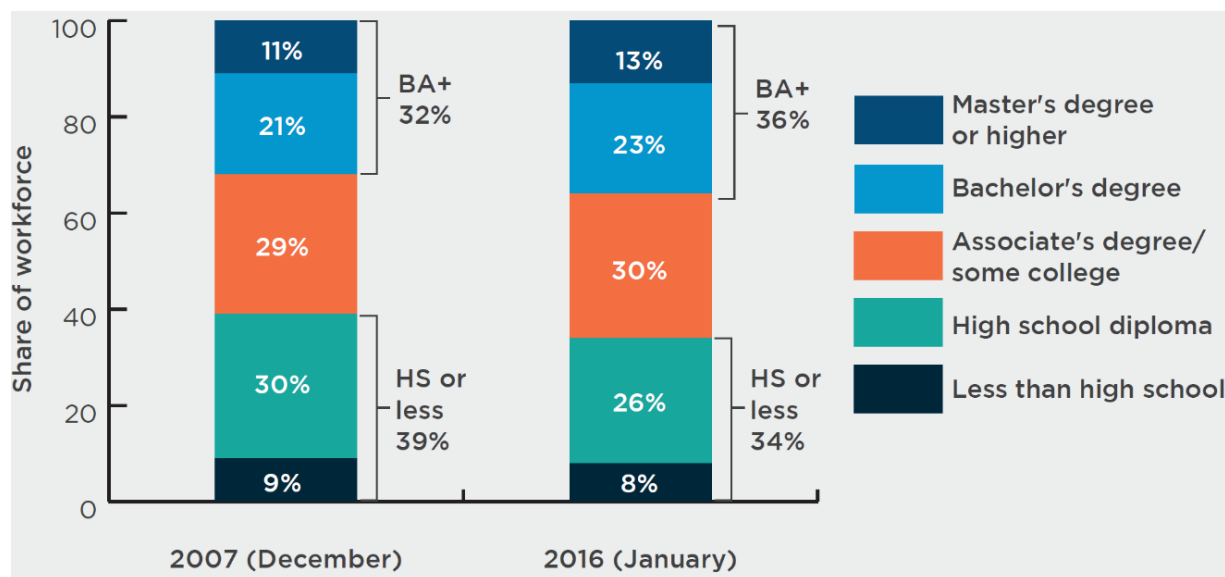
Figure 17. Education attainment and share of workforce

Source: Georgetown University Center on Education and the Workforce analysis of *Current Population Survey* (CPS) data, 2007, 2016.

The ongoing need for students to attain post-high school degrees or certificates will require changes to how we monitor student achievement in the CCSS era. Assessment systems to monitor students' CCSS mastery levels will require more than the traditional measurements of test scores. If students are to be prepared for college and career via the CCSS, it will mean they must prove they can analyze, interpret, and apply their content knowledge or skills to various types of real-world applications. Current curricula will need to be modified to ensure that this happens for all students. The LCFF will have to support professional development—not just the

purchasing of the curriculum—to help teachers integrate the literacy and college- and career-readiness elements of the CCSS. Students will need to have multiple opportunities to demonstrate their knowledge, and teachers will need to incorporate various literacy strategies to help students utilize the curriculum and apply it to real-world concepts (Kaiser & Kaiser, 2012).

School sites and districts in California must utilize LCFF funds to build, sustain, or improve college and career programs and activities. These activities will need to include professional learning communities (PLCs), AVID, advanced placement, International Baccalaureate, dual enrollment, career pathways, and CTE to ensure that all learners' needs are met and they are prepared for the 21st century workplace. Teachers will need professional development in the basic elements of instruction (Direct Instruction, SDAIE, etc.). However, to actually address the Common Core and college and career preparation, teachers will need professional development to know how to teach and allow their students multiple opportunities via writing, presentations, projects, or work-based learning so they can apply their understanding of the content in an integrated and meaningful way that sparks their interest, can be applied to real-world applications, and explores possible career interests (Trilling, 2009). Also, the increased rigor of the CCSS will require teachers to collaborate to improve student achievement.

CTE programs can no longer be considered non-college preparation tracks. CTE will need to be embedded into high school career pathways to allow students to explore possible future career opportunities before graduation. CTE inclusion into career pathways, however, must maintain the same four organizing principles to ensure success before and after graduation (Hoachlander, 2008, p. 23). These four principles are "pathways [to] prepare students for both postsecondary education and a career, pathways [to] connect academics to real world applications, pathways [to] lead to a full range of postsecondary options, and pathways [to]

improve student achievement," (p. 23). Each pathway is focused on a "major industry sector" and has "four essential ingredients," according to Hoachlander (2008). These "ingredients" include

> A challenging academic component which typically spans multiple years and places learning in the context of real-world applications, demanding technical component which delivers concrete industry-related knowledge and skills required for high skill, high-waged employment, work-based learning component, and supplemental services which include counseling as well as additional instruction in reading, writing, and mathematics to help student succeed with a challenging program of study. (p. 24)

The integration of CTE and career-based pathways can help prepare students for both college and career. CTE is no longer for students who do not want to enter college. If anything, it supports the skills needed for students to have the option of entering college or going straight into a career (Hoachlander, 2008).

