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# Twelfth Grade Students' Perceptions Of Linked Learning Pathways

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TWELFTH GRADE STUDENTS' PERCEPTIONS OF LINKED  
LEARNING PATHWAYS

by

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## ABSTRACT

During the era of standardized testing in California, Central High School District (CHSD-pseudonym) had created a single course of study that all students were expected to follow to maximize results on state exams. This single course of study was not relevant to a large majority of the students who graduated from the district and they were not prepared for life after graduation. The new accountability system has allowed CHSD to expand the course of study that is being offered. The district has several programs that follow the Linked Learning model which uses project based learning to pair core academic courses with career technical education standards. This mixed methods action research study was conducted during the spring semester of 2018 with the purpose of determining senior students' perceptions of the Linked Learning programs and identifying the components they found most important and relevant. Forty senior students who were enrolled in a Linked Learning program completed an online questionnaire and six students participated in a semi-structured interview. The information from these two sources was triangulated and the findings of the study showed that students had a positive perception of the program and that project based learning resulted in a relevant and engaging course of study that taught them valuable soft skills. Upon completion of the data analysis, a committee reviewed the findings and developed an action plan to support the expansion of the Linked Learning program model across the district.

*Keywords:* Linked Learning, career technical education, course of study.

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## CHAPTER 1—INTRODUCTION

*Four years ago, Julie, Sofia, and Diego all completed a career interest survey as part of their Sophomore Career Day. They had all gone to school together since the third grade and were in the same English class together when they completed the survey. The results told them they should consider the medical field as a profession. They were excited that they all had the same field, and they made a pact to attend medical school together and become doctors. They planned to come back home and work because there was such a need for medical professionals in their rural, high-poverty community. Their counselor registered them all for the standard courses for the next two years to ensure that they all met the district graduation requirements and the entrance requirements for the California State University (CSU) system. As juniors and seniors, they all selected the medical pathway on Career Day and listened to doctors and nurses from local hospitals talk about how rewarding it is to be in the medical field and give back to their community. At their high school graduation ceremony, they all reaffirmed their pact to attend college and then come back and be part of the medical field and give back to their community.*

*Julie was a solid “B” average student and completed all the courses required for graduation; she was admitted to the local CSU campus. It was only 20 minutes away from home, so she would be able to stay at home and drive to school every day. She was enrolled in and completing the courses she needed to be “pre-med.” While the courses were not academically hard for her, she was not finding them interesting and was*



wondering where she should be going with her life. She had not really talked to Sofia or Diego since graduation, but they all followed each other on Instagram. This last semester in college, she was enrolled in a psychology course and her professor had shown her a one-week internship program over spring break with the County Mental Health Department. She found the program challenging and rewarding, and after the program was over, the director encouraged her to look into social services as a career. Julie worked with her professor to become a psychology major and is eagerly looking forward to completing her degree.

Diego had always preferred soccer to math or history, but passed all of his classes, most with “C” grades, but a few with a “D” grade. He enjoyed his junior and senior year on the soccer team, but did not qualify academically for the CSU system, so he instead enrolled at the local community college after graduation. His counselor had told him to complete the needed courses there, and then he would be able to transfer to the CSU system after two years. During his first year, he failed his calculus course and decided he needed to get a job because his parents could not afford to pay for his books or tuition. After two years, he was still 24 credits away from being able to transfer, and he was not sure he would ever be able to pass the required college-level math course. His bills were adding up, and he decided he needed to take on more hours working at Walgreens. The store had a pharmacy, and during his breaks he would talk with the technicians about their jobs and what training they had needed. They showed him some of the certificate programs that the local community college offered. Neither of his counselors at the high school or college had ever mentioned these to him. His counseling had always been focused on graduating from high school, going to the community college

*for two years, and then transferring to the CSU. He took the brochures and hoped that he could work out an arrangement with his store manager to be able to complete one of the certificate programs in a year while still working enough hours to pay his bills.*

*Sofia struggled her junior and senior year. Her father left and she had to constantly babysit her little brother while her mom was working. She failed several classes and her counselor enrolled her in summer school to make up the credits. She had a class with Julie and a different one with Diego her senior year, but she spent all her time trying to keep up with her school work and babysitting and they never got to spend any real time together. She did not understand how any of her courses were relevant to her life, but she knew that her counselor would always tell her that going to college was the way to a better future. She was not sure until the last day that she was actually going to get to graduate; her government teacher rounded her 59.6% grade up to a D, and she passed. Because of the amount of time she needed to spend caring for her brother, Sofia enrolled only part time at the community college. The counselor enrolled her in remedial courses and told her that once she passed those, she could take classes that would count toward a degree. She failed all her classes that first semester. She gave up on college and began working full time to help her mother pay the bills. After working for a year, her boss told her she was one of her best workers and that the company had an internship program that might help her move up in the company. She turned in the papers and is hoping that this program might be the break she needs to get ahead.*

While No Child Left Behind might have originally been passed to identify student groups that were not being successful so that interventions could be put in place to address their needs, what resulted was a standardized course sequence that focused on

having students memorize information for multiple choice tests. Students are more successful when their education focuses on explicitly teaching cognitive skills which require students to react to and address complex ideas and skills (Noguera, 2011). Many states including Louisiana, Kentucky, and Virginia are addressing this need by requiring students to take courses that combine core academics with career technical education (CTE) to earn honors diplomas, and states that have adopted Common Core are required to incorporate CTE standards (Zinth, 2013). In a study by Maxwell (2001), students who participated in career academies, which combined core academics and CTE standards to solve problems and address complex issues, were less likely to require remedial coursework upon entering college and more likely to earn bachelor's degrees than the student population as a whole.

While the students in this vignette are fictional and are not the story of any particular individual, Julie, Diego, and Sofia represent the experiences of a large number of graduates from the district in which I have worked for the last 25 years. Early in their high school career, they take surveys about their interests and what careers and post high school options would best meet their needs based on those results. Then the students all take the same standard set of courses focused on meeting graduation requirements and trying to ensure that they will be eligible for the CSU system.

As a teacher, I was mostly focused on how students were performing in my class and whether I was preparing them for the next grade level. Our district's graduation rate was higher than the state average, and our students were scoring above average on the state content standards tests. Occasionally a former student would return to talk about their experiences after they graduated, but our school and district did not track the

progress of students after they graduated and left the district. When I became an associate principal, I became interested in how our students performed after they graduated from high school, and if we were actually preparing them to be college and career ready. I was introduced to the National Student Clearinghouse at a conference in my third year as an administrator. I began to track how the students at my school were progressing after they graduated and once I moved to a district office position, I began tracking all of the graduates in our district. As I began to explore the experiences of our students after they had graduated, I discovered that many of our students had similar experiences to Julie, Diego, and Sofia.

California has adopted a new accountability system that includes multiple measures of success for schools and no longer focuses on measuring schools simply by a set of standardized test scores. This has allowed our district to explore how to create programs that meet the needs of a diverse population and help prepare them to be successful after they have graduated. One of those programs has been Linked Learning Pathways. These pathways link core academic courses and standards with career technical education courses and standards.

For the last three years I have been pursuing my EdD at the University of South Carolina in the context of the Carnegie Project on the Education Doctorate (CPED) initiative. I have also been working as an administrator at the district level. This dissertation documents students' perceptions of the Linked Learning programs at two high schools to inform and guide the work of myself and others in the district, as we expand these opportunities to all students.

## STATEMENT OF THE PROBLEM OF PRACTICE

Central High School District (CHSD; this name is a pseudonym) is a rural high school district in the center of California's agricultural San Joaquin Valley. While the district's graduation rate exceeds the state average, many graduates have suggested that they were not prepared to make the college and career choices that were expected of them. This lack of preparation is also reflected in the district's data collected through the National Student Clearinghouse, which reveals that while over 70% of CHSD graduates attend college after graduation, less than 30% actually complete a degree within six years. Students have had very little choice in their course options in high school, and most students are enrolled in a standard course of study based on the entrance requirement for the CSU system. Students who struggle in any of the core courses are often enrolled in remedial and support courses which further limit their access to courses and curriculum that they might find interesting and relevant. The standard course of study does not include information about post-high-school options or have any input or coordination with the community or local industry. Instruction focuses on covering standardized factual information rather than deeper learning, application of information and skills, collaboration, or information communication. The problem of practice identified for this action research is that the current standardized course of study that most students at CHSD are enrolled in is not meeting the needs of a large majority of the students.

## THEORETICAL FRAMEWORK

Part of the action research process used in this study is conducting a review of both educational philosophy and literature relevant to the problem of practice. The

following literature provides the philosophical basis for this study; a more in depth review of the literature is presented in Chapter 2.

At the turn of the century, Jane Addams in her work *The Public School and the Immigrant Child* argued, “The second indictment which may be brought is the failure to place the children into proper relation toward the industry which they will later enter” (Flinders & Thornton, 2013, p. 42). She made the points that entering the workforce was the first American experience for immigrant children and that an education that focused on learning for its own sake did not prepare them for the realities they would face outside school. The world has changed a great deal since Addams wrote that statement, and the idea that every student should take the exact same course of study as described by the essentialist authors is no longer the guiding principle in California.

The Bill and Melinda Gates Foundation K–12 Education web page notes that “to thrive, our students need to learn in and out of school, in person and online, together and independently. Students need learning experiences that meet them where they are, engage them deeply, let them progress at a pace that meets their individual needs, and helps them master the skills for today and tomorrow” (Bill and Melinda Gates Foundation, 2016, Challenge section). In 2012, the National Education Association published *An Educator’s Guide to the “Four Cs.”* Dennis Van Roekel (2012), the president of the National Education Association, stated in the guide’s introduction that “as a founding member of the Partnership for 21st Century [sic] Skills, the NEA is extraordinarily proud of our partnerships with leaders in education, business, and policy circles to forge a common vision for education that will prepare our young people for college, work, and life” (National Education Association, 2012, p. 2).

The Four Cs are collaboration, communication, critical thinking, and creativity. To be successful after high school, students need to be critical thinkers, be able to communicate content and ideas, be creative, and be able to collaborate with others. These are the skills that all students need to be successful in today's world. All students need a basic set of skill, as the essentialists believe, but those skills are now 21st-century skills, and the constructivist nature of the progressive authors can help mold the way those skills are learned. Students need to have choice and be provided with learning experiences that allow them to interact with content and make it relevant to their lives. Outside of school, people learn through facing complex task and solving those problems as part of a dynamic community (Clarke & Dimartino, 2008). Students are more successful when teachers provide learning experiences that explicitly teach cognitive skills through the use of complex tasks. Students must be guided through challenging problems that require multiple steps and require that students interact and react to the problem and the learning (Noguera, 2011). Using real-life problems that are of interest to the student provides motivation to engage in deeper learning and collaboration and provides a benefit to all students (David, 2008). In a study by the James Irvine Foundation (2009) of ConnectED Network schools, students who participated in career academies that incorporated real-world problem-solving that linked both core academic and CTE standards performed better on state tests and in completing college entrance requirements.

#### PURPOSE OF THE STUDY

The primary purpose of the study is to describe 12th grade participants' perception of the Linked Learning Pathway at two schools within the Central High

School District. Specifically, the participant-researcher will identify the student-participants' perceptions of the strengths of the programs and the components that were most relevant to them. The secondary purpose is to create an action plan to incorporate the identified strengths and components into other pathways being developed throughout the district.

## RESEARCH QUESTION

To accomplish these purposes and address the problem of practice, the focus of this dissertation in practice (DiP) is an analysis of the participating seniors' perceptions of the Linked Learning Pathways. Specifically, this DiP answers the following research question: *What are the student-participants' perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?*

## RATIONALE

As California has created a new accountability system that focuses on multiple measures rather than solely on standardized test scores, the district is identifying ways to create more relevant learning experiences for students that make them college and career ready. A major initiative for the district is to have all students participate in a Linked Learning Pathway. This study, and specifically the answers to the research question, provides the students a voice in what components are included in these pathways. Allowing students to select a pathway and offering both academic and technical skills in a setting that requires students to interact with and process the information in a way that is relevant to their needs, goals, and background, will be at least the first step in solving



the problem of practice that is created by a standardized course of study that is not currently preparing students for life after high school.

