

Running head: EXPANDING EDUCATIONAL POTENTIAL

Expanding Educational Potential through Multisector Partnership

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Abstract

Expanding Educational Potential through Multisector Partnerships

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This study examined efforts to establish and sustain collaborative educational partnerships across multiple sectors to support the resolution of complex community challenges related to skilled workforce gaps. Much attention has been placed on the politics, structures, and outcomes of such efforts, but there has been a lack of information on the relationships involved—especially within local contexts. This comparative case study of contrasting models of collaborative efforts within two communities focused on how each partnership was established and sustained, how they increased access to skilled careers, and how they were influenced by relational interdependence. This paper provides a narrative and thematic analysis of the experiences at each site. The comparative analysis of themes then summarizes the five common strengths/challenges experienced in both locations: structures, relationships, communication,

EXPANDING EDUCATIONAL POTENTIAL

tenacity, and vision. The primary finding from the research is that individuals in key roles within each organization were the critical factors in efforts to establish and sustain such collaborative programs and that communication and transference of information during role transitions were key factors for ongoing stability.

Keywords: multisector, education, partnerships, collaboration, reciprocal, career, community

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Table of Contents

Purpose and Research Questions 1

Chapter One: Public Education and the Skilled Workforce: A Challenging History 6

Chapter Two: Multisector Issue Convergence: Fraught with Potential and Challenges ... 16

 A Convergence of Sector Issues 16

 Collaborative Multisector Educational Partnerships—A Potential Solution..... 19

 Interdependence as a Theoretical Lens 24

 The Design of the Comparative Multicase Study 26

Chapter Three: A Global Corporation Engages a Complex Community: City of Berkeley and Bayer AG 34

 Phase One Identification: Securing a Legal Development Agreement 34

 Phase Two Establishment: Defining Independent Governance Through a Nonprofit 41

 Phase Three Preparation: Developing the Program Groundwork Gradually..... 43

 Phase Four Launch: Connecting Classrooms and Workplace Labs 48

 Phase Five Adjustment: Changing Partner Sites to Maintain Vision. 50

 Phase Six Evolution: Transforming Focus to Longevity 55

Chapter Four: Berkeley Partnership Analyzed: Impact on Sustainability 64

 Berkeley Partnership Review: Unique Factors 64

 Berkeley Challenge: Community College Program Site 65

 Berkeley Challenge: Funding Source 67

 Berkeley Challenge: Growth and Expansion..... 68

 Berkeley Challenge: Transitions of Key Individuals..... 69

 Intermediary Oversight Support for Sustained Partnership 70

Chapter Five: A School District Confronts a Perpetual Shortage: Puyallup Nursing Preparation 72

 Phase One Identification: Searching for Willing Collaborators 72

 Phase Two Adjustment: Shifting Partner Roles to Maintain Connections 81

 Phase Three Establishment: Defining Entity Responsibilities..... 84

 Phase Four Preparation: Hitting the Ground Running..... 87

 Phase Five Launch: Transforming Efforts and Pressure 91

 Phase Six Evolution: Emerging Refinements to Improve System Alignment 93

Chapter Six: Puyallup Partnership Analyzed: Emerging from Roadblocks 98

 Puyallup Partnership Review: Unique Factors 98

 Puyallup Challenge: Search for Partners. 99

EXPANDING EDUCATIONAL POTENTIAL

Puyallup Challenge: Funding Negotiations	100
Puyallup Challenge: Clinical Site Adjustment	101
Puyallup Challenge: Union Events and Concerns	101
Puyallup Challenge: Autonomous Oversight Support for a Sustained Partnership.....	102
Chapter Seven: Two Vastly Different Approaches: Comparative Insights from Berkeley and Puyallup.....	104
Differences between Berkeley and Puyallup	104
Commonalities between Berkeley and Puyallup	105
Structures	106
Relationships.....	106
Communication.....	107
Tenacity.....	108
Vision.....	108
Conclusions from Findings, Limitations, and Recommendations	109
References	112
Appendix A	141
Participant Recruitment and Electronic Consent	141
Appendix B	142
Collaborative Multisector Educational Partnership Interview Questions.....	142
Appendix C	144
Collaboration Research Subquestions.....	144
Appendix D	145
Figures.....	145