PLCs provide teachers and administrators with a systematic method to discuss student performance, improving teaching, and identifying the type of professional development needed to ensure student success within the Common Core. PLC conversations start with DuFour's (2006) questions to address student learning outcomes. PLCs can provide structure within schools and districts to assess their effectiveness in educating their diverse student populations and ensure LCAP goals are met (DuFour, 2004). However, this alone may not be the panacea to increase teaching effectiveness. Providing professional development for educators will be just as important as to the implementation of the Common Core to ensure all students are college- and career-ready.

PLC teams can update traditional classroom learning to include soft skills. Soft skills include attendance, résumé-building, perseverance, giving and receiving constructive criticism, and teamwork involving individual and shared responsibilities. PLC teams will need to have a particular process to provide in-depth data-based discussions to improve instruction and school academic programs; increasing student academic achievement will not be met by having casual conversations about student learning (Fullan, 2006). Data teams could provide the collaborative structure around student data (both formative and summative) that PLCs need to improve student achievement (Peery, 2011). The data team is integrated into the PLC structure and will help schools monitor, evaluate, and support instructional programs and classroom teaching to ensure that diverse learners are supported during the bumpy road ahead that is implementing the Common Core. Also, district data teams will need to be established to provide school sites with ongoing feedback to ensure that the LCAP goals are supporting student achievement, identify district-wide staff development needs, and that all students are being prepared for career and college via CCSS implementation (McNulty & Besser, 2011). This type of school and district collaboration will change the way educators will need to communicate, provide collegial feedback, establish goals for meetings, approach staff development, and provide classroom support to improve college- and career-readiness for all students (Senge et al., 2012).

The 21st century education system will be different. It should not look like the traditional high school model of the past 100 years. Districts will have to rethink how their schools are set up, managed, and operated as the need to prepare students for college and career will mean going beyond traditional models of college preparation. This may seem daunting, as if we are skating on thin ice. However, the ice is not thin because we are rethinking the high school experience of our students. It is thin because the job market is rapidly evolving, and if we do not become more

creative in how we approach our high school academic programs, we will doom generations of students and communities to lower socioeconomic levels as their skills will not be able to keep up with an ever-changing 21st century workplace.

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APPENDIX A.

Reliability Analysis: Cronbach's Alpha

Scale: Q04 Scale

Case Processing Summary

		N	%
Cases	Valid	112	88.2
	Excluded[a]	15	11.8
	Total	127	100.0

a. List-wise deletion based on all variables
in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.878	.879	9

Scale: Q05 Scale

Case Processing Summary

		N	%
Cases	Valid	112	88.2
	Excluded[a]	15	11.8
	Total	127	100

a. List-wise deletion based on all variables
in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.891	7

Scale: Q06 Scale

Case Processing Summary

		N	%
	Valid	78	61.4
Cases	Excluded[a]	49	38.6
	Total	127	100

a. List-wise deletion based on all variables
in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.903	11

Scale: Q07 Scale

Case Processing Summary

		N	%
	Valid	69	54.3
Cases	Excluded[a]	58	45.7
	Total	127	100

a. List-wise deletion based on all variables
in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.574	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q07_AddnlMathSkills	36.86	24.890	.414	.500
Q07_AddnlTech	36.91	25.757	.365	.516
Q07_Organization	36.35	28.995	.174	.568
Q07_AcademicStrWkns	36.30	31.009	.049	.594
Q07_Perseverance	35.80	30.046	.186	.563
Q07_Workwithothers	36.07	29.833	.155	.571
Q07_EmploymentMatchInterest	36.38	28.915	.161	.573
Q07_Writing	36.71	25.327	.461	.491
Q07_ResumeInterviewSkills	36.48	27.430	.246	.551
Q07_Networking	36.19	26.890	.324	.529

Correlations

		Scale1_Q04 HSSupport	Scale2_Q05 CCRGoals	Scale3_Q06 HSLearning	Q21_Annua lIncome
Scale1_Q04HSSup port	Pearson Correlation	1	.638**	.773**	-.210*
	Sig. (2-tailed)		.000	.000	.034
	N	114	113	111	102
Scale2_Q05CCRGo als	Pearson Correlation	.638**	1	.641**	.052
	Sig. (2-tailed)	.000		.000	.603
	N	113	113	111	102
Scale3_Q06HSLear ning	Pearson Correlation	.773**	.641**	1	-.087
	Sig. (2-tailed)	.000	.000		.388
	N	111	111	111	101
Q21_AnnualIncome	Pearson Correlation	-.210*	.052	-.087	1
	Sig. (2-tailed)	.034	.603	.388	
	N	102	102	101	102

**. Correlation is significant at the .01 level (2-tailed).

*. Correlation is significant at the .05 level (2-tailed).