## RESEARCHER POSITIONALITY

In 2007, 25 colleges and schools of education began the work to transform the doctorate of education through the Carnegie Project on the Education Doctorate (CPED). The member institutions have expanded over the years and continue to meet to refine the guiding principles for both the doctorate and the DiP. These principles revolve around the program's need to create scholarly practitioners who can identify a problem of practice, gather and analyze literature and data, and complete a DiP that demonstrates that the scholarly practitioner can work with key stakeholders to solve a problem of practice (Storey, 2015).

Dana and Yendol-Hoppey (2014) compare the processes of action research to good teaching. Monitoring student progress, reviewing work and assessments, including students in the discussion of their learning, and watching student behaviors for insights are all things that are expected in good teaching and would all be areas of possible action research. Those concepts can be extended to school and district leadership as well. Reviewing data, monitoring progress of programs, and including stakeholders in discussions are expected in good educational leadership and are areas of possible action research at a district level. Unlike other forms of research, the DiP for the education doctorate, as outlined by CPED, is based on action research which includes the active participation of the participant-researcher.

Because the participant-researcher is actively involved in the action research, it is important to understand positionality and how the participant-researcher's role might

influence other participants or the interpretation of data. As an assistant superintendent, I am in a position to implement the findings on a district level. I also have positional authority over site and district staff that were involved in the collaboration efforts of crafting an action plan based on the student-participants' survey results and interviews. As I have been part of the district for twenty-five years, some teachers and site administrators who provided input into the action plan were students of mine when they were in high school. It is important to be cognizant of this relationship when seeking input to ensure that I am getting honest opinions and feedback that reflects the background, experience, and expertise of these teachers and administrators. While I am responsible to fund programs, provide support for student activities such as pathways, and establish district level guidelines and requirements, it is also important to be cognizant of the fact that as an administrator, I am not teaching courses and interacting with students on a daily basis and may have different motivations than site administrators or teachers. These concepts are discussed in more detail in Chapter 5.

## RESEARCH DESIGN

This action research is based on Mertler's (2014) model of planning, acting, developing, and reflecting. Action research is a cyclical and participative process in which the educator is systematically involved in critical reflection on their own practice. The planning phase included the review of relevant literature, which is included in Chapter 2, and the research plan, which is outlined here in Chapter 1. The acting phase consisted of data collection, which is described in Chapter 3, and data analysis, which is presented in Chapter 4. Chapter 5 includes the development of an action plan and reflection on the process, which are the last two phases. The research is a triangulation

mixed-methods design. Quantitative and qualitative data were both collected and compared to each other. Merging analyses of the two types of data can provide greater credibility if they both indicate the same findings (Mertler, 2014).

**Participant Selection.** Based on the purpose of the study, to review student-participants' perceptions of a current program, the forty student-participants were seniors enrolled in a specific Linked Learning Pathway course. All students in the course were included in the quantitative data collection. Six students were then selected at random from those enrolled in the course to participate in the qualitative data collection. A detailed description of the participants is included in Chapter 3.

**Research Site.** The research took place at two high school campuses in the CUSD located in the agricultural San Joaquin Valley of central California. The quantitative data was collected in one classroom on each campus during a normal class period. The qualitative data collection took place in an unused classroom away from the classroom where the instruction takes place and away from the regular traffic of the main offices. This allowed the students participating in the qualitative data collection to remain anonymous.

## DATA COLLECTION AND ANALYSIS

**Sources of Data.** Data collected for study was both quantitative and qualitative. The quantitative data was collected through a survey. The questions used a Likert scale, and responses were collected through a Google Form. The survey questions are included in Appendix A. The qualitative data was collected through semi-structured interviews. The base questions are included in Appendix B; follow-up questions were

asked based on the responses to the initial base questions. The interviews were recorded and the audio files were transcribed by a professional company.

**Data Analysis.** The quantitative data was analyzed with descriptive statistics by calculating the mean score for each survey question. A frequency distribution table was used along with the mean scores to present the data. The qualitative data was analyzed through inductive analysis. All of the transcribed notes from the interviews were reviewed to create a coding scheme to organize and categorize the student-participant responses. A summary of each category was developed to reflect the responses. The quantitative and qualitative data was then reviewed to identify similarities and differences and their connections with each other to answer the research question.

## SIGNIFICANCE AND LIMITATIONS OF THE STUDY

This research provided the students enrolled in the two Linked Learning Pathway programs a voice in the decision-making process for the district. Their perceptions of the programs' strengths and the components that provided the most relevance and meaning for them helped guide the final action plan which will be implemented at all sites in the district as the staff begin to design and implement Linked Learning Pathways for all students.

One potential weakness within the study was taken into account in the action plan. While all 40 senior students in the two programs are included in the sample, this is small sample compared to the 2,321 seniors who are currently enrolled in the district. The survey and analysis will need to be conducted annually as the number of Linked Learning Pathways increases; this repetition will ensure that future students' voices are also taken into account as modifications and revisions are made to the

programs. Action research is not intended to be generalized to a larger population as other forms of research are, but this study provides information that will be used to guide the district as it expands the Linked Learning Pathway offerings.

## ORGANIZATION OF THE DISSERTATION

This study answers the research question *What are the student-participants' perceptions of the Linked Learning Pathway and what components of the program were most meaningful to them?* Chapter 1 has provided an overview of the study including the problem of practice, purpose of the study, theoretical framework, and methodology. Chapter 2 reviews the literature that provides the context for the study, gives the theoretical framework, and provides current research related to Linked Learning Pathways. Chapter 3 describes the methodology of the study including the sample, setting, and collection of data. Chapter 4 presents the findings; this chapter includes an analysis of both the survey and interview data and a discussion of how the data answers the research question. Chapter 5 outlines the conclusions drawn from the data and discusses the process used to create an action plan that uses this information to guide future practice. Action research is cyclical in nature; thus, the final chapter concludes by discussing the next steps in the ongoing process and the recommendation to continually review the data with the intent of always improving professional practices.

## LIST OF DEFINITIONS

**21st-century skills:** What students need to master to be successful in the world today, usually including in some form literacy, creative thinking, and communication

skills. The National Education Association's Four Cs are an example (Zhao, 2009, p. 147).

**a–g:** The minimum course requirements for entrance into the University of California and California State University systems. Each letter from A to G represents a different content area.

**career academies:** Small learning communities that partner with employers and postsecondary institutions to provide college preparatory curriculum with a career theme (Stern, Dayton, & Raby, 2010, p. 5).

**career technical education (CTE):** According to the California Department of Education (2016) website, “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” (Career technical education section).

**common Core:** A set of standards adopted by the National Governors Association in 2010 with the focus of preparing students for college or work (Spring, 2014, p. 447).

**common school movement:** The three main aspects of the common school movement in the 1830s were educating all students, using schools to improve public morality, and creating state agencies to control local schools. Horace Mann is considered the father of the common school movement (Spring, 2014, p. 79).

**CSU:** The California State University system is one of three components of public post-secondary education system in the state of California. The two other are the University of California campuses and the California Community College system.

**Four Cs:** Communication, collaboration, creativity, and critical thinking—skills deemed necessary to be successful in the 21st century (National Education Association, 2012).

**InnovatED:** InnovatED is the name of the online professional development platform created by CHSD to provide on-demand learning opportunities for staff. The platform currently includes over 30 courses that staff may complete.

**Linked Learning:** A term used in California for programs that focus on “the integration of rigorous academics with career-based learning and real-world workplace experiences” (Linked Learning Alliance, 2016, about section).

**metacognition:** “The cognitive skill being used ... to ensure that the right thinking skills are brought to bear on the problem at hand and to sharpen these skills for future use” (Buoncrisiani & Buoncrisiani, 2012, p. 28).

**National Student Clearinghouse:** A company that provides graduation data to member high schools and colleges. Colleges can access high school graduation data, and high schools can access college enrollment and degree attainment of students who graduated from their schools.

**project-based learning:** According to the Buck Institute for Education (2016) website, “A teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an engaging and complex question, problem, or challenge” (About section).

**soft skills:** Skills that are required to be successful regardless of the industry sector. They are often referred to as 21<sup>st</sup>-Century skills.

**small learning communities:** A cohort of students who take several class together and have the same teachers for more than one year (Stern, Dayton, & Raby, 2010, p. 5).

**standardized testing:** a single exam given to all students and used as a graduation requirement, for evaluation of student placement, or for evaluation of teachers and schools (Amrein & Berliner, 2002, p. 3).



## CHAPTER 2—LITERATURE REVIEW

According to the American Psychological Association (2010), “by organizing, integrating, and evaluating previously published material, authors of literature reviews consider the progress of research toward clarifying a problem” (p. 10). The American Psychological Association manual lists clarifying the problem, summarizing the current state of research, identifying relationships or gaps in the literature, and suggesting next steps as the four main benefits of a literature review (APA, 2010, p. 10). Mertler proposes a similar list of benefits of a literature review, but adds that the author can examine examples of methods used in other studies and that by conducting the review the author becomes a more “knowledgeable professional” (Mertler, 2014, p. 60). One of the benefits of the literature review is to broaden the researcher’s knowledge base. Not all literature that is reviewed will be of practical use in the actual study, but even those articles that are not used to narrow the focus of the study can provide insight into the current issues that face education. Mertler’s model of action research includes planning, acting, developing, and reflecting. This review of the literature is part of that planning component.

The review includes the historical background of the problem of practice (PoP), theoretical framework, and current literature that grounds the research question, and a discussion of the literature that provides the basis for the research methodology. For this action research study, the identified PoP is that the standardized course of study at CHSD, which was designed under an accountability system that focused on preparing

students to take standardized multiple-choice state tests, is not meeting the needs of the majority of students. As the district expands the options available to students, the findings of this study will provide students with a voice in the decision making process by answering the research question: *What are the student-participants' perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?*

## HISTORICAL BACKGROUND

The State Board of Education for California has designed a post–No Child Left Behind accountability system that no longer relies on standardized test scores. Instead, they have released a State Dashboard that reviews multiple measures. For the previous ten years, Central High School District (CHSD) focused on providing all students one course of study designed to prepare students for standardized tests and entrance into the California State University (CSU) system. This standardized course of study was not successful for a large percentage of students; this is the PoP addressed in this study. Since the state's adoption of the new accountability system, CHSD has adopted a career technical education component for their graduation requirements and is designing new courses of study to provide options for students to choose from based on their needs and goals. This section provides the historical background that assisted in identifying the PoP.

**Common School.** At the end of the 19th century, the common high school became more prevalent and more important as part of the nation's social structure. In 1892, the National Education Association created the Committee of Ten on Secondary School Studies. Joel Spring (2014) notes that “in many ways the committee report reflected the crossroad between an educational system designed to provide everyone with a common education and an educational system organized to provide everyone with a

specific education based on a future social destination” (p. 238). The committee would recommend that courses required for college entrance were also the courses that were required to be a part of society. Having all students take this specific curriculum avoided a class-based education system in which the students of the wealthy prepared for college while the students of the rest of society had a more practical education that prepared them for entering the workforce after high school. In 1917, the Smith–Hughes Act would place a focus on vocational education and redefine equal opportunity from providing the same education for all young white men to providing each student the education they needed. The following year, the National Education Association would release the *Cardinal Principles of Secondary Education* which would state that “the purpose of democracy is so to organize society that each member may develop his personality primarily through activities designed for the well-being of his fellow members and of society as a whole” (Spring, 2014, p. 241). According to the National Education Association, high schools would now focus on specialization to provide students the skills they needed to be productive workers and to live cooperatively together for the individual and social good.

One of the underlying goals of the common school movement of the mid-nineteenth to early-twentieth centuries was to educate all children to create a more stable social structure. Spring (2014) notes that “in a broader sense, Mann put his hope in the schoolteacher, who, by educating children so that they would not transgress the law, would replace the police. This concept made schools the central institution for the control and maintenance of social order” (p. 83). But he also argues that

A more complicated picture of common school reform emerges from Welter's interpretation of the workingmen's contribution to democratic educational theory: Although the workingmen's parties accepted the common school ideal of eliminating social class distinctions and providing equal opportunity, they also supported public schooling as a means of providing the working class with knowledge to protect itself against the interests and power of the privileged in society. (p. 99)

As the common school began to emerge as the way to shape and pass on society's values, the resulting question would be "What are society's values?"