Expanding Educational Potential through Multisector Partnerships

Purpose and Research Questions

Developing new programs that are alien to the typical public education model can be both exciting and terrifying. Shortly after transitioning into the role of a K-12 public education director with responsibility for a school district's career and technical education (CTE) programs, I was charged by the superintendent to conceive a new pre-nursing program in the three comprehensive high schools within the Puyallup School District (PSD). Ten years of experience as an educator and administrator provided support for creating new courses, working in teams, and leading change, but it did not provide any substantial guidance for navigating collaboration in unfamiliar sectors (e.g. with healthcare and community college systems that would be essential for the success of this new program). While information on business and so-called organizational "partnerships" is widely available, the partnerships are usually between "like entities" and/or within the same sector (e.g. the merger of two hospitals or schools working together to provide vaccinations or child care providers coming together to support training). It was clear that this new nursing program would require collaboration between and among multiple organizations coming from different career fields with different values, missions, directions, goals, and challenges. Moreover, within these fields, each institution would likely have established cultures, norms, and practices.

Research questions. Two questions became obvious:

- How have collaborative multisector educational partnerships been established?
- How have they fared and been sustained?

These questions led to a decision to focus this dissertation on a qualitative research study of two programs that rely on partnerships for success but differ in terms of their geographic context,

original stimulus, educational models, governance structures, and development stages. Most significantly they differ in terms of the program impetus, governance, staffing, and funding. The stories of how each of these two programs have worked to establish, sustain, and troubleshoot complex formal and informal collaborations fit into six phases common to their collaborative efforts: identification, establishment, preparation, launch, adjustment, and evolution.

The focus of this comparative case study is to explore the factors that brought about and impacted efforts to develop collaborative multisector educational programs in two public secondary school systems developed under distinct circumstances. Collaborative multisector educational partnerships among high schools (including high school CTE programs), postsecondary institutions, and industry (local skilled workforce employers) could be a critical component for developing and sustaining flexible career training and entry opportunities (Gray, 2000; Partnership for 21st Century Skills, 2010). A failure of sectors to notice the interconnectedness of the issues they face restricts their problem-solving capacity and the realization of collaborative benefits. Understanding these factors within the context of the potential relationships among skilled workforce employers, secondary CTE programs, and postsecondary credentialing institutions is critical to determining how multisector partnerships might provide wider community benefit (Karas, 2013; Martin & Gardner, 2016) through more equitable education and vocation outcomes (Rose, 2013, 2014).

While there were many possible programs to study (e.g. Wisconsin Youth Apprenticeship Program, Montgomery County Summer R.I.S.E. Program in Maryland, NYC Ladders for Leaders Program), the two programs described in this paper were selected for their connection to rigorous applied academics, community impact focus, and research access ease. It is hoped that the examples presented here will provide useful and cautionary information on how

appropriately designed collaboratives that include several sectors, including educational institutions, can offer potential solutions to complex community and industry issues and provide benefit for all involved.

Definitions of key terms used in this research. What follows are definitions of key terms used throughout this paper to provide meaning for topics in this study.

Collaboration. Researchers generally define collaboration as two or more parties voluntarily agreeing to work together, rather than individually, with shared actions, purpose, and responsibility (Hord, 1981; Hoyt, 1978; San Martin-Rodriguez, Beaulieu, D'Amour, & Ferrada-Videla, 2009). When formed for “collective impact,” (making a shared difference) collaboration involves developing partnerships among organizations from key community sectors with a shared goal to fill gaps and eliminate redundancies of separate efforts in the pursuit of a strongly aligned mission (Klempin, 2016).

Multisector. Multisector refers to diverse organizational formats, such as business/government/charity or private/public/nonprofit (Bromley & Meyer, 2017), with a wide range of possible members, among which Klempin (2016) includes postsecondary institutions, K-12 school systems, and employers. For the purpose of this study, private sector is defined as entities with private ownership, governance, and profit; public sector is defined as entities with public ownership, governance, and benefit; and nonprofit sector is defined as voluntary but formalized nongovernmental institutions which are self-governed and profitless (Salamon & Anheier, 1997).