Correlations

		Q21_Annu alIncome	Q10_Satisf actionwith HS
Q21_AnnualIncom e	Pearson Correlation	1	-.054
	Sig. (2-tailed)		.592
	N	102	102
Q10_Satisfactionw ithHS	Pearson Correlation	-.054	1
	Sig. (2-tailed)	.592	
	N	102	102

Correlations

		Q20_Emp loyedFT	Scale1_Q 04HSSup port	Scale2_Q 05CCRGo als	Scale3_Q 06HSLear ning	Scale4_Q 0CCRApp lications
Q20_EmployedF T	Pearson Correlation	1	.003	.111	.076	.128
	Sig. (2-tailed)		.971	.240	.427	.192
	N	127	114	113	111	106
Scale1_Q04HSSu pport	Pearson Correlation	.003	1	$.638^{**}$	$.773^{**}$	$-.208^{*}$
	Sig. (2-tailed)	.971		.000	.000	.033
	N	114	114	113	111	106
Scale2_Q05CCR Goals	Pearson Correlation	.111	$.638^{**}$	1	$.641^{**}$	$-.219^{*}$
	Sig. (2-tailed)	.240	.000		.000	.024
	N	113	113	113	111	106
Scale3_Q06HSLe arning	Pearson Correlation	.076	$.773^{**}$	$.641^{**}$	1	-.189
	Sig. (2-tailed)	.427	.000	.000		.053
	N	111	111	111	111	105
Scale4_Q0CCRA pplications	Pearson Correlation	.128	$-.208^{*}$	$-.219^{*}$	-.189	1
	Sig. (2-tailed)	.192	.033	.024	.053	
	N	106	106	106	105	106

**. Correlation is significant at the .01 level (2-tailed).

*. Correlation is significant at the .05 level (2-tailed).

Correlations

		Q10_Satisfacti onwithHS	Q11_SendK idstoYourH S	Q21_Annua lIncome	Q20_Emplo yedFT
Q10_Satisfactionwit hHS	Pearson Correlation	1	.365**	-.054	-.042
	Sig. (2-tailed)		.000	.592	.678
	N	102	102	102	102
Q11_SendKidstoYo urHS	Pearson Correlation	.365**	1	-.105	-.034
	Sig. (2-tailed)	.000		.295	.738
	N	102	102	102	102
Q21_AnnualIncome	Pearson Correlation	-.054	-.105	1	.173
	Sig. (2-tailed)	.592	.295		.083
	N	102	102	102	102
Q20_EmployedFT	Pearson Correlation	-.042	-.034	.173	1
	Sig. (2-tailed)	.678	.738	.083	
	N	102	102	102	127

**. Correlation is significant at the .01 level (2-tailed).

		Q10_SatisfactionwithHS	Q11_SendKidstoYourHS
Q10_SatisfactionwithHS	Pearson Correlation	1	.365**
	Sig. (2-tailed)		.000
	N	102	102
Q11_SendKidstoYourHS	Pearson Correlation	.365**	1
	Sig. (2-tailed)	.000	
	N	102	102
Q03_ROPCTE	Pearson Correlation	-.056	-.032
	Sig. (2-tailed)	.587	.751
	N	98	98
Q04_ROP-CTE	Pearson Correlation	.098	.148
	Sig. (2-tailed)	.325	.138
	N	102	102
Q06_ROP-CTE	Pearson Correlation	.370**	.148
	Sig. (2-tailed)	.001	.182
	N	83	83
Q09_CTE	Pearson Correlation	.042	.034
	Sig. (2-tailed)	.675	.731
	N	102	102
Q09_ROP	Pearson Correlation	-.143	-.131
	Sig. (2-tailed)	.151	.188
	N	102	102
Q04_CareerCourses	Pearson Correlation	.448**	.287**
	Sig. (2-tailed)	.000	.004
	N	101	101
Q06_CareerPathway	Pearson Correlation	.476**	.222*
	Sig. (2-tailed)	.000	.036
	N	89	89

Q04_STEM	Pearson Correlation	.378**	.229*
	Sig. (2-tailed)	.000	.021
	N	102	102
Q03_APorIB	Pearson Correlation	.219*	.025
	Sig. (2-tailed)	.030	.809
	N	98	98
Q03_DualEnrlmt	Pearson Correlation	.184	-.045
	Sig. (2-tailed)	.069	.657
	N	99	99
Q04_HonAP	Pearson Correlation	.482**	.238*
	Sig. (2-tailed)	.000	.016
	N	102	102
Q06_CollegeCredit	Pearson Correlation	.618**	.255*
	Sig. (2-tailed)	.000	.014
	N	92	92
Q03_UCCSU_A-G	Pearson Correlation	.312**	.017
	Sig. (2-tailed)	.002	.863
	N	100	100
Q04_A-G	Pearson Correlation	.457**	.272**
	Sig. (2-tailed)	.000	.006
	N	101	101

APPENDIX B:

Exempt Review Application

This form is used when one or more descriptions from the Exempt Review Checklist match your research project. Send this application with the completed checklist electronically to: irb@cui.edu

Researcher's Name	William Nelson
Researcher's Department and/or Course	Doctoral Program
Researcher's CUI Email Address (or other if non-CUI affiliated)	William.nelson@eagles.cui.edu
Researcher's Phone Number	(209) 915-0618
Researcher's CUI E# (if applicable)	00246537
Title of the Project	Economic Prosperity After High School: How One Northern California School District's High School Academic Experiences Can Better Prepare Students for College and Career