According to Spring (2014), "As the high school became a universal institution in the twentieth century, the concerns with formal learning for the discipline of the mind would be displaced by concerns for preparation for occupations. A dramatic shift in the curriculum would occur because of this emphasis on a practical education for life and jobs" (p. 96). At the turn of the century, Jane Addams in her work *The Public School and the Immigrant Child* (1908) had argued, "The second indictment which may be brought is the failure to place the children into proper relation toward the industry which they will later enter" (Flinders & Thornton, 2013, p. 42). She made the point that entering the workforce was the first American experience for immigrant children and an education that focused on learning for its own sake did not prepare them for the realities they would face outside school.

**Critique of High-stakes Testing.** The standards movement would bring with it a standardization of teaching. The focus of classroom instruction became pre-test, present information, post-test, and then based on the post-test, start all over again. Education has

become the science of how to present information and then reteach it again and again if students do not master it the first time. Apple (1988) reflected on the teaching profession by stating, “I claimed that they were more and more faced with the prospect of being deskilled because of the encroachment of technical control procedures into the curriculum. The integration together of management systems, reductive behaviorally based curriculum, pre-specified teaching “competencies” and procedures and student responses, and pre and post testing was leading to a loss of control and separation of conception from execution” (Flinders & Thornton, 2013, p. 145).

Dewey (1938) asserted that “the only true education comes through the stimulation of the child’s powers by the demands of the social situations in which he finds himself” (Flinders & Thornton, 2013, p. 33). And Nodding (1983) in her critique of Adler noted, “But the beautiful truth is that when we take all the valuable aspects of life into consideration and when we respect all of our children’s legitimate interests in our educational planning, it becomes easier to teach the basic skills” (Flinders & Thornton, 2013, p. 191). Education cannot simply be the science of presenting and memorizing facts. Education must furnish every student with what they need and take into account every student’s background and social situation. Nodding (1983) stated that “what the schools need to do, instead, is to legitimize multiple models of excellence, e.g., mechanical, artistic, physical, productive, academic, and caretaking” (Flinders & Thornton, 2013, p. 190).

Eisner (2001) wrote the following critique of the standards reform movement: “The result is an approach to reform that leaves little room for surprise, for imagination, for improvisation, or for the cultivation of productive idio-syncrasy” (Flinders &

Thornton, 2013, p. 281). The focus on standardized tests created a system that narrowed the curriculum and focused on a few core subjects that could be tested and summarized as a measure of school success. Elective courses have been pushed aside as students have been required to take remedial and support classes to ensure that they are prepared for high-stakes testing. Inquiry, creativity, and collaboration gave way to direct instruction, memorization, and frequent assessments.

In reviewing 49 qualitative studies, Au referenced narrowed curriculum as one of the major effects of high-stakes standardized testing. Au (2007) reported that “the evidence presented here strongly suggests that as teachers negotiate high-stakes testing educational environments, the tests have the predominant effect of narrowing curricular content to those subjects included in the tests, resulting in the increased fragmentation of knowledge forms into bits and pieces learned for the sake of the tests themselves, and compelling teachers to use more lecture-based, teacher centered pedagogies” (Flinders & Thornton, 2013, p. 246).

Along with narrowing the course options for students, high-stakes testing also narrowed the delivery method of curriculum. In 2003, Leslie Santee Siskin published a study of the impact of standardized testing on high school music courses. She noted that music teachers saw themselves as ahead of the curve in standards-based assessment because their students had to perform their music at commonly established standards set by the industry professionals. The importance of music was left out of most states’ high-stakes testing and teachers were concerned that they would have a difficult time getting funding and students enrolled in their courses if they were not a tested subject. For these reasons, Kentucky teachers worked to get music included in the high-stakes testing.

Teachers were then faced with the dilemma of having to teach to the test instead of having performances be the measure of professional standards. According to Siskin (2003), “First, music as a tested subject had to become something new, something that all students could be expected to do (although many students had never been music students) and that could be done on a paper and pencil test” (Flinders & Thornton, 2013, p. 276).

High-stakes testing also had effects that were counter to the expected and intended results. Amrein and Berliner (2002) noted that “sixty-seven percent of the states that use high school graduation exams posted decreases in ACT performance after high school graduation exams were implemented. These decreases were unrelated to whether participation rates increased or decreased at the same time” (p. 56). And Madaus and Clarke (2001) reported that “states with the highest dropout rates, on the other hand, had Minimum Competency Test programs where standards were set, at least in part, at the state level” (p. 15). High-stakes testing narrowed the curriculum to isolated facts that could be measured by a standardized test, and this resulted in lower achievement on traditionally accepted measures of academic performance by colleges, as well as higher dropout rates. Amrein and Berliner (2002) noted that it was not just ACT scores that were dropping, but “high-stakes high school graduation exams do not improve achievement as indicated by the percent of students passing the various AP exams. When participation rates were controlled there was a decrease in the percent of students who passed AP examinations” (p. 58).

**Common Core and the Modern Economy.** Spring (2014) notes that “since the 1983 report *A Nation at Risk*, which blamed schools for weakness in America’s ability to compete in global markets, American education policy focused on improving schools for

global economic competition” (p. 425). The Reagan administration tied educational policy to the ability to compete in international trade and argued that a well-educated workforce provided stability for the country. The Bush and Clinton administrations continued that philosophy with the Goals 2000: Educate America Act. The No Child Left Behind act linked publishing test results to ensuring that all students were prepared for the workforce; additionally, the act required interventions for schools that were underperforming. Under the Obama administration, the Race to the Top grants were funded based on the need to compete with India and China; Race to the Top focused on higher standards, tracking data, and dropout rates. The National Governors Association’s Common Core Standards focused on teaching students to analyze nonfiction rather than opinion pieces and feelings, because students would need this skill to be successful in industry (Spring, 2014, p. 432-447). Spring (2014) also notes that “when Horace Mann led the common school in the 1830s and 1840s, he emphasized the goal of reducing class warfare by providing through schools, equal opportunity to compete in the labor market” (p. 452). That philosophy still permeates education policy today; the discussion now revolves around what schools should teach based on the changing nature of the global economy.

Friedman and Mandelbaum (2011), in their follow up to the *New York Times* bestseller *The World Is Flat*, wrote, “We are entering a new economic turn, one that America did more to generate than any other country. Now we have to make sure that every American citizen and company has the skills and tools to navigate it” (p. 49). Boykin and Noguera (2011) argue that “if we ignore the practical need that students have for skills that will enable them to participate fully in our society, they will be unable to



compete for jobs or understand what is expected of them to participate as informed citizens in our democracy. However, if we ignore the need to cultivate creativity and problem solving, then subsequent generations will be unable to contend with the formidable array of problems they will inherit and that will arise in the future” (p. 193). Zhao (2009) writes, “As we enter a new era of human history, we cannot be certain of what specific talents, knowledge, and skills will be of value, and globalization has expanded the market; therefore, we must accept the idea that all talents, all individuals are worthwhile. Education is thus intended to help every child realize his or her potential” (p. 159). The Achieve the Core website has the following statement: “America’s business leaders can make a positive difference for schools, students and the country’s future if we join together and share our expectations for education and our support for the people and institutions that move education reform forward” (Achieve the Core, 2016, Business Speaks for the Core section). This statement was supported by businesses from Boeing, to Microsoft, to the United States Chamber of Commerce. Noddings (2007) noted that the consensus in society seems to be that “twin economic aims are implicit: to produce students who will be economically successful as individuals and to maintain the economic supremacy of the nation” (Flinders & Thornton, 2013, p. 399). There also seems to be a societal consensus that the standardized testing of the No Child Left Behind era was not preparing students for those aims. In his work on the changing global economy, Zhao (2009) notes, “This revolution, as already discussed, is significantly changing our society and thus the value of knowledge and talents. We must then ask the same question: What should schools teach in order to prepare our children for the global and digital economy?” (p. 145).

Students need learning experiences that meet them where they are, engage them deeply, let them progress at a pace that meets their individual needs, and help them master the skills for today and tomorrow” (Bill and Melinda Gates Foundation, 2016, Challenge section). The question becomes what skills schools need to teach to prepare students for life after high school. In 1918, the National Education Association published *The Cardinal Principles*, which outlined what schools should be teaching. In 2012, the National Education Association published *An Educator’s Guide to the “Four Cs”* which identified collaboration, communication, critical thinking, and creativity as the skills that students needed to be successful.

Eisner (2001) argues that “really good schools increase the variance and raise the mean. The reason I say that is because, when youngsters can play to their strengths, those whose aptitudes are in, say, mathematics are going to go faster and further in that area than youngsters whose aptitudes are in some other field” (Flinders & Thornton, 2013, p. 286). Creating a system in which students can select their areas of interest and incorporate the Four Cs will require a reversal of the narrowed curriculum that resulted from standardized testing. Noddings (2007) suggested that “such an education may require substantial reorganization of the curriculum. At the least, it will require stretching the disciplines from within and blurring the lines between them” (Flinders & Thornton, 2013, p. 400).

California is developing the post–No Child Left Behind accountability system, and as Michelle Maitre (2014) notes, “The career piece of college and career readiness continues to challenge the state advisory committee that is charged with reworking the primary measure of school effectiveness in California.” The question will be if

California can combine the 21st-century skills of the Four Cs with the academic standards of the Common Core to create a system that truly measures student preparation for college and career and avoids the shortcomings of the high-stakes testing of the past twenty years.

## THEORETICAL FRAMEWORK

After reviewing the historical literature and identifying the PoP, the next step in the planning phase was to identify a research question. As a site associate principal for several years, I worked with a few teachers who were interested in providing more relevance to students through a Linked Learning Program. With these teachers, I attended trainings on how to implement a program where career technical education (CTE) standards and core academic standards were blended together to create relevant learning experiences. Now as a district administrator, I have observed other programs in the district designed to achieve the same goals. During the last three years in the EdD program at the University of South Carolina, I have reviewed educational theory and current literature that was relevant to this PoP. The literature for this section was organized into four areas: constructing knowledge, responsive teaching, career technical education and relevance, and the effectiveness of pathways.

**Constructing Knowledge.** John Dewey presented a theory of experience based on continuity and interaction (Dewey, 1938). Students' past experiences influence their perceptions, and the interaction of those past experiences with current experiences influences how students will interact with future experiences. It is the teacher's responsibility to understand the past experiences that their students bring to the table and create educational experiences for them to interact with that will provide a benefit for

them now and in the future. Boykin and Noguera (2011) note that “work has been done that highlights the effectiveness of explicitly teaching students how to execute cognitive learning strategies” (p. 129). They identify three types of engagement: behavioral engagement refers to the physical time on task, cognitive engagement is focus on complex ideas and skills, and affective engagement is creating an emotional reaction to the task. Buoncristiani and Buoncristiani (2012) recognize that “curricula must reflect the importance of developing the habits of skillful thinking, as must training programs designed to make our young people ready for work” (p. 3). Buoncristiani and Buoncristiani (2012) noted that “skillful thinking and learning make knowledge more useful and transportable” (p. 3). Memorizing facts is not preparing students for the real-world, and it is important that schools be able to offer programs and curriculum that encourages students to think and process information.

It is the ability to think that makes knowledge useful and students must be provided opportunities to think and interact with information in real-world type situations. Clarke and DiMartino (2008) state that “facing complex tasks in a dynamic community, students acquire skills and knowledge through the process by which learning outside school usually occurs, rather than through abstract texts or distilled lectures” (p. 109). According to Drake (2012), “Learners construct their own knowledge and bring prior learning to the situation. Learners learn by doing, not by memorizing facts” (p. 7). David (2008) summarizes all this in saying that “using real-life problems to motivate students, challenging them to think deeply about meaningful content, and enabling them to work collaboratively are practices that yield benefits for all students” (p. 80). Students need to access information in real-world situations, not in lectures that often do not even

attempt to provide relevance for the information other than that it will be on the next test. Schools and teachers are no longer the main source of information for students. In an age when Google can provide more statistical information than any teacher on any given topic, it is vital that the focus turn to teaching thinking and incorporating skills that students will need to succeed. Collaboration and communication need to be tools that link traditional academics and career technical education into a relevant curriculum.