Partnership. Partnership was legally defined by the Supreme Court, for federal tax purposes, as a for-profit business with intent (explicit or implicit) to share control, profits, and investment (Commissioner v. Culbertson, 1949). The concept of partnership has also been used

historically to describe a wide range of interpersonal relationships and group collaboration (Bringle & Hatcher, 2002). Partnership in this study refers to a formalized contractual agreement or understanding between organizations that requires shared training, resources, and accountability to obtain mutually beneficial goals (Acar, Guo, & Yang, 2012; Bringle, Officer, Grim, & Hatcher, 2009; Doerr & Wantuch, 2000).

Reciprocal benefit. Mutually beneficial goals are set for the collective and individual benefit of all partners and could include altruistic motives such as addressing complex community issues for greater community benefit (Klempin, 2016; Thomson, Perry, & Miller, 2007). A local social issue, poverty, may be reduced by offering students living-wage instruction and practice that might also expand their civic contributions as a result of increased social, intellectual, and economic options (Rose, 2013, 2014). Another issue for the local economy, labor shortages, may be reduced by the workplace-based training that could increase the available skilled workforce and productivity (Jacoby, 2013).

Community. Michalos (2017) defines community as a collection of individual people or collective groups sharing a common place, which could range in size from local (neighborhood) to global (international). Research related to collaboration described the importance of local rather than global context for developing collaborative partnerships that involve an educational component (Erickson et al., 2017; Karas, 2013).

Gaps in the literature that lead to this research. Nontraditional approaches to education, especially in CTE programs, require collaboration among industry, secondary schools, and postsecondary institutions. But it is unclear how or why such a multisector educational model may be effective and what elements are required for sustained implementation (Brand, Valent, & Browning, 2013; Gonzalez & Culbertson, 2017; Reilly, 2001; Schargel & Smink,

2001). Much prior research in this area has focused on the binary relationship either between secondary and postsecondary levels or between industry and one educational level (Klempin, 2016). Theoretical research suggests that examining the influence of interdependence (mutual reliance) on multisector educational partnerships could help in the identification of what might support and sustain them (Bringle & Hatcher, 2002; Townsend & Shelley, 2008; Ziff et al., 2010). This research, which compared how interdependence influences organizational partnerships, might shed light on how to form and sustain multisector collaborative efforts within the context of education to provide reciprocal and collective benefit. Educators who are focused on preparing students for their lives after high school need to consider community factors such as career demands and gaps that will impact their future financial well-being. Formalizing partnerships between and among sectors in communities, creates broader systems of educational preparation that will integrate supports not only for students, but also whole communities.

Chapter One:

Public Education and the Skilled Workforce: A Challenging History

“Education is for improving the lives of others and for leaving your community and world better than you found it” (Edelman, M., 1992, pp. 9–10).

Despite decades of school reform efforts, recent changes in industry as well as in the public education system reinforce skilled-labor shortages and replicate demographic inequities in the United States (U.S.) (Holland & DeLuca, 2016; Rosenbaum, Ahearn, Rosenbaum, & Becker, 2016). While not a uniquely American problem, these conditions support sustained workforce gaps in the U.S. (Holzer, 2013; Smith, 2012). The ongoing debate about the purpose of public education continues to shift the focus back and forth between an emphasis on specialized skills and an emphasis on generalized knowledge (Grubb & Lazerson, 2005; Rose, 2011). American educators are divided. At one extreme is the belief that we need a system of “tracking” that prepares some students for an academic future and others for workplace skills. At the other end of the spectrum are those who advocate for the importance of academic preparation for 4-year college, testing, and accountability that excludes vocational, skills-based preparation (Jacoby, 2013). Interestingly, both viewpoints devalue skilled-labor career fields (e.g. construction, electrical, and healthcare) in favor of perceived elite occupations (e.g. doctors, lawyers, architects, and teachers) and leave students with a false choice between the pursuit of skills or intellect (Carr, 2013; Symonds, Schwartz, & Ferguson, 2011). But these two extremes belie contemporary reality—both skill and intellect are involved in all careers.