Researcher's Status: (check one)
☒CUI Student   ☐CUI Faculty   ☐ CUI Adjunct Faculty
☐ CUI Staff   ☐ Other (explain):_____

Other Researchers: (use cui.edu email, if applicable)
Name: _____   Role:_____
Email: _____   Phone:_____
Name: _____   Role:_____
Email: _____   Phone:_____
Name: _____   Role:_____
Email: _____   Phone:_____
Name: _____   Role:_____
Email: _____   Phone:_____

Researcher's University Supervisor/Sponsor information:
Name: Belinda Karge_____   Role: Dissertation Committee Chair__
Email: belinda.karge@cui.edu_____   Phone 949-214-3333_____

This research is for (check one):
☐ Graduate Thesis or Project   ☐ Independent Study
☒ Doctoral Dissertation   ☐ Honors Project
☐ Classroom Project   ☐ Presidential Showcase
☐ Other (please describe) _____

If you are CUI Faculty or Staff conducting research as part of an outside institution's program, list institution, degree, and program: _____

Beginning date: (must follow IRB approval): October 2016_____
End date: (must follow IRB approval): January 2017_____
Location(s) of the research: Stockton, California_____

Participants: check all below descriptions that describe your participants

☒ Female / ☒ Male   ☐ Inmates

☐ Child Development Center   ☐ Children with special needs

☐ Children (17 or younger)   ☐ Patients in institutions

☐ English as foreign language learners   ☐ Pregnant women

☒ Adults competent to consent   ☐ Adults not competent to consent

☐ CUI students   ☐ CUI Faculty/Staff

☐ Other, explain: _____

Total number of participants proposed: 600

Funding:

1. Are you seeking funding for this research?   ☒ No   ☐ Yes

2. Will participants be compensated for participating?   ☒ No   ☐ Yes

If yes, describe in summary.

3. Does the funding agency require IRB approval?   ☐ No   ☐ Yes

If yes, provide all relevant forms, instructions, etc. with this application.

Purpose(s)/Objective(s) of the study: (1-2 paragraphs)

The purpose of this study is to identify if African-American and Latino students who had access to and completed early college courses or career pathways while in high school were better prepared for post-high school success. Thus, the main idea of the study is to identify how the participants' high school academic experiences prepared them for college and career to ensure their economic prosperity as adults. The data acquired for this study will provide insight into the type of high school academic programs that have or have not prepared Stockton Unified School District students for college and career. The study findings can be used to help the district identify, develop, improve, or modify current college and career programs for its students, ensuring that all SUSD students are prepared to succeed in the post-high school world.

Research questions:

1) If African-American and Latino students do not graduate from high school or are not prepared for college and career after graduation, what is the economic impact on the community?

2) Does the completion of career-related programs, such as career pathways, Career Technical Education (CTE), or STEM prepare African-American and Latino students for college and career?

3) Can A-G course completion, participation in and completion of honors programs, early college, or dual credit courses in high school prepare African-American and Latino students for college and career?

Design/methodology of the study: (1-3 paragraphs, including who the subjects will be, how subjects are selected and the size of the sample, data collection procedures and plans for analysis. If using electronic data collection, please include information listed in *Online/Electronic Data Collection Tools*)

A multi-question survey was developed and based on the review of literature of college- and career-preparation in high school. The questions on the instrument are designed to gather information from the participants to address the research questions. To ensure validity, the

instrument was reviewed and edited by high school graduates who matched the study profile (age 23 or older and at least five years out of high school) and were not SUSD graduates, and by one minor to verify the instrument's readability for a non-high school graduate. This group provided input to decrease researcher bias, ensure proper wording, eliminate questions that could produce the same types of responses, and resolve any ambiguity that would keep a participant in the study from answering the questions. The instrument also includes demographic information to enable the information gathered from the participants to be disaggregated based on the participants' race, sex, income (family income in high school and current income), current educational level, parents' education level, and college and career experience after high school graduation. Both quantitative and qualitative questions were utilized in the survey.

The instruments' questions were organized in a Likert scale format to allow the participants a range of answer choices that could elicit data that correctly demonstrated their college and career experiences while in high school (Likert, 1932). McLeod (2008) stated that "A Likert-type scale assumes that the strength/intensity of experience is linear, i.e. on a continuum from strongly agree to strongly disagree, and makes the assumption that attitudes can be measured," (McLeod, 2008). Depending on the question, various Likert scales were used to gain the participants' truthful responses (McLeod, 2008). Instrument questions included Likert scales of four, five, six, seven, and eight answer selections.