**Responsive Teaching.** Weber (2010) notes that “social systems built on inequality thus rely heavily on ideologies disseminated in institutions such as education and the media to provide the explanation for inequality that will justify the status quo and will thus discourage people from challenging the inequality” (p. 117). Howard (2010) provided the following definition: “The deficit thinking framework holds that poor schooling performance is rooted in students’ alleged cognitive and motivational deficits” (p. 29). Deficit thinking lays the blame of the racial achievement gap on the inability or unwillingness of students to learn. However, Brown and Armelagos (2001) note that “the apportionment of human genetic diversity shows that only about 5% to 10% of genetic variation can be accounted for by traditional racial classification” (p. 35). If there is no significant scientific difference between racial groups, then the cause of the achievement gap must lie elsewhere.

In 2006, the Bill and Melinda Gates Foundation commissioned a study of dropout rates. An ethnically diverse group of students who had dropped out of high school were interviewed. According to Bridgeland, Dilulio, and Morison (2006), the large majority of those interviewed had passing grades and had completed more than half of the required courses for graduation when they dropped out: “66% would have worked harder if

expectations had been higher” (p. 3). If a large number of those who drop out do so because of a lack of higher expectations, schools must focus on providing relevant learning experiences for students that challenge them, engage them, and prepare them for life in the 21st century. Referring to his book *Why Race and Culture Matter in Schools*, Howard (2010) explains that, “This book makes an explicit shift away from such racial hierarchical arrangements, and suggests that a standard of excellence should be established based on an informed criterion with particular attention to the knowledge, skills, and cultural codes that students are expected to master, regardless of their racial identification” (p. 6).

According to Darling-Hammond (2003), “Substantial research evidence suggests that well-prepared, capable teachers have the largest impact on student learning.” Howard (2010) explains that “among the more important aspects of understanding poverty is the recognition that while there are complex obstacles involved in teaching students from impoverished backgrounds, students are still capable of being academically successful” (p. 47). Teachers must begin to examine their practices. If what they are doing is not addressing the achievement gap, they need to consider other options. Howard (2010) asserts that “despite arguments to the contrary, there is growing evidence that shows that culturally responsive teaching approaches are having an influence on student outcomes, improving student learning, and engaging students who often are disengaged from teaching and learning” (p. 89).

**Career Technical Education and Relevance.** California is not the only state considering an increased focus on CTE to provide relevance. According to Zinth (2013), many states have had CTE degrees for decades, but recently some have moved to

combining academic requirements as well as work- or project-based experience.

Louisiana, Kentucky, and Virginia all require these work based experiences as part of a CTE honors diploma. Louisiana, North Dakota, and Wyoming allow students to use CTE courses to meet state scholarship requirements. North Carolina and Indiana include CTE as part of their school accountability system, and states that are part of the Common Core assessments are required to imbed Common Core standards into their CTE standards.

Schwartz (2014) reports that “if we follow a cohort of eight graders, roughly two in 10 will drop out before high school graduation, and another three will graduate high school but choose not to enroll in postsecondary education” (p. 59). Based on that information and a comparison of salaries from those who have education post-high school and those who do not, the author concludes that high schools need to provide students with more information on careers and post-high school training options and that high schools need to create pathways that target high-pay, high-demand careers. The implications for curriculum are that pathway content should be dictated by the needs of the industry and not by arbitrary decisions by four-year universities (Schwartz, 2014). Once schools and parents provide these opportunities and support a student in his or her choices, “they will ensure that his decision is well-informed, not the product of mere whim. Not incidentally, by expressing respect for his decision, they are simultaneously expressing respect for a host of people who do essential work in our society” (Noddings, 2001, p. 34).

**Effectiveness of Pathways.** In Texas, a study by Orozco (2010) compared 16 students in a career pathway with students who were not in a pathway. Academic achievement for both groups was measured by the Texas state math and English

Language Arts (ELA) tests. The study controlled for ethnicity and socioeconomic factors and found that those who participated in a pathway outscored those who were not on both the math and ELA tests, but because the participants were volunteers and because of the inability to control other outside factors, no causality was inferred by the study.

According to Kemple and Snipes (2000), career academies have been proven to reduce the dropout rate. One of the key factors cited for the reduction is the increased engagement by students in these career academies.

In California, the James Irvine Foundation (2009) released a study of the 2007–2008 evaluation of the ConnectEd Network of Schools, which had received state grants to implement pathways. The study found that students involved in the pathways generally met graduation requirements, met college entrance requirements at a higher rate than nonparticipants, and scored higher on the state exit exam. The results were not conclusive, but the foundation noted that the results were encouraging to those who support the reform effort in California. According to Education Trust—West (2011), low-income and minority students are tracked into programs that do not provide college or career readiness; Linked Learning programs that combine career technical education and rigorous core academics have the potential to address this problem.

The United States Department of Education offered grant funds for smaller learning communities. While career pathways were not the focus of the grant, most of schools in the database cited career pathways as their strategy for meeting the grant goals. By 2010, it was estimated that 10% of the Grade 10–12 students in the country were in career academies (Stern, Dayton, & Raby, 2010, p. 4). Stern, Dayton, and Raby (2010) stated that “several studies in California found that academy students performed better



than similar students in the same high schools who were individually matched with academy students on demographic characteristics and ninth grade records of low grades, high absenteeism, and disciplinary problems” (p. 7). Academy students had half the dropout rate of the general population and were more likely to pass the California High School Exit Examination and complete a–g college entrance requirements (Stern, Dayton, & Raby, 2010, p. 7). In a study that tracked academy graduates after high school, after taking socioeconomic status into account, the academy students were less likely to require remedial coursework in college and more likely to earn their bachelor’s degree than other students from the same district (Maxwell, 2001, p. 6). Career academies demonstrate the potential to be tools for schools to provide both college and career preparation to students who have not traditionally been successful in school.

## RELEVANT LITERATURE TO METHODOLOGY

Having identified the PoP and established the theoretical framework, the next step in the planning stage was review the literature specific to research methodology. This section examines the results of research specific to Linked Learning programs to identify the types of research that have been used in the most recent studies. This is followed by a review of action research and triangulation mixed methods.

**Linked Learning.** The Trustees of Stanford University established SRI International as a nonprofit research and development company. SRI International reviewed the nine districts that were sponsored by the James Irvine Foundation to implement Linked Learning Pathways over the last seven years. Warner (2016) summarized that “over the seven-year evaluation, we have consistently found through surveys and focus groups that Linked Learning students reported higher levels of

engagement in and relevance of school and received more advising and guidance from their teachers” (p. 61). Those students who participated in the Linked Learning Pathways were two percentage points less likely to drop out and completed one more course in the a–g college required sequence compared to their peers. Another key finding was that “Linked Learning students reported that their pathway experiences helped them develop skills needed for success after high school, including 21st-century skills, productive dispositions and behaviors, and professionalism” (p. 75). Pathway students were more likely to site their high school coursework in helping to prepare them for college than their peers, but they were also less likely to have declared a major by the end of their first year. The study concluded that “through our analysis of three cohorts of students enrolled in certified pathways, we found that the Linked Learning approach did make a difference for high school students, particularly for vulnerable student populations such as those with low levels of prior achievement” (p. 89). The findings on benefits in traditional high school measures such as dropout rate and a–g completion were promising, but for college preparation the findings were mixed.

**Action Research.** The University of South Carolina EdD program is a member of the Carnegie Project for the Education Doctorate (CPED). The focus of the CPED is to create programs that include a Dissertation in Practice (DiP) that demonstrates that the scholar-practitioner can not only identify a problem of practice, but also work with key stakeholders to identify data driven solutions (Storey, 2015). This is different from more traditional research paths as it focuses on the researcher being an active participant in identifying and implementing solutions to the identified PoP. Action research has an applied focus with an emphasis on educators improving their professional practice

(Creswell, 2005). It is a systematic inquiry by educators who have a vested interest in the process and outcome. The basic process includes identifying an area of focus, collecting data, analyzing data, and creating an action plan. Because the researcher is involved and focused on solving a PoP that has relevance to their practice, action research results have an increased utility (Mertler, 2014).

**Mixed Methods Research.** Mixed methods research includes the collection of both quantitative and qualitative data. Quantitative data, such as survey results, can provide descriptive information or identify the frequency of specific responses or trends. Qualitative data, such as interviews, provides a more in depth perspective that can be reported in the responders' own words (Creswell, 2005).

A triangulation design is the simultaneous collection of both the quantitative and qualitative data. The researcher compares the results from the analysis of each data type to identify areas where they support or contradict each other. This design allows the researcher to incorporate the strengths of both types of data (Creswell, 2005; Mertler, 2014).

## CONCLUSION

This review of literature provides the contextual framework and historical context for the action research study. Dana and Yendol-Hoppey (2014) note that “although we often do not think of literature as data, literature offers an opportunity to think about how your work as a teacher-inquirer is informed by and connected to the work of others (p. 86).” The current research related to Linked Learning programs has included both quantitative and qualitative data analysis. The qualitative data has focused on the program as a whole and its impact on participants. A review of the literature did not

yield any results in which participants gave their perceptions of the program's components and what they felt provided the most relevance. For this action research, the historical literature and current focus in California on a new accountability system led to the identification of the standardized course of study being a PoP for the CHSD. The literature related to constructing knowledge, responsive teaching, and the relevance of CTE standards created the theoretical framework. A review of the specific literature on Linked Learning programs and research methodologies in the context of the theoretical framework led to the research question: *What are the student-participants' perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?* The data collection tools and methodology used to answer the research question are explored in greater detail in the next chapter.

## CHAPTER 3—METHODOLOGY

All educators reflect upon what they have done on a regular basis and this reflection is an important part of good teaching or being a good administrator. Teacher inquiry is different from the normal day-to-day reflection in that it is intentional and visible. In the busy world of education, rarely is there dedicated planned time for reflection and the day-to-day reflection that does go on is rarely observable to others (Dana & Yendol-Hoppey, 2014). Action research is intentional, planned, and visible to others. Action research does not focus on generalizable results, but on giving the educator who is involved with in the process, useful information to make judgements and adjustments to their professional practice.

In response to No Child Left Behind, the California State Board of Education adopted an accountability system that relied solely on the results of standardized tests. As a result of this focus, the Central High School District (CHSD; pseudonym) adopted a single course of study for all students that had little room for variation or student choice. The focus for instruction was to prepare students to take standardized, multiple-choice, end-of-course exams. This course of study did not prepare students for postsecondary education or training, and this is the identified problem of practice for this research study.

CHSD is now focused on providing a variety of course sequences that include both core academics and career technical education (CTE). There are currently a few programs in the district that incorporate deeper learning activities and real-world projects. These Linked Learning pathways incorporate core academic standards with CTE

standards but only serve a small portion of the district population. As the district extends these opportunities to all students, it is important to include student input into the design and implementation of the program. To that end, this study answers the research question: *What are the student-participants' perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?*

## RATIONALE FOR THE SELECTED METHODOLOGY

To answer the research question, this study used mixed methods and a triangulation design. Using multiple sources of data provides the researcher with the ability to look at information from different perspectives (Dana & Yendol-Hoppey, 2014). Quantitative survey data provided descriptive data that was used to identify trends and calculate the average of the responses on each topic. Several questions on the survey mirrored the Healthy Kids Survey, which is given by the district annually to all students in Grades 9 and 11; mirroring these questions allowed for a comparison between the sample responses and the responses of the district as a whole. Qualitative data was provided by semi-structured interviews. Part of the rationale for this study was to include student voices in the decision-making process.

Because the population from which to draw the sample was limited, a triangulation design was selected. The survey and interview data were collected independently of each other, and the existing Healthy Kids Survey data was retrieved from the state database. By collecting and analyzing the data separately, an interpretation could be made about how the data support and contradict each other (Creswell, 2005). The 2016–2017 11th grade data was used because it included the current 12th grade

student population from which the student-participants for the rest of the research were selected.