Vocational education, an eight-century-old approach to occupational mentorship, was founded on the workforce skills training models of thirteenth-century guilds and eighteenth-century apprenticeships and was formalized in the U.S. through the Smith-Hughes Act of 1917

(as cited in Dougherty & Lombardi, 2016). This act, passed during a time of increasing industrialization, provided federal funding for vocational programs at the secondary school level across the nation and established the role of directors to coordinate vocational educational partnerships with local industries (Dougherty & Lombardi, 2016). For a half century, the vocational education system operated outside the academic-focused comprehensive high schools in technical high schools that could offer specialized training (Schwartz, 2014).

The separation of vocational and academic education had benefits, but it also had unfortunate repercussions. Vocational education was perceived as a less rigorous option built for less intellectually capable students (Harklau, Lew, & Yang, 2018). Historically, disbelief in the learning ability of low-income students and students of color led to their placement into the courses considered least challenging (known as tracking) (Holzer, 2013). As a result, students perceived to be higher achieving were placed in more intellectually challenging classes, and those perceived to be lower achieving were relegated to either skill-based vocational courses or drill-based remediation programs (Loveless, 2013; Rosenbaum, 1976).

Various social movements have influenced the fluctuating status of skills-based training within academic systems. During the civil rights movement of the 1960s, explicit tracking was rejected as a practice that perpetuated cycles of classism and racism (Carr, 2013; Jacoby, 2013). The Vocational Education Act of 1963 worked to address social inequities within education for students needing accommodations by requiring access for all students to CTE programs (as cited in Friedel, 2011). It was in this more socially volatile time, during the 1960s and 1970s, that new experimental schooling models emerged. Occupation-focused academies and specialized CTE schools were incorporated into comprehensive public high schools, but still existed primarily on a different track than that for college-bound students (Conant, 1959; Schwartz, 2014). Two

decades later, a national focus on college readiness led to funding support from the Carl D. Perkins Vocational Education Act of 1984 for postsecondary connections (Friedel, 2011). Even so, high school systems continued to assign students perceived to be headed for college to separate rigorous academic tracks which led to disproportionate concentration of low-income students and students of color in vocational courses and replicated disparate race and economic outcomes (Schwartz, 2014).

The long-term inequitable employment outcomes between the educational tracks led to efforts to improve the integration of academic and vocational skills training and improve the transition from school to work. The School-to-Work (STW) Opportunities Act of 1994 attempted to merge the tracks by forming career-pathway links among employers, postsecondary institutions, and secondary vocational programs (Neumark & Rothstein, 2006). The STW program involved three elements: school-based education, work-based experience, and connections among secondary schools, postsecondary schools, and employers (School-to-Work Opportunities Act, 1994). Fully implemented STW systems resulted in increased motivation, attendance, grades, graduation, detracking, and postsecondary options for a wider student population (Gordon, 2014).

After President Clinton finished his term, STW was not re-funded or reauthorized, and President Bush's administration created the No Child Left Behind Act of 2001 (NCLB), which intensified the national requirements for rigorous educational standards (Abrams, Pedulla, & Madaus, 2003; Mantel, 2005; Schwartz, 2014). NCLB established accountability for ensuring that all students across the U.S. reach the same math and reading standards (Baker & Velez, 1996; Rosenbaum, 2001). As a result, students required more core academic courses to prepare

for high-stakes testing and had less space available in their schedules to take more vocationally oriented courses (Abrams, et al., 2003; Mantel, 2005; Schwartz, 2014).

NCLB reignited the college-for-all (CFA) movement, which had originated with the return of the soldiers from war and the G.I. Bill (Servicemen's Readjustment Act of 1944), that encouraged the pursuit of bachelor's degrees rather than alternative postsecondary education routes such as apprenticeships (Baker & Velez, 1996; Reynolds, Stewart, MacDonald, & Sischo, 2006; Rosenbaum et al., 2016). The push in secondary schools to ensure that all students are college ready when they graduate has resulted in increased numbers of students enrolling in college (Baker & Velez, 1996; Rosenbaum, 2001). In 2011, 90% of U.S. high school graduates said they "planned on going to 4-year college" but only 70% actually entered 2- or 4-year colleges. This enrollment rate far exceeded the 10% who attended college in the 1940s (Jacoby, 2013; Scroggs, 1946; Symonds et al., 2011). Still, even after decades of CFA reform efforts (e.g. raising standards, test score performance, and national accountability measures), just over 30% of students earned a bachelor's degree before age 25 in 2017 (United States Department of Labor, Bureau of Labor Statistics [BLS], 2018; College for All Act of 2017; Jacoby, 2013; Symonds et al., 2011).