Additional questions were organized into seven categories. The first (called Career Interest in High School) was designed to identify the participants' career interests when they attended high school. The second section of the survey (High School Learning Priorities) was designed to identify the participants' personal educational outcomes during their high school careers. The third section (High School Support) was designed to identify the types of college and career support and guidance provided by the participants' high schools. The fourth section (College and Career Goals) was designed to establish the participants' supportive structures at home and in their high schools. The fifth section of the survey (High School Learning Experiences) was designed to establish the participants' opinions of their college and career preparation based on their SUSD high school educations. The sixth section (College and Career Application) was designed to evaluate the participants' perceptions of if they possessed the skills to be college- and career-ready after graduating from an SUSD high school. The final section (High School Choices) was designed to establish the types of academic programs at their high schools (magnet, charter, alternative, or comprehensive) that they attended.

The qualitative questions were integrated within the survey. Qualitative questions elicited short responses and allowed the participants to "provide different perspectives" that "usually complement each other," ("Quantitative Vs. Qualitative Research," 2010).

Survey data will be collected via the online survey program, Survey Monkey. A cover letter was sent to the participants by email, and a flyer was distributed to each school alumni that provided access to the survey. The letter and flyer explained the study, its purpose, and how the data would be utilized. Participants were then sent a second email link in which they were able to log onto the Survey Monkey website to complete the survey.

The Survey Monkey website allowed the participants to pause or stop and restart the survey at any time as long as they completed it in the time provided. Data collection began in the autumn of 2016 and completed by the end of December that same year. Each participant had 20 days, including weekends, to complete the survey. Email reminders were sent to the participants every five days to remind them to complete the survey. Data analysis took place in the spring of 2017. Incomplete surveys were not utilized in the study.

Stockton Unified School District's (SUSD's) high school graduate population is diverse, consisting of about 2,500 of the district's 10,000 high school students. The number of high schools has dramatically increased over the last ten years, which has diversified the participant group's high school experience and college and career preparation. The 11 high schools in the school district (which include the adult education high school), four of the charter schools opened in the last seven years, and one of the district's comprehensive high schools opened 11 years before the writing of this research study.

Utilizing the participant pool of SUSD graduates who are at least 23 years of age and graduated before 2012, the researcher targeted 600 SUSD graduates. From this group, a stratified, random selection design was used to identify a sample population from the 600 in the participant pool. The random sample of 200 included representatives from all of the SUSD high schools. Also, subgroups' categories were represented to disaggregate the data. The sample population was identified based on the participants' ethnicities, high school careers at either comprehensive or non-comprehensive high schools (charter, specialty, or adult education programs), and the participants' families' socioeconomic status while they were in high school. This random sampling provided a way in which the identified subgroups in the "population are represented in the sample in the same proportion that they exist in the population," (Lunenburg & Irby, 2008).

Data accumulated from the instrument was organized by the demographic information provided by the participants. There were four demographic groups that were analyzed. The first was by the participants' ethnicities, and the second was by their participation in high school in career pathways, regional occupational programs, or career technical education programs. The third group was organized based on the participants' post-high school educations or job training. The final group was organized by their current socioeconomic statuses.

Data was analyzed by using a causal-comparative research analysis. The study's dependent variable was the students who have graduated from SUSD high schools. There are two independent variables. The first is the participants' enrollment in an early college course, career pathway, or regional occupation program/career technical education career pathway while in high school. The second was the participants' current economic statuses.

The researcher will place the Survey Monkey responses into the Statistical Package for Social Sciences' (SPSS') computer program to complete the statistical analysis of the results. The SPSS program will be used to run the Analysis Of Variance, or ANOVA, to determine if the survey responses supported the research questions. ANOVA's statistical analysis allowed the researcher "to compare differences among many sample groups" and to "design an experiment in which the independent variable is manipulated through a whole range of values," (Sprinthall, 2012).

Likert, R. (1932). A Technique for the Measurement of Attitudes. *Archives of Psychology*, (140), 1–55.

Lunenburg, F. C., & Irby, B. j. (2008). *Writing a Successful Thesis or Dissertation: Tips and Strategies for Student in the Social and Behavioral Sciences*. Thousand Oaks, California: Corwin Press.

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from http://www.surveygizmo.com/survey-blog/quantitative-qualitative-research/

Sprinthall, R. C. (2012). *Basic Statistical Analysis* (9th ed.). Pearson Education, Inc.

What is criterion-related validity? (2015). Retrieved from http://www.ask.com/education/criterion-related-validity-fd9d85967d2e1c3b

Potential risks for human participants: (1 paragraph)

A participant could come to a negative conclusion regarding his or her high school alma mater based on his or her responses to the survey instrument or the findings from the study. After completing the survey, a participant could see his or her high school career in a negative light, causing them to have a negative perception of his or her high school, high school teachers, high school academic programs, or school district as it pertains to preparing them for college and career. Also, participants may incorrectly share the wrong year they graduated from high school, causing data analysis challenges to the validity and findings of the study.

How risks will be minimized: (1 paragraph)

The researcher will ensure that the findings from the study will be used only to address the research questions. This includes the answers to the survey and interviews. The findings from the quantitative and qualitative elements of the study will not identify any specific high school or specialized high school program that could identify a specific school or participant.