## CONTEXT AND PARTICIPANTS

This action research study took place at two high schools within the CHSD. The district is in the heart of the agricultural Central Valley of Northern California. Twelve percent of the school's population are English language learners (ELL), 48% are limited English proficient (LEP), 11% are special education students, 86% are low socioeconomic status (SES) and participate in the free or reduced lunch program, and 80% are Hispanic.

The student-participants were a convenience sample of 12th grade students enrolled in a specific course that is part of the Linked Learning pathway. At School 1, the course is a two-period block in which a core academic teacher is paired with a CTE teacher and they share the same students for the entire block. At School 2, the course is a single period where both core academic standards and CTE standards are taught by the same teacher.

Only students who returned a signed permission slip were allowed to participate in the study. Forty students returned the permission slip out of the 48 seniors in the courses. These 40 students participated in the survey, and six participated in the interviews. The ethnic breakdown of the sample was very similar to the demographics of the district, which are 68% Hispanic or Latino, 16% white, 9% Asian, and 2% African American. For the survey participants, 70% were Hispanic or Latino, 15% white, 10% Asian, and 5% African American. For the interview, 67% of participants (four students) were Hispanic or Latino, 17% (one student) was white, and 17% (1 student) was Asian.

While the ethnic breakdown was similar between the district and the sample, the gender breakdown was not. The district is evenly split between male and female students. The survey participants were 65% male, and the interview participants were 67% male (four of six students). This was not a result of more males returning their permission slip; the enrollment in the specific courses matches the breakdown of the sample. Of the three students selected at each site, one was randomly selected from the female students and two were randomly selected from the male students to match the current gender breakdown of the Linked Learning programs. This gender disparity was identified as an area that needed to be addressed in the action plan.

## RESEARCH METHODS

As noted in Chapter 1, unlike traditional research, action research in the context of the Carnegie Project on the Education Doctorate is interactive, and the researcher is an active participant in the process. Research and systematic process are used to improve the participant-researcher's professional practice. This research followed the four-stage cyclical model of *planning, acting, developing, and reflecting* outlined by Mertler (2014).

**Planning.** The first stage contains four steps. Step 1 is to identify and limit the topic. Step 2 is to gather information. Step 3 is to review the relevant literature, and step 4 is to develop a research plan. Carrying out steps 1, 2, and 4 resulted in the problem of practice, research question and research plan that are outlined in Chapter 1 of this dissertation. Step 3, the review of relevant literature is detailed in Chapter 2.

**Acting.** The second stage has two steps. The first is to describe the data collection, including both the instruments used to collect the data and the manner in



which they were used. The second step is to describe the process used to analyze the data. The two steps of the acting stage are detailed in the next sections of this chapter.

**Developing.** The third stage is what sets action research apart from traditional forms of research. In this stage, the participant-researcher identifies the results of the data analysis, interprets that analysis (including answering the research question), and develops an action plan based on that analysis. The analysis and interpretation of the data are presented in Chapter 4, and the action plan is presented in Chapter 5.

**Reflecting.** The final stage includes both the sharing of the results and a reflection on the process. Mertler (2014) notes, “For quite some time, a gap has existed between research conducted in the broad field of education and the ultimate and supposed user of that research (i.e., teachers)” (p. 245). The sharing of the results consists of two separate components. The first is the sharing of the data analysis. The results and analysis are shared in Chapter 4, but they were also shared with the relevant stakeholders prior to the development of the action plan, as described later in this chapter. The second component is the sharing of the action plan itself. The action plan is outlined in Chapter 5 along with the method in which it will be disseminated and implemented. Chapter 5 also includes a reflection on the entire process.

## DATA COLLECTION TOOLS AND METHODS

Three sources of data were used for this action research study. The first was existing data from the Healthy Kids Survey administered to all 11th grade students in the district during the 2016–2017 school year; these results were obtained from the DataQuest website operated by the California Department of Education. The other two sources of data were an online questionnaire and a semi-structured interview. Both of

these were used to collect data from students about their perceptions of the Linked Learning program in which they were enrolled.

**Online Questionnaire.** As Dana and Yendol-Hoppey (2014) note, “surveys can give students a space to share their thoughts and opinions about a teaching technique or strategy” (p. 114). The questionnaire was administered online in the spring semester of 2018 using Google Forms. It was administered to the course at School 1 on a Tuesday and then to the course at School 2 on the next day. Forty senior students enrolled in the two selected courses returned their permission slips and completed questionnaires. The questionnaire was given during their regular class period, and since all students have Chromebooks checked out to them under the district’s 1:1 program, these were used to complete the questionnaire. No personal identifying information was asked in the questionnaire, and e-mail addresses were not collected as part of the Google Form. Once the students had completed the questionnaire, the information was immediately available in a spreadsheet for review and analysis.

The online questionnaire (see Appendix A) consisted of 25 questions. The first 21 questions followed the same format as the Healthy Kids Survey that students complete in 9th and 11th grade. In this format, students are asked to respond to a statement by selecting strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree. Five of these 21 questions used wording that very closely matched questions on the Healthy Kids Survey relating to student perceptions about student motivation, support from staff, and relevance of assignments. Another five questions related to student perceptions about linking core academics and CTE standards in the course. The next five questions related to student confidence and their perception of their own preparedness for

their post-secondary options. The final six questions using this format pertained to student interactions with industry professionals during the program and their perceptions of the real-world-problem-based lessons and activities in which they participated. Of the four questions that did not use this format, the first asked students to select whether they thought linking core academics and CTE standards, having interactions with industry professionals, or participating in real-world activities was the most important component of the course. The final three were short-answer questions asking why they signed up for the course, what was the best thing about the course, and if there was anything else they wanted to say about the course.

**Semi-structured Interview.** The semi-structured interviews were conducted on the same day as the online questionnaire. Three students were randomly selected from each school from among those who returned their permission slip. The students were called to a conference room during a period that was not the course that was part of the study for their interview. The interview consisted of base questions (see Appendix B) that were asked of all students and then follow-up questions based on the student's responses. The questions focused on their perceptions related to the course in general, linking of core academics and CTE standards, interactions with industry professionals, real-world projects and activities, and preparation for post-secondary options. An audio recording was made of each interview, and each recording was later professionally transcribed for use in the data analysis.

## DATA ANALYSIS

The three sources of data, the Healthy Kids Survey, online questionnaire, and semi-structured interview, were collected and initially reviewed independently of each

other. The Healthy Kids Survey data lists the percentage of respondents that provided each of the possible answers for each question. The raw numbers for each of the thirty questions from the online questionnaire that used the same design were converted to percentages so they would be in the same format as the Healthy Kids Survey data. The remaining short-answer questions were coded and reviewed to identify common themes or trends in the answers. The transcripts of the semi-structured interviews were coded within each category of answer and then reviewed to identify common themes or trends.

The next step of the analysis (triangulation) was to look for commonalities between the data sources. The Healthy Kids Survey data and the five questions from the online questionnaire were reviewed to identify any trends. The results of the remaining questions from the online questionnaire were then compared against the themes and trends identified when the semi-structured interview responses were coded. The analysis of each data source and the triangulation is reported in Chapter 4.

## DEVELOPING AN ACTION PLAN

Mertler (2014) notes that “at the risk of sounding repetitive, developing and implementing an *action* plan is the aspect of conducting the type of research that really puts the *action* into *action* research” (p. 211). The CHSD has committed to providing all students with more educational options as part of the new state accountability system. Part of those options is the creation of new pathways that allow students to select a course of study that meets their goals and needs. The implementation of Linked Learning programs will be a multi-year process that will include guidelines from the district office level and innovation and creatively using resources at the site level. To that end, the action plan includes both a short-term and long-term plan. A principal, assistant

principal, core teacher, CTE teacher, and the district CTE coordinator reviewed the results of this research study to create a short-term plan for next year and a long-term plan that includes an ongoing process that involves various stakeholders in the collection and review of data and in the making of suggestions for improvement. The action plan is described in Chapter 5.

## CONCLUSION

This action research study used a triangulation method to compare both quantitative and qualitative data to answer the research question. Student perceptions were collected through an online questionnaire and semi-structured interview. The results were compared to each other as well as to the Healthy Kids Survey data from the 2016–2017 school year to identify commonality and trends. This data was reviewed by a committee to identify both a short- and long-term action plan.

## CHAPTER 4—FINDINGS AND DISCUSSION

Action research improves education through a systematic review of the literature and current practice with the goal of creating a plan for change. It involves educators working together to improve their own practice through an interactive process that is relevant to their current work and interests. Action research includes a planned, systematic study of a current problem of practice, including critical analysis and reflection on current practices. According to the planning, acting, developing, and reflecting model (Mertler, 2014), the developing stage includes the data analysis and interpretation that is presented here in Chapter 4. The analysis was based on answering the research question: *What are the student-participants' perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?*

### SUMMARY OF METHODS AND METHODOLOGY

Three sources of data were collected for the data analysis and interpretation: the California Healthy Kids Survey given to 11th grade students in 2016–2017, an online questionnaire given to 40 12th grade students from two schools within the Central High School District (pseudonym), and a semi-structured interview with three students from each school. A mixed methods triangulation design was used to analyze the data, which consisted of percentages of responses for each of the possible answers for every question for the Healthy Kids Survey and the online questionnaire, and transcripts and coded themes from the interviews.

The purpose was not to compare schools or programs or to evaluate individual teachers. Any discussion related to the effectiveness of one program versus the other will be left for future research. The purpose of this research is to identify areas of common strengths in the programs as identified by students and incorporate those strengths into Linked Learning programs as they are expanded across the district. Noting the specific industry sector of a program or the specific core academic class that was paired with the career technical education standards could potentially be a distraction and hinder the creation of an action plan that could be used in all programs moving forward. For that reason, the findings do not identify the industry sector or core academic class contained in the program, but instead focus on the instructional design and skill development identified by the student-participants.

## INITIAL FINDINGS

The first step in the data analysis process was to review each of the data sources independently of each other. Since the qualitative data was the most subjective, the transcripts from the semi-structured interviews were reviewed first. The Healthy Kids Survey results were then reviewed followed by the responses to the online questionnaire. The initial findings and themes are described below.

**Semi-structured Interviews.** Six students were randomly selected to participate in the semi-structured interviews. They were all asked about their plans after graduation and if they felt prepared for their next step in life. They were then asked what they liked most about the Linked Learning program and what they learned in the Linked Learning program that they would not have learned in a traditional class. In the researcher-

participant's reflection of the students' answers to the two main questions that follows, pseudonyms are used instead of their real names.

*Santiago.* Santiago is a Hispanic male who already has a job lined up after graduation. While working on one of the class projects, he was introduced to a local industry professional who was impressed with his work ethic and offered him a job after graduation. Santiago feels confident that he is prepared for the job because of the projects that they worked on as part of the program, and he is excited for the opportunity.

When asked what he likes best about the program, Santiago answered, "We do a lot of interactions, so teamwork." The class would often be divided into teams to work on projects and to learn material for the assignments. They would be able to practice skills and review information and then compete against other groups using the online quiz tool Kahoot. He explained that when they were working on projects in a group or with industry professionals, they learned from each other. He noted, "I've got to see it, do it, and I'm done. I can't really just read about it." Working with others required him to learn to communicate and accomplish things as a team.

When asked what he learned in the Linked Learning program that he would not have learned in a traditional class, Santiago said that he learned to apply things. In many of his other classes, you would read one page or the teacher would talk about one slide and then you would move on to another topic. In this class "it was more like, we have websites to look at, videos online and then you had an assignment on it... we actually learned the stuff instead of just reading about it." Santiago was very proud of the fact that he was interested in learning in this class and that he had bought the book that they



would be using in the class next year so that he could go through it, even though he was graduating and would not be in the class.