CFA reforms were intended as interventions to address persistently high dropout rates and racial achievement gaps in both high school and college (Rosenbaum et al., 2016). The danger in mandating a CFA solution is that it creates a single track for all students, which excludes consideration of student choice and alternative pathways to college and career, and could prompt increased dropout rates (Rosenbaum et al., 2016; Symonds, et al., 2011).

Regardless of education level, as recently as 2016 African American and Latino subgroups were still more likely than White and Asian subgroups to be unemployed or working in service jobs

and earning lower lifetime wages (BLS, 2016). Students who start college but leave without earning a credential (certificate, AA degree, or BA degree) have fared no better in terms of employment or earnings than those with only a high school diploma (Belfield & Bailey, 2011; Grubb, 2002; Rosenbaum et al., 2016). While the average earnings, in any given year, of those with bachelor's degrees is 65% greater than for students with only high school diplomas, nearly a third of people with preassociate level postsecondary credentials (certificate or apprenticeship) and without AS or AA degrees earned higher wages than the average BA/BS graduate (Carnevale, Rose, & Hanson, 2012; Symonds et al., 2011).

Career and technical education. The title “Vocational Education” was changed, in 2006, to “Career and Technical Education” (CTE) to mitigate the negative connotations that *vocation* conjured up of an often-misguided sense of limited opportunities and lower income (Dougherty & Lombardi, 2016; Friedel, 2011). It was felt that the new name better reflected a focus on postsecondary connections designed to support college and career readiness (Bragg & Reger, 2000; Castellano, Stringfield, & Stone, 2003; Eisenman, 1998; Hamilton & Hamilton, 1994; Parks & Moreton, 1999; Plank, 2001). It was believed that if secondary schools continued to offer old-style standalone vocational courses geared to low-demand career fields, such as photography, journalism, videography, secretarial, farming, and forestry (BLS, 2018), they would fail to prepare students with the skills needed for either college or a career in the newer, emerging fields of science, technology, healthcare, etc. Instead, CTE programs were intended to articulate with community college courses in an effort to increase two-year college enrollments, and contemporary CTE programs have been designed to prepare youth to enter careers through multiple postsecondary entryways (Cellini, 2006; Dougherty & Lombardi, 2016).

Federal support for CTE has led to a growing connection of adults and out-of-school youth to postsecondary opportunities in high-growth technical fields that offer higher salaries, such as firefighters, nurses, emergency medical technicians, athletic trainers, dental assistants, plumbers, and air systems technicians (BLS, 2018; United States Department of Labor, Employment and Training Administration, 2015). Proponents of CTE believe that connecting high school students to these highly skilled and engaging fields of study before they decide to opt out of education may help them stay in school, earn diplomas, enter a living-wage occupation, and go on to postsecondary education (Ganzglass, 2014; Gottfried & Plasman, 2018; Rosenbaum, Deil-Amen, & Person, 2007).

In 2009, President Obama expressed a need to shift the understanding of post-high school education from CFA (based on 4-year college/university attendance) to a credential-for-all (based on all postsecondary education options). This alternative to CFA allows students a choice of multiple postsecondary pathways and “stackable credentials,” which offer diverse entryways into a variety of future careers and education options, without accumulating debt (Symonds et al., 2011; Van Horn, Edwards, & Green, 2015).