Anticipated benefits of the study (1 paragraph)

High school preparation for college and career will be different in the 21st century; new systems of learning will need to be adopted and applied throughout the K-12 educational system. High schools, specifically, have a need to create a "college-going culture" for all students (lifelong learning), focus on what skills students need to be successful for both college and career (moving beyond test scores as an indicator of success), "align course content to college and career-readiness standards" (to ensure rigor) and "partner with local postsecondary institutions and business" to provide students in high school the opportunity for hands-on learning and preparation for expanding careers in their community (Conley & McGaughy, 2012). The Latino and African-American student population makes up 75% of the district's student population (Penn, 2016). Thus, the information gathered from this research study can be utilized by a school district with a similar demographic to design and support college and career programs for its high school students—including traditional, specialty, and dependent charter high schools—to increase student completion of A-G college requirements, college entrance, SAT/ACT test scores, advanced placement completion and testing (AP scores of 4 or 5), dual credit completion, preparation for the 21st-century workplace, and meet the needs of California's, San Joaquin County's, and the city of Stockton's STEM workforce.

Other Required Attachments:

CONCORDIA
UNIVERSITY IRVINE

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **William Nelson** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 03/24/2016.

Certification Number: 2040299.

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Belinda Karge** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 01/20/2016.

Certification Number: 1957211.

Ed Eldridge
Research and Accountability
Stockton Unified School District
701 North Madison Street
Stockton, CA 95202-1687
(209) 933-7105

Date: September 1, 2016

TO: William Nelson

SUBJECT: Application to Conduct Research in SUSD – Economic Prosperity After High School: Can Career Pathways and Early College Opportunities for African American and Latino Students Better Prepare Them for College and Career

Dear Mr. Nelson,

The research committee has reviewed and approved your request to conduct research in the Stockton Unified School District for "Economic Prosperity After High School: Can Career Pathways and Early College Opportunities for African American and Latino Students Better Prepare Them for College and Career" study. The conditions of research are as follows:

1. Research is approved in accordance with the parameters included in your "Application to Conduct Research in the Stockton Unified School District".

2. According item C of the **Individual's Obligation** section of the signed Non-disclosure Agreement, you are obligated not to make any disclosure or publication whereby the data furnished by the school district could be identified. You will find attached a signed electronic copy of the non-disclosure form.

3. You must adhere to the plan outlined in your proposal. Any deviations from it will require prior approval from the Research and Accountability Department.

Please be aware that although permission has been granted to conduct research, the sites / departments you select are under no obligation to participate. You will need to contact the site principal(s) or department manager to solicit participation. Finally, when your research project has been completed, please forward a copy to our office.

Best wishes with your research endeavors.

Ed Eldridge
Director
Research and Accountability

Career Interest in High School

1) Which of the following 15 California industry sectors best describes your career interest when you were in high school? Mark all that apply.

1. Agriculture and Natural Resources

2. Arts, Media, and Entertainment

3. Building Trades and Construction

4. Education, Child Development, and Family Services

5. Energy and Utilities

6. Engineering and Design

7. Fashion and Interior Design

8. Finance and Business

9. Health Science and Medical Technology

10. Hospitability, Tourism, and Recreation

11. Information Technology

12. Manufacturing and Product Development

13. Marketing, Sales, and Services

14. Public Services

15. Transportation

16. Was undecided which career to enter while in high school

2) Which of the following best describes your *high school grade point average*?

1. 4.0 or higher
2. 3.0 to 3.9
3. 2.0 to 2.9
4. 1.0 to 1.9
5. .9 or lower

High School Learning Priorities

Thinking about your experience in high school to prepare yourself for college and career after graduation, indicate the priority levels you had as a high school student for each of the following items.

3) My priorities as a high school student to prepare myself for college and career were to…	Not a Priority	Low Priority	Somewhat Priority	Neutral	High Priority	Essential Priority
Earn the highest grade point average possible	1	2	3	4	5	6
Complete the Regional Occupational Program (ROP), Career Technical Education (CTE), or any other type of career pathway	1	2	3	4	5	6
Complete four years of the AVID program (Advancement Via Individual Determination)	1	2	3	4	5	6
Complete courses in high school that connected to my career interest	1	2	3	4	5	6
Complete UC/CSU A-G requirements for college	1	2	3	4	5	6
Apply to a two- or four-year university or college	1	2	3	4	5	6
Apply to a trade school after graduating from high school	1	2	3	4	5	6
Apply to serve in the military after high school	1	2	3	4	5	6
Complete one or more honors, AP, or IB courses	1	2	3	4	5	6
Attend one or more classes that would enable me to receive college credit while in high school	1	2	3	4	5	6

High School Support

Please select the answers that best describe the support you received while in high school to prepare you for college and career. Select _one_ answer for each question.

4) *My high school…*	Never	Rarely	Occasionally	A Moderate Amount	A Great Deal
Promoted the importance of graduating from high school	1	2	3	4	5
Promoted the importance of college and career preparation to ensure my future economic success	1	2	3	4	5
Promoted for all students to take honors, advanced placement (AP), or college credit courses while in high school	1	2	3	4	5
Staff promoted career pathway courses	1	2	3	4	5
Promoted the completion of Regional Occupational Programs (ROP) or Career Technical Education (CTE) programs	1	2	3	4	5
Promoted the importance of science, technology, engineering, and math (STEM) throughout my high school career	1	2	3	4	5
Provided guidance or extra support if I was not sure of my college and career goals	1	2	3	4	5
Emphasized the importance of meeting A-G requirements regardless of my college and career goals	1	2	3	4	5
Staff promoted various types of college and career options, such as trade schools, junior college programs, or military service	1	2	3	4	5

College & Career Goals

During your high school career, how often did people talk to you about your college goals?