*Alyssa.* Alyssa is an Asian female who plans to attend the local community college. She started looking at careers related to the Linked Learning program she is currently in and researching those jobs. She really enjoys the program and was the only female in the class until she talked to her friends and got them to join. As she worked on group projects and convinced her friends to join the class, she realized that a career in social services would be something she would really enjoy. Although she is not currently registered to begin college in the fall, she has met with a counselor at the local community college and plans to start taking classes in the spring to become a probation officer.

When asked what she liked best about the program, Alyssa responded that she liked the activities and competitions, “we were always doing something.” She really enjoyed a competition they attended at Berkeley, and she recounted how her group had to take a problem, come up with a solution, and then make a presentation to a class. Alyssa enjoyed that the projects and activities combined both her core class and career technical class because “it was easier for me than having two separate classes talking about two totally different things.”

When asked what she learned in the Linked Learning program that she would not have learned in a traditional class, Alyssa responded, “I learned how to work with others and keep my grades on track. They make sure all of our grades are good so that we can participate in stuff.” She talked about how she always felt isolated in her other classes where they would sit in rows and work individually on assignments. Alyssa thought it

was valuable to be interacting with others and working with teams on different projects and activities.

*Chris.* Chris is a white male who is enrolled in a private technical institute and plans to begin a one-year program starting this summer. He noted that it was more expensive than going to the local college, but that it was focused on learning skills and getting placed in a career. Chris did not see the value of continuing to take classes such as history or going to school for four more years since he knew what he wanted to do and those things were not going to help him.

When asked what he liked best about the program, Chris explained, “It taught you real life experience. I would rather learn something that helps me gain money and experience. It’s all about experience for me.” He recounted being able to work on five or six projects with industry partners, and he believed the technical skills he learned were valuable. Chris had chosen to be in the program because “it was going to give me real life experience. It’s no vacation, but I’m gonna get a job faster.”

When asked what he learned in the Linked Learning program that he would not have learned in a traditional class, Chris continued to talk about the relevance of the program in providing him with real-world skills: “You were actually learning something ’cause, you’re learning about something that you’re working on.” He noted that it was easier to learn the material from the core academic class because it was focused on the career technical areas that interested him.

*Maria.* Maria is a Hispanic female and is already enrolled to attend the local community college next year. She has decided that she wants to major in child development with criminology as her backup. Once in the Linked Learning program, she

realized that this industry sector was not what she wanted to do for a career, “but I felt really welcomed, so that’s why I stuck around.” She did add that because of the program, she had met several professors at the local community college, and even though she would not be taking their classes, she felt comfortable at the college and knew where everything was. She felt prepared to start college and believed it would be an easy transition for her.

When asked what she liked best about the program, Maria talked about feeling welcome and being part of a family. The teachers were “very resourceful when you needed help,” and the program was “very open to us when we started.” The family feeling helped her to become more confident: “Freshman year I wouldn’t have been able to talk to you or talk to anyone about these things. And now, I’m a lot more open because I’ve been exposed to a lot more people of higher authority and a lot of older people.”

When asked what she learned in the Linked Learning program that she would not have learned in a traditional class, Maria talked about the program “being so hands on, the organization itself, for the classes, it helps us students who are more hands on, versus the other classes that aren’t.” She thought that the hands-on, project-based focus of the course helped students engage, as well as helped them to think about what they actually wanted to do after high school. A friend of hers in the program realized that she didn’t want to work in the Linked Learning program’s industry and instead wanted to be a nurse. Maria had also decided that she was interested in a different area and that having been engaged in hands-on projects helped her “want to explore more waters of something

she was interested in.” She credits the program with helping her to explore herself as she and others worked through the practical projects in the program.

*Anthony.* Anthony is a Hispanic male who plans to enroll in a certificate program at the local community college. He does not want to get his associate’s degree, but only focus on completing the certificate requirements within one year. He has already signed up for the first class in the program. Anthony had worked on a few projects with industry partners and knew that this was what he really wanted to do and that the certificate program would help prepare him for a job.

When asked what he liked best about the program, Anthony replied, “I feel like I have learned more of being able to take charge, of being a leader.” He also talked about “being able to take responsibilities and being able to perform better.” Anthony explained that he was now better at identifying outcomes or expected results and being able to find the best ways to attain those goals. This was true for both projects in the program and for his personal goals.

When asked what he learned in the Linked Learning program that he would not have learned in a traditional class, Anthony stated that it helped him “know his future goal and then focus on that specific aspect instead of on a broad spectrum.” He discussed how being involved in projects that combined core and career technical standards helped him to “start seeing doors open” in terms of understanding who he was and what he wanted to do. He mentioned the quote “You never work a day in your life if you are having fun” and felt that being able to work on projects and explore a variety of issues helped him “get a feel for” what that would be for him.

*Martin.* Martin is a Hispanic male who plans to complete his associate of arts degree at the local community college and then transfer to a four-year university to become a teacher. He stated that since he has “dealt with classes 12 years of my life, I should be able to figure it out” and he was ready to move on to the challenges of college.

When asked what he liked best about the program, Martin discussed the projects that he had done over the past two years. He was especially proud of one project that he had started in his junior year, and he is using the things he learned this year to expand upon it and improve it. As he wants to become a teacher, Martin noted that the district’s move to require career technical education was “like a student version of the depth of knowledge stuff the teachers do, and I feel like it will help students to put their toes in the water, so to speak, and learn about different things they can do after high school.”

When asked what he learned in the Linked Learning program that he would not have learned in a traditional class, Martin thought that the program “teaches you work [ethic] and taking responsibility that doesn’t come from other classes.” He explained that many people in the class would have to arrive at school before 7 a.m. every morning to work on their projects and that he had observed others who were “under a time crunch to get their projects done.” Because they worked on projects in groups and had to present them to people outside of class, it was not like turning in a paper late: if you were not prepared, you were letting other people down. For Martin, “time management skills are a big thing that came from being in the program.”

**Summary of Semi-Structured Interviews.** Three themes emerged from the coding and review of the interview transcripts. The first theme was the student engagement that resulted from the use of real-world, project-based learning. This was

immediately apparent during the semi-structured interviews as one of the things that all student-participants thought was an important part of the program. When asked what she liked most about the Linked Learning program, Alyssa responded, “I like hands-on learning. Hands-on is easier for me than just having a teacher say, ‘Read this.’” When asked the same question, Chris also appreciated the project-based approach. When discussing why that was important to him, he noted, “When they presented it, they gave us an assignment, and we did a project. We actually learned the stuff instead of just reading about it and moving on.” These sentiments about the engagement that resulted from real-world, project-based learning were echoed by all of the student-participants.

The second theme was that linking the core course and CTE standards provided relevance and made learning easier. When discussing the strengths of the Linked Learning program, Martin noted that “it is like a student version of the depth of knowledge stuff the teachers do,” and Santiago commented that “it helps me understand how to use the vocabulary for that subject.” The student-participants repeatedly commented about how it was easier to learn the core subject when they were actually learning it in the context of a CTE-focused project. Most reflected that it was more difficult for them in their past core classes when they did not understand why they were learning something and were just given assignments that they never really used again.

The third theme was that they learned soft skills that they thought would be useful in the future. Maria noted that a strength of the program was that “it gives me that sense of responsibility and time management.” When asked what he learned in the program that he would not have learned in a traditional course, Anthony answered, “I feel like I learned more of being able to take charge, of being a leader and being able to take more

responsibility.” Being able to speak in front of other people and being able to work with other people were also repeatedly mentioned in the semi-structured interviews.

**Summary of the Healthy Kids Survey.** The results of the Healthy Kids Survey (HKS) for 11th grade students in the district in 2016–2017 were representative of all the schools in the district and did not focus on any one program. Five of the questions on the HKS addressed student motivation and connectedness to the learning. Answers to three of these questions revealed a lack of motivation among students, with only 29%, 20%, and 26% strongly agreeing or agreeing that students are motivated to learn, pay attention in class, and try their best in class, respectively. Forty-seven percent of respondents agreed or strongly agreed that teachers provide useful feedback, and 45% responded that teachers showed how lessons were helpful to students in real life. This last one was the question that stood out in the context of this research. Almost half of students had responded that teachers were showing how their lessons were relevant, but this was not resulting in students being motivated, paying attention in class, or trying their best.

**Summary of Online Questionnaire.** In the online questionnaire, all of the questions related to motivation that mirrored the HKS had 90% or 100% response rates of strongly agree or agree. Three themes emerged while reviewing the remainder of the online questionnaire responses.

The first was that students thought their core course was more relevant because it was tied to the CTE standards. Forty percent strongly agreed and the other 60% agreed that all students should take at least one core course linked to CTE standards. Fifty percent strongly agreed and 50% agreed that the project-based focus of the programs made them more relevant, and 100% either agreed or strongly agreed that they would use

what they learned in this program after high school. The unexpected finding was that while the responses related to relevance were high, 40% of respondents were neutral or disagreed that they learned more in their core course because it was linked with the CTE standards.

The second theme was that students felt prepared for life after high school. Eighty percent responded that they agreed or strongly agreed that they knew what they were going to do after graduation and that the Linked Learning program had helped them identify what those plans were. Twenty percent strongly agreed and 80% agreed that they were prepared for life after graduation. That means that even those students who had not identified what they would be doing next year still felt prepared for the challenge.

The third theme was that the Linked Learning program provided soft skills, or 21st-century skills. Seventy percent of respondents stated that they strongly agreed that they were more confident about their abilities because of their participation in the program, and the other 30% agreed. This was the highest percentage of students strongly agreeing with any statement on the questionnaire. Ninety percent of respondents agreed or strongly agreed that they were more likely to take part in discussions, speak up in class, or be willing to take on leadership responsibilities because of their participation in the program. Ninety percent agreed or strongly agreed that they were better communicators because of the program, and 100% agreed or strongly agreed that the program had taught them how to work with others and be creative in identifying solutions.



## TRIANGULATION DISCUSSION

Triangulation is the review of different data sources to find corroborating evidence from different people and data types (Creswell, 2005). After reviewing each of the data sources separately, the next step was to look for commonalities between the data sources and to categorize the data into themes that would represent the student-participants' perceptions. Four themes emerged from the comparison of the data sources. The first theme was that students were more motivated to learn in the Linked Learning program than they were in traditional classes. The second theme was that the programs provided relevance and a chance to explore different opportunities. The third theme was that students found the hands-on activity and project-based learning as more engaging than traditional classes. The fourth theme was the importance of soft skills that were learned as part of the program. This section expands upon each of these four themes.

**Motivation.** All of the student-participants in the semi-structured interviews were very supportive of the program. Each one expressed sentiments that they were more interested and successful in school because they were part of the Linked Learning program. Several comments were like Alyssa's when she explained how the teachers monitored their grades and made sure they stayed on top of all their courses because they had to keep a 2.0 grade point average in all of their classes to participate in many of the program activities. Maria, Martin, and Anthony all discussed the support from their teachers and the other students and the "family feel" that they experienced by being a part of the program.

The HKS and online questionnaire also revealed that the respondents felt more motivated by being a part of the program. Forty percent of the respondents on the online

questionnaire strongly agreed that all students should take at least one core (English, math, social studies, or science) course paired with a CTE course. Another 60% of respondents agreed with the statement, and no student responded as neutral about or disagreeing with the statement. Table 4.1 gives the wording for each question on both the HKS and the online questionnaire along with the percentage of respondents who selected each of the answer options.

**Table 4.1.** Comparing Healthy Kids Survey (HKS) and Online Questionnaire (OQ).

Question	% Strongly Agree	% Agree	% Neutral or Disagree
Students at this school are motivated to learn (HKS).	4	25	71
Students in this program are motivated to learn (OQ).	40	60	0
Teachers show how classroom lessons are helpful to students in real life (HKS).	10	35	55
Teachers show how classroom lessons are helpful to students in real life (OQ).	60	30	10
Students pay attention in class (HKS).	2	18	80
Students pay attention in this course (OQ).	40	50	10
Students try their best in school (HKS).	5	21	74
Students try their best in this course (OQ).	40	50	10

In all four questions related to motivation, student-participants were much more motivated by the Linked Learning program than students who were taking the general curriculum only. One hundred percent of student-participants in the online questionnaire agreed or strongly agreed that students in the program were motivated to learn, while only 29% of 11th grade students responded that way the previous year on the HKS.

Similar responses were given to the questions about whether students pay attention and try their best in class.

**Relevance.** By pairing core courses with CTE standards in a project-based format, the program created learning experiences that were relevant to the student-participants. In each of the semi-structured interviews, the student-participants noted something similar to Anthony, who said the Linked Learning program was perfect “if a student wants to know their future goal or future career.” Not only did the CTE standards give relevance to the core standards, they also provided students an opportunity to explore possible careers. While Anthony and Chris learned that they were interested in the industry sector they were participating in, several others realized that this was not the industry sector for them. But even those that now plan to pursue other interests after high school were happy with their experience and found it to be a valuable part of their high school career.

Two questions in the online questionnaire asked specifically about relevance. Table 2 demonstrates that all of the respondents thought that linking the core and CTE courses and using real-world projects provided relevance for the program. Eighty percent of respondents agreed or strongly agreed that the course had helped them identify what their options were after high school and all of them felt prepared to enter the world after graduation. One hundred percent also responded that they would use what they learned in the program in the future.

**Table 4.2.** Online Questionnaire Responses Related to Relevance.

<b>Question</b>	<b>% Strongly Agree</b>	<b>% Agree</b>	<b>% Neutral or Disagree</b>
Taking a core class with the career technical education class made it more relevant than taking it alone.	40	60	0
Working on real-world projects made the course more relevant.	50	50	0
This course helped me identify what my options are after high school.	20	60	20
I feel prepared for life after high school.	20	80	0
I will use what I learned in this class after high school.	40	60	0

**Engagement.** Every student-participant in the semi-structured interviews talked about hands-on learning several times. Alyssa said, “I like the activities that we would do. We were always doing something.” Santiago noted, “We actually learned the stuff instead of just reading about in and then moving on.” He explained that they would do projects and would have to use several sources of information along with the input from the teachers. They would discuss things and take their time to review all of the information, and this process made it “easier for me to learn.”

As part of the online questionnaire, respondents were asked whether using real-world projects, working with industry professionals, or pairing a core course with the CTE standards was the most important for them. Seventy percent of respondents selected real-world projects as being the most important, while 20% selected working with industry professionals, and 10% selected linking the courses. One of the final questions

was an open-ended question asking what the best thing about the course was. The most common answer was the projects, and two-thirds of the responses had something to do with the projects, activities, or engaged learning process of the course.

**Soft Skills.** Responsibility, leadership, confidence, communication, teamwork, and work ethic are skills that student-participants said they learned in the program. Santiago noted that “you have to communicate while you are working on projects.” Chris discussed how he was shy when he started high school, but now he felt comfortable talking to adults or speaking to groups. Alyssa talked about being a leader and convincing other girls to join the program. Maria said that the program “gave me that sense of responsibility and time management.” Anthony shared that he “felt like I learned more about being able to take charge, of being a leader.” While relevance and engagement were attributes that made the program valuable, the students were the proudest of the soft skills they had learned. You could almost see a glimmer in their eye and their chin lift up when they spoke of the skills they now possessed.

Six items on the online questionnaire related to soft skills. Working with others and being creative with identifying solutions were the areas that had the strongest response, with 40% of respondents saying they strongly agreed that working on projects in the course had taught them these skills. Ninety percent of respondents replied that the course had made them a better communicator, more willing to be part of a discussion, and more willing to lead a group or take on a leadership role. All of the respondents stated that the course had made them more confident about their abilities.

**Table 4.3.** Online Questionnaire Responses Related to Soft Skills.

<b>Question</b>	<b>% Strongly Agree</b>	<b>% Agree</b>	<b>% Neutral or Disagree</b>
Working on projects in this course has made me a better communicator.	20	70	10
Working on projects in this course has taught me how to work with others.	40	60	0
Working on projects in this course has taught me to be creative in identifying solutions.	40	60	0
I am more willing to be part of a discussion or speak up in class because of this course.	20	70	10
I am more willing to lead a group or take on leadership responsibilities because of this course.	20	70	10
This course has made me more confident about my abilities.	30	70	0

#### REFLECTION ON THE RESEARCH QUESTION

The purpose of the research is to answer the research question: *What are the student-participants' perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?* In comparing the online questionnaire results with the HKS, it is evident that students are more motivated to learn in the Linked Learning program than other students are in the traditional programs. This result is reinforced by the online questionnaire item in which all respondents either agreed or strongly agreed that all students should take at least one course in which core academics are linked with CTE standards. Twenty percent of respondents even said that all core courses should be linked with CTE standards. All of the student-participants in the semi-

structured interviews had positive perceptions of their Linked Learning program and felt that it was a valuable part of their high school career.

As part of this action research, it was also important to identify the parts of the program that were most meaningful to the student-participants so that these parts could be incorporated into an action plan. The component that tied all of the themes together was the use of real-world projects. The use of these real-world projects has resulted in programs that provide relevance for students, encourage student engagement, and teach soft skills. These three themes were identified by the student-participants as being the most meaningful to them.

## CONCLUSION

Research adds to our knowledge, improves practice, and informs policy debates. Action research addresses a specific issue and employs a systematic process to gather information and then improve the researcher's professional practice. The problem of practice identified for this study was that the standardized course of study for the Central High School District was not meeting the needs of their students. After the state of California adopted a new accountability system, the district added a CTE component to the graduation requirements. The purpose of this study is to provide students a voice in the programs that will be developed over the next few years by answering the research question: *What are the student-participants' perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?*

The analysis of the data and findings presented in this chapter has formed the first component of the developing stage of action research. The second component of the

developing stage is the creation of an action plan. This action plan and the final stage of reflecting are discussed in Chapter 5.



## CHAPTER 5—SUMMARY, ACTION PLAN, AND CONCLUSION

In the first week of June 2018, Santiago, Alyssa, Chris, Maria, Anthony, and Martin walked across the stage in front of their friends and family and received their high school diplomas from the Central High School District (CHSD; pseudonym).

Immediately after graduation, Santiago will be taking a job offered to him by an industry professional whom he met during a project. Alyssa decided she is not interested in the industry sector that she was studying in high school, and after having researched other options, she plans to enroll at the local community college for the spring semester and is looking forward to a career in social services. Chris found his passion in the courses he took in high school and has enrolled in a one-year program at a technical college. Maria met with counselors at the local community college and discussed what she liked and disliked about the courses she had taken in high school; she has decided to enroll in the child development program in the fall. Anthony enjoyed the projects in his Linked Learning program and has enrolled in a certificate program at the local community college; he has also identified the company that he would like to work for once he completes the program. Martin realized he enjoys working with and helping others, and he has enrolled in the local community college. He plans to complete his associate's degree and then transfer to the California State University system to become a teacher.

While the names of these students are pseudonyms, their stories are real and stand in stark contrast to the stories of Julie, Sofia, and Diego that were presented in the opening of Chapter 1. Each of the students identified here had unique experiences and

were able to select a course of study of their choosing which stands in contrast to the standardized course of study that was selected for Julie, Sofia, and Diego. Unfortunately, the stories of Julie, Sofia, and Diego represent the large majority of students in the CHSD. The problem of practice identified for this action research was that the standardized course of study that was designed under the previous accountability system was not meeting the needs of many students in the district. The State of California has adopted a new accountability system that uses multiple measures rather than simply relying on standardized tests scores. One of these measures is a college and career readiness indicator, which can be met by the completion of a career pathway. As the district moves forward with increasing options for students to meet these new measures, the purpose of this research has been to insert students' voices into the decision-making process. There are currently several Linked Learning programs throughout the district that combine core academic standards with career technical education (CTE) standards through real-world, project-based learning.

## SUMMARY OF FINDINGS

Creswell (2005) states that “mixed methods designs are procedures for collecting, analyzing, and linking both quantitative and qualitative data in a single study” (p. 53). This action research study used three sources of data. Every year, the district administers the Healthy Kids Survey to all 9th and 11th grade students in the district. That data is collected, tabulated, and stored on the California Department of Education's DataQuest website. The survey asks a variety of questions and students select from strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree for each of the statements that are presented. The questions used for this research related to student motivation.

The second data source was an online questionnaire that was administered to seniors who returned permission slips in two Linked Learning programs. Most of the questions used the same format as the Healthy Kids Survey for the sake of easy comparison. The final source of data was a semi-structured interview with six students from the Linked Learning programs.

The data revealed that students who were participating in the Linked Learning program were more motivated than students in school in general and that the project-based learning activities were what tied all aspects of the program together. Five questions on the online questionnaire used similar language to the motivation questions in the Healthy Kids Survey. Students who were in the Linked Learning program responded agree or strongly agree to the questions about being motivated at least 45 percentage points more than students on the Healthy Kids Survey when answering about their school. In the semi-structured interviews, all student-participants had a positive view of their experience in their Linked Learning program and repeatedly mentioned the importance of the real-world, project-based activities.

When the online questionnaire analysis was compared to the semi-structured interview data, three common themes emerged that identified why students were motivated and supportive of project-based learning. The first theme was relevance. In contrast to the experiences of Julie, Sofia, and Diego from the opening story in Chapter 1, the six student-participants of the semi-structured interviews who were part of the Linked Learning program were able to select their courses of study and engage in activities that helped them explore both the industry sector and themselves. The online questionnaire data demonstrated that 80% of respondents either agreed or strongly agreed that the

course helped them to identify what their options were after high school and that they knew what they wanted to do after high school. The second theme was engagement. The most frequent response to the open-ended question on the online questionnaire that asked what they liked best about the program was the hands-on projects. All six of the student-participants in the semi-structured interviews talked about being more engaged because they were always working on something or participating in different activities. The third theme was that students developed soft skills in the program. The student-participants in the semi-structured interviews discussed how the projects helped them learn how to work with others, communicate better, and take on more responsibility. Once the themes had been identified, the next step was to develop an action plan that would incorporate those themes into more programs across the district.

#### DEVELOPING AN ACTION PLAN

As mentioned earlier, Mertler (2014) notes that “action research is built on the premise that some type of action will result from your action research project” (p. 210). The analysis of the data identified four themes that were important to the student-participants. The next step was to explore each of the themes and identify how to incorporate them into the new pathways that are being created across the district.

In May of 2018, the findings from Chapter 4 were shared with five staff members in the district: a principal, associate principal, core academic teacher, CTE teacher, and an instructional coach who helps coordinate the CTE programs. Each staff member was asked to brainstorm areas of support that would need to be provided in each area to encourage the incorporation of each theme into pathways throughout the district. The

members then shared their lists, and the group narrowed the list to two or three items per theme that could be addressed over the next two years. The items are listed below:

#### Project-based learning

1. Support site teams' attendance at conferences or workshops.
2. Create an InnovatED course (district offered online professional development).

#### Relevance

1. Support the creation of new courses, including the materials needed for the courses.
2. Provide collaboration opportunities across campuses.
3. Outline local jobs, training opportunities, and college programs.

#### Engagement

1. Identify ways to offer real-world experiences.
2. Build a library of lesson plans.
3. Arrange for flexible classroom seating.

#### Soft skills

1. Create rubrics to measure soft skills.
2. Create InnovatED courses that show teachers how to use rubrics.
3. Provide sample lessons and collaboration opportunities.

An action plan needs to identify specific actions, who is responsible for those actions, a timeline for implementation, and what resources are needed, if any (Mertler, 2014). As the Assistant Superintendent of Business and Student Services, all of the responsibilities will be assigned to either myself or other staff in my office. The details are outlined below along with a brief explanation of each theme.

**Project-based Learning.** The instructional focus for the district during the time when standardized testing was the sole measure of a school’s success was Explicit Direct Instruction. The teacher designed a lesson that had an objective and frequent checking for understanding and then delivered the same lesson to all the students at the same time. Since the state adopted a new accountability system, the district has placed more focus on depth of knowledge and requiring students to interact with the content rather than memorize information. In this study, project-based learning (PBL) was identified as the underlying theme supporting all other themes. High Tech High, PBL World, and the Center for Advanced Research and Technology are three programs that have been identified as model programs. To support the efforts to increase PBL, the district will provide financial support for each site to take a team of up to eight staff members to a conference during the summer of 2018. They may select from either PBL World or the conference at High Tech High. PBL World is a weeklong conference in the summer that provides in depth training on PBL. High Tech High was featured in the movie *Most Likely to Succeed* and offers a conference and several workshops throughout the year to allow teachers to see their version of PBL first hand. Along with supporting site teams during the summer of 2018, the district will financially support sites if they send teams of staff to any of these three programs during the 2018–2019 school year or during the summer of 2019.