5) *While in high school, I spoke to…*	Never	Rarely	Occasionally	Once or Twice	Many Times
My parents or family about my career goals	1	2	3	4	5
My parents or family about admission to college	1	2	3	4	5
My high school counselor about my career goals	1	2	3	4	5
My high school counselor about admission to college	1	2	3	4	5
One of my high school teachers about admission to college	1	2	3	4	5
My friends about my career goals	1	2	3	4	5
My friends about admission to college	1	2	3	4	5

High School Learning Experiences

Please tell us the quality of your high school learning experience to prepare you for college and career. Select one answer for each question.

6) *When I think about my high school career, my high school…*	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	Does not Apply
Classes were rigorous and prepared me for life after high school	1	2	3	4	5	6
Classes connected classroom learning to real-world applications that helped prepare me for college and career	1	2	3	4	5	6
Courses provided the skills I needed to be prepared for college and career after high school	1	2	3	4	5	6
Promoted completing the Regional Occupational Program (ROP) or Career Technical Education (CTE) programs, which helped prepare me for college and career	1	2	3	4	5	6
Promoted completing a career pathway	1	2	3	4	5	6
Suggested that I participate in the AVID (Advancement Via Individual Determination) program for all four years of high school	1	2	3	4	5	6
Counselor met with me regularly to discuss high school graduation requirements	1	2	3	4	5	6
Counselor met with me to discuss my college and career goals	1	2	3	4	5	6
Counselor regularly reviewed various scholarships and financial aid options with me for college and career after high school	1	2	3	4	5	6
Counselor reviewed with me my high school transcript after every semester to monitor my credits, graduation requirements, UC/CSU requirements, and college and career goals	1	2	3	4	5	6
Promoted classes I could earn college credit in prior to graduation, such as advanced placement classes, dual credit courses, or junior college courses	1	2	3	4	5	6

College and Career Application

Please indicate the extent to which you agree or disagree with the following statements regarding your entrance to the workplace, college, or both. In which area did you feel that you needed additional support, guidance, schooling, or training after high school? Check *Does Not Apply* if the question does not apply to you.

7) *As I entered into college, the workplace, or both after high school graduation, I…*	Very Strongly Disagree	Strongly Disagree	Disagree	Does Not Apply	Agree	Strongly Agree	Very Strongly Agree
Needed additional training/education in applying math skills to the real world	1	2	3	4	5	6	7
Needed additional training in using technology to gather, interpret, and use information as needed	1	2	3	4	5	6	7
Learned how to organize my time and tasks that I needed to complete	1	2	3	4	5	6	7
Knew my academic strengths and weaknesses and what I needed to do to accomplish my career goals	1	2	3	4	5	6	7
Learned the importance of not giving up and sticking through difficult situations	1	2	3	4	5	6	7
Learned how to work with other people to complete a task	1	2	3	4	5	6	7
Learned about employment opportunities that matched my career interests after graduation	1	2	3	4	5	6	7
Needed additional training/education in applying writing skills to the real world	1	2	3	4	5	6	7
Needed additional training on how to write a résumé and on my interview skills	1	2	3	4	5	6	7
Needed additional training/education in career networking skills	1	2	3	4	5	6	7

High School Choices

Please select the answer that best represents your experiences after high school.
Select _one_ answer for each of the following questions.

8) After I graduated from high school, I chose to…	**Right after high school**	**2 to 5 years after high school**	**6 to 9 years after high school**	**10 or more years after high school**
Attend a two-year junior college	1	2	3	4
Attend a two-year junior college and then transfer to a four-year university	1	2	3	4
Attend a four-year university	1	2	3	4
Serve in the military	1	2	3	4
Enter the workforce part-time	1	2	3	4
Enter the workforce fulltime	1	2	3	4

9) Did you participate in any of the following educational programs while in high school? Mark all that apply.

1. Traditional high school program
2. Charter program
3. Magnet program
4. Alternative program
5. Career Technical Education (CTE) program or pathway
6. Regional Occupational Program (ROP) or pathway

10) Which of the following best describes your satisfaction with your high school preparation for college and career?

1. Completely dissatisfied
2. Mostly dissatisfied
3. Somewhat dissatisfied
4. Neither satisfied nor dissatisfied
5. Somewhat satisfied
6. Mostly satisfied
7. Completely satisfied

11) If you have children or plan to have children in the future, would you send them to the high school you attended based on your college and career preparation?

   1. No
   2. Neutral: it would be up to my child
   3. Yes

12) Please select from the following 15 California industry sectors the ***one*** that best describes your current job or career.

   1. Agriculture and Natural Resources

   2. Arts, Media, and Entertainment

   3. Building Trades and Construction

   4. Education, Child Development, and Family Services

   5. Energy and Utilities

   6. Engineering and Design

   7. Fashion and Interior Design

   8. Finance and Business

   9. Health Science and Medical Technology

   10. Hospitability, Tourism, and Recreation

   11. Information Technology

   12. Manufacturing and Product Development

   13. Marketing, Sales, and Services

   14. Public Services

   15. Transportation

Demographic Information

13) What is ***your gender***?

   1. Male
   2. Female
   3. Transgender

14) Which best describes *your age*?

1. 21 to 25
2. 26 to 30
3. 30 to 35
4. 36 to 40
5. 41 to 45
6. 46 to 50
7. 51 or older

15) Which of the following best describes *your ethnicity*?

1. Caucasian/White
2. African-American/Black
3. Latino
4. Asian
5. Pacific Islander
6. Native American or Alaska Native
7. Two or more races
8. Other (please specify) _____

16) Which of the following best describes *your highest level* of educational completion?

1. High school graduate
2. Some college
3. College graduate
4. Master's degree
5. Doctoral degree

17) Which of the following best describes *your mother's highest level* of educational completion?

1. High school graduate
2. Some college
3. College graduate
4. Master's degree
5. Doctoral degree

18) Which of the following best describes *your <u>father's</u> highest level* of educational completion?

1. Some high school
2. High school graduate
3. Some college
4. College graduate
5. Master's degree
6. Doctoral degree

19) Which of the following best describes your family's annual income *when you were in <u>high school</u>?*

1. Less than $29,999 a year
2. $30,000 to $59,999 a year
3. $60,000 to $79,999 a year
4. $80,000 to $99,999 a year
5. $100,000 or more a year

20) Which of the following best describes *your <u>current</u> professional standing?* Please mark all that apply.

1. Fulltime college student
2. Part-time college student
3. Military
4. National Guard
5. Employed part-time
6. Employed fulltime
7. Unemployed

21) Which of the following best describes *your <u>current</u> annual income?*

1. Less than $29,999 a year
2. $30,000 to $59,999 a year
3. $60,000 to $79,999 a year
4. $80,000 to $99,999 a year
5. $100,000 to $149,999 a year
6. $150,000 or more a year

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Interview Questions	Notes	Research Question #
1) Are you in the career of your choice? If so, can you describe your pathway to your career from your high school experience, college, or on-the-job training? Please describe your current career and your work responsibilities.		#1
2) Please include the types of education or training you need to have for your current career.		#1, #2, #3
3) What level of economic status (poor, middle-income, wealthy) would you consider yourself, and what factors contributed to your current economic standing?		#1

4) Does your career require additional education or training? If not, why? If so, what type of training or education did you need?		#1, #2, #3
5) Before starting your career, what type of education or training did you need to complete after high school?		#1, #2, #3
6) Please explain the types of classes you participated in while you were in high school. Please include how these classes did or did not help you build your skills to enter your current career.		#1, #2, #3
7) Please explain the types of college prep programs you were in while in high school. Include any honors, AP, or early college courses you completed. If you did not participate in a college prep program, why?		#1, #2, #3

8) Please explain the types of career programs or training you participated in while in high school, such as ROP, CTE, or a career pathway. If you did not participate in a program, why?		#2,
9) How did or did not your high school classes prepare you for the real world (i.e. college and your current career or job)?		#2 & #3
10) What type of high school academic programs do you think are needed to prepare students to enter 21st century careers?		#1, #2, & #3

- □ Copy of NIH Certificate(s) for all researchers/co-researchers and university supervisor(s)
- □ Copy of the completed Exempt Review Checklist
- □ Other materials as appropriate (e.g., Site Authorizations, measurement instruments, recruitment materials, translations, Verification of Translation Accuracy, etc.), please list:

RESEARCHERS AND SUPERVISORS ASSENT

I agree to follow the procedures outlined herein, and to ensure that the rights and welfare of human participants are properly protected. I will ensure the study does not commence until the study has been approved by the CUI IRB. I will promptly report additions, changes, or problems involving the rights or welfare of human participants to the IRB by sending the appropriate IRB form to the IRB at irb@cui.edu.

Printed Name of Researcher: William Nelson_____ **Date:** _____

Signature of Researcher: _____

Printed Name of Co-Researcher: _____ **Date:** _____

Signature of Co-Researcher: _____

Printed Name of Co-Researcher: _____ **Date:** _____

Signature of Co-Researcher: _____

Printed Name of Co-Researcher: _____ **Date:** _____

Signature of Co- Researcher: _____

Printed Name of Co-Researcher: _____ **Date:** _____

Signature of Co-Researcher: _____

Printed Name of University Supervisor (or CUI Faculty Sponsor): Dr. Belinda Karge_____

Signature of University Supervisor (or CUI Faculty Sponsor): _____

Title: _____ **Date:** _____

NOTE: A member of the CUI faculty must be principal researcher, co-researcher, supervisor, or sponsor for projects utilizing human participants in research at Concordia University, Irvine. The faculty member is considered the responsible party for legal and ethical performance of the project.