The district has begun two professional development programs over the past two years. The first is the annual Summer Instructional Design Institute. This institute takes place the week after school finishes in June, and teachers are paid the \$40 per hour professional development rate to attend sessions of their choosing. The institute takes

place at one of the district schools and includes sessions presented by both professionals and district teachers on a variety of educational topics. During the summers of 2018 and 2019, a certified PBL instructor will be brought in to deliver sessions. District teachers who implement PBL during the 2018–2019 school year will also be encouraged to present sessions in the summer of 2019.

The second program is an on-demand online learning platform. Two teachers on special assignment work to gather information on topics identified by the district and then create online courses. Teachers are paid the \$40 per hour professional development rate to complete courses of their choice. The two teachers on special assignment will work with the teachers who are implementing PBL and the certified teacher hired to present during the Summer Instructional Design Institute to create a PBL course by the end of the fall of 2018.

**Relevance.** The district has been working with site principals to challenge teachers to explicitly explain to students how the concepts and standards they are exploring are used in the real-world. The state standards and our current course materials do not identify the relevance or application of many of the concepts and standards, and a large number of our teachers learned their subjects in a similar theoretical manner when they were in college. To assist teachers in this area, the district will support sites that choose to offer new courses that link core academics and CTE standards. This could be courses that pair a core and CTE teacher together, or a course taught by one teacher who links the two together. In the spring of 2018, the curriculum council for the district approved all courses on the University of California Curriculum Initiative (UCCI) and University of California Davis C-STEM (UCD C-STEM) lists. Sites may now offer

these courses without having to worry about filling out all the paperwork to get curriculum council or a–g approval. Sites that choose to offer specific courses from either of these two lists will have the teachers who will be implementing the course work together to identify the needed instructional materials and supplies for each course, and the district will provide the necessary funding beginning with the 2018–2019 school year.

All of the sites in the district currently have time built into their schedules for collaboration. Most of the current collaboration time is aimed at collaboration within specific departments. Sites have been given permission to identify creative ways of collaboration among teachers who are teaching new courses that link core academics and CTE standards. These plans could include coordinated release time for teachers at different sites to come together for collaboration or for core teachers to collaborate outside of their department with CTE teachers.

The CTE coordinator will work with the district college counselor throughout the 2018–2019 school year to establish a list of careers for each industry sector that includes information on local job availability, local training and apprenticeship opportunities, and local college programs that lead to degrees or certifications in each of those careers. This resource, along with a list of possible field trips and guest speakers, will be available for teachers to use for the 2019–2020 school year.

**Engagement.** Engagement was identified as the area that would be the most difficult to address. The CHSD works with the County Office of Education to offer a few courses through the Regional Occupation Program (ROP). Many of these courses place students in internships or paid work environments. Approximately 300 of the district’s 10,000 students are involved in these programs. It has been repeatedly considered how to



scale up these offerings. How many interns can medical offices in our community handle? How many engineers, welders, and chefs? The committee did not have answers for this issue and it was recommended that we work with the County Office of Education to convene a task force to review the issue.

For both engagement and soft skills, it was recommended that the district create a depository of lesson plans that teachers can browse to find samples or starting points when trying to create project-based lessons or lessons that teach soft skills. The two teachers on special assignment that will be working on creating the InnovatED online courses for PBL and the 4 Cs, will include a library of lessons in each course that teachers can use and that will be updated each year.

Many people on the committee referred to an image that is often shared when talking about engagement in the classroom. The image shows a classroom from 1900 next to a classroom of today. With the exception of a few technological upgrades, the classrooms look very similar. The physical layouts of most classrooms today remind you of the Industrial Revolution more than Silicon Valley. Each year, the district budgets \$250,000 to replace desks and classroom furniture. For the 2018–2019 school year, each school site will hold a classroom design competition in which teachers and students can design the modern classroom. Each site will determine their own winners and the top two designs at each site will have their classroom remodeled based on those designs. During the spring semester of 2019, principals from all campuses will tour the different rooms and the other sites to observe lessons in these new creative spaces. They will use this experience to begin discussions about how to proceed in future years.

**Soft skills.** One of the concerns the committee discussed about the move toward PBL was the need to specifically teach soft skills. Students will not automatically work well together just because you assign them a group project, nor will they become great public speakers simply because they are required to give presentations. Every school in the district is accredited by the Western Association of Schools and Colleges (WASC), and every school's WASC report identifies soft skills as one of the student learning outcomes. While soft skills are included, there is no systematic plan to ensure that students are learning these skills. The two teachers on special assignment who will be working on the PBL online course will also work with teachers who are implementing PBL to create a course series on soft skills. The course will be based on the Four Cs and use the motto "Collaboration, Creativity, Critical Thinking, and Communication + Content = Confidence." For each course in the series, they will create a rubric that explains the skill and describes how to measure the skill. The course will then walk teachers through the rubric and include sample lessons for each core area to demonstrate how to teach the skill in the context of their standards. The first two courses will be created in the fall of 2018, and the remaining two will be completed in the spring of 2019. The teachers who are working with the teachers on special assignment will be encouraged to offer sessions at the Summer Instructional Design Institute during the summer of 2019.

## FUTURE RESEARCH

In describing an action plan, Creswell (2005) states that "the important point is that you now have a strategy for trying out some ideas to help solve your problem" (p.

564). In June of 2018, the Board of Education for CHSD adopted the 2018–2019 budget that included the funding necessary to implement the action plan outlined above.

The final stage of action research as outlined by Mertler (2014) is reflecting. The gathering and analysis of data and the development of an action plan answered the research question and addressed the problem of practice, but it is important to also reflect on the limitations of the action research. Two issues were not addressed in the research or plan that will need to be addressed in the near future. These issues are the disparity between male and female participation in the current Linked Learning programs and the need to establish a system of ongoing review and revision that includes staff, industry professionals, post-secondary representatives, and students.

The sample for the study was a convenience sample consisting of 12th grade students who were currently enrolled in two Linked Learning programs. It immediately became obvious that there were more males in the program than females. The district is evenly divided between male and female students, but 65% of the students in the sample were male. In the semi-structured interviews, Alyssa mentioned that at one point she was the only girl in the program and then she recruited her friends into the program. She valued the experience she gained from the program and discussed the importance of relevance, engagement, and soft skills in the same manner that the male student-participants did. This suggests that there needs to be an effort to review and research the recruitment efforts for the Linked Learning programs to ensure that female students are taking advantage of the same opportunities as male students and that the programs and recruitment efforts are not reinforcing gender stereotypes that are currently reflected in many industries.

The action plan outlined in this chapter is only the beginning of the process. Action research is cyclical and repetitive in nature. To continue to improve the professional practice of the district, an ongoing process of reflection and revision must be implemented. While it will be important to review the concept of Linked Learning programs as the district moves forward, it will also be important to differentiate between different programs and understand that each program will be unique. Thus, there will be a need to have a reflection and revision process for each program. Future research will be needed to review various options for including all stakeholders in the ongoing process of reflection and revision.

## CONCLUSION

During the Great Depression, William Bagley (1938) became a vocal critique of the progressive approach to education. He argued that there was a basic set of knowledge that all students should learn and that schools should focus on discipline and instructing students in these common standards. Zhao (2009) writes, “As we enter a new era of human history, we cannot be certain of what specific talents, knowledge, and skills will be of value, and globalization has expanded the market. Therefore, we must accept the idea that all talents, all individuals are worthwhile. Education is thus intended to help every child realize his or her potential” (p. 159). The 1892 Committee of Ten’s report that recommended a standard course of study has been replaced by the National Education Association’s Four Cs with a focus on collaboration, critical thinking, creativity, and communication. The essential skills that a common school needs to teach in 2018 are soft skills such as communication, teamwork, and leadership. In “My Pedagogic Creed,” Dewey (1897) explained that “the teacher is not in the school to

impose certain ideas or to form certain habits in the child, but is there as a member of the community to select the influences which shall affect the child and to assist him in properly responding to these influences” (Flinders and Thornton, 2013, p. 36).

Buoncrisiani and Buoncrisiani (2012) note that “solving complex problems is a higher-order thinking process requiring the metacognitive skills we discussed earlier— understanding, monitoring, evaluating, and regulating our cognitive tools” (p. 73). If all students need to learn soft skills to be successful in society, it is vital that teachers focus on creating learning experiences that require students to interact with the content and solve real-world problems.

As the standardized course of study that focused on passing standardized tests was not meeting the needs of the majority of students in CHSD, California and the CHSD have been moving toward creating more opportunities and choices for students through the addition of Linked Learning programs that link core academic courses with CTE standards through a project-based learning model. To provide students a voice in the decision-making process, student responses to the Healthy Kids Survey, an online questionnaire, and a semi-structured interview were analyzed to identify common themes in answer the research question: *What are the student-participants’ perceptions of the Linked Learning Pathway, and what components of the program are most meaningful to them?* Student-participants were found to have a positive perception of their Linked Learning program and identified project-based learning as the foundation of the program. Through the use of project-based learning, the programs provide students with learning experiences that are relevant, engaging, and cultivated soft skills. A committee was formed to create an action plan that identified ways to support these themes as Linked

Learning programs are expanded across the district. The action research process and the action plan that was created has improved, and will continue to improve, the educational practice of both the researcher-participant and the district.

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## APPENDIX A: ONLINE QUESTIONNAIRE

The following list of questions was used to create an online Google Form. For questions 1–21, students were asked to select an answer from the following five options:

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

1. Students in this course are motivated to learn.
2. Teachers show how classroom lessons are helpful to students in real life.
3. Students pay attention in this course.
4. Students try their best in this course.
5. This course is a supportive and inviting place for students to learn.
6. Taking a core class with the career technical education class made it more relevant than taking it alone.
7. All students should take at least one core course (English, math, social studies, or science) paired with a career technical education course.
8. All core courses should be paired with a career technical education course.
9. I know what I want to do after high school.
10. This course helped me identify what my options are after high school.
11. I feel prepared for life after high school.
12. I will use what I learned in this class after high school.
13. Working with industry professionals gave me a better understanding of what the expectations will be when I get a job.
14. Working with industry professionals made the course more relevant.

15. Working on real-world projects made the course more relevant.
16. Working on projects in this course has made me a better communicator.
17. Working on projects in this course has taught me how to work with others.
18. Working on projects in this course has taught me to be creative in identifying solutions.
19. This course has made me more confident about my abilities.
20. I am more willing to be part of a discussion or speak up in class because of this course.
21. I am more willing to lead a group or take on leadership responsibilities because of this course.

The following questions followed a different answering format from the first 21 questions:

22. Which of the following was the most important for you?
  - Pairing the core academic class with the career technical education class
  - Working with industry professionals
  - Real-world projects
23. Why did you sign up for this course? (open-ended short answer)
24. What was the best thing about the course? (open-ended short answer)
25. Is there anything else you would like to share about this course? (open-ended short answer)

## APPENDIX B: SEMI-STRUCTURED INTERVIEW

The following list of questions was used as an outline for the semi-structured interview questions. Where appropriate, the interviewees were asked to expand upon their answers.

1. How did you get involved in the Linked Learning program?
  - a. How important is it to you that you were able to choose the program you were in?
2. What did you like best about the Linked Learning program?
  - a. What else did you like about the program?
3. What did you learn in the Linked Learning program that you would not have learned in a traditional class?
  - a. Do you think you will use that in the real-world?
4. Do you think more or all of your core classes should be paired with career technical education classes?
  - a. Was there anything you didn't like about having the classes paired?
5. Did you work on any projects with industry professionals?
  - a. What did you learn while working with them?
6. What do you plan to do after graduation?
  - a. Do you feel prepared?