Without partnerships between postsecondary institutions and local employers, however, vocational programs may lack both the rigor and relevance necessary to prepare students for living-wage jobs and thus may not support a desired increase in local skilled workforces (Gottfried, Bozick, Rose, & Moore, 2016; Rose, 2012). CTE has been tied to economic demands since its beginning, and without partnerships with local employers of a skilled workforce, who will provide students with mentorship and jobs within the community, current mismatches between worksite needs and available workforce skills would likely continue (Callahan, 1962; Ghaffarzadegan, Xue, & Larson, 2017; Grubb & Lazerson, 2004; Gottfredson, 1981). Gaps in

the skilled workforce have been a focus of concern in many sectors since the early twentieth century (Bromley & Meyer, 2017). Today's growing skilled-labor shortage has resulted from an aging and retiring workforce, fewer youth considering skilled careers, and underrepresented gender and racial/ethnic subgroups in skilled fields (Buerhaus, Staiger, & Auerbach, 2000; Georges, 2012; Melillo, Dowling, Abdallah, Findeisen, & Knight, 2013).

The U.S. labor market defines skilled jobs as those that require less than a 4-year college degree but do require some specialized training beyond high school to acquire a certificate and/or apprenticeship (Brand et al., 2013; National Skills Coalition, 2018; Workforce Central, 2018). Examples of skilled jobs include electricians, construction workers, dental hygienists, paralegals, police officers, registered nurses, health technologists, massage therapists, dental assistants, manufacturers, naturalists, biotechnicians, and repair workers (Symonds et al., 2011).

Skilled workforce gaps are the mismatches between workforce skills and workplace needs (BLS, 2016). Current high-demand, hard-to-fill skilled jobs in the U.S. that provide a living wage for a family include those in manufacturing and healthcare, which had nearly 1.5 million unfilled jobs in 2017 even though only 63% of American adults were in the workforce (Gonzalez & Culbertson, 2017). The available unemployed workforce did not hold the skills necessary to fill the available jobs.

The recent skills-workforce mismatch, while compounded by the CFA push in education, is, in part, the result of the public image created by layoffs of skilled workers when, during the recession that started in 2008 (Krupnick, 2018), some companies said they needed to relocate those jobs overseas to remain economically competitive. Another reason for the poor public image is that many students and parents do not see skilled trades as viable career paths but instead believe that undergraduate college degrees are the ticket to future success (Krupnick,

2018). Yet another reason for the shortage of skilled workers was offered by *New York Times* journalist Hedrick Smith (2012). Smith warned that the pro-business New Economy has been eliminating middle class mobility and creating a two-class U.S. society (e.g. the privileged with college degrees and the impoverished who have no training and are thus stuck in minimum-wage jobs). This shift, Smith claimed, is based on the notion that changes in technology within a global economy require a highly formal, educated workforce to stay afloat. Smith argued that since the 1980s, the New Economy has instead created hyper-concentrated corporate wealth and a new poor with fewer opportunities for advancement.

This kind of decision-making based on New Economy philosophies has also contributed to an increased skills-workforce mismatch (Holzer, 2013; Ghaffarzadegan et al., 2017). And while demands on education have resulted in more college-bound high school graduates, the Department of Labor has been struggling to fill the ongoing shortage of skilled workers (York & Muhlhausen, 2017). An aging population will likely intensify an already critical shortage of skilled professionals (Juraschek, Zhang, Ranganathan, & Lin, 2012; Rudel, Moulton, & Arneson, 2009). Nearly 30% of the workforce across all fields (e.g. construction, maintenance, education, finance, government, healthcare, technology, manufacturing, natural resources, religion, and utilities), other than service and transportation, were 55 or older in 2015, and only about 10% of those between the ages of 51 and 69 had retired (Society for Human Resource Management [SHRM], 2015). With a projected 75% increase between 2010 and 2030, senior citizens will make up one fifth of the total population of the U.S. and one third of the current workforce will reach retirement age by 2024 (Aiken, Cheung, & Olds, 2009; Juraschek, Zhang, Ranganathan, & Lin, 2012). Because so many employees with specialized skills and knowledge will likely be leaving the workforce within such a short time span, the primary concern of employers is

succession planning for both retention and recruitment (Aiken et al., 2009; Nguyen, Guevara, Barnett, & Thorpe, 2017; SHRM, 2015).

Along with a shrinking pool of available skilled workers due to aging, members of gendered and racialized groups continue to be underrepresented in skilled careers (Murray, Pole, Ciarlo, & Holmes, 2016; United States Census Bureau, 2010). Historically, the U.S. education system has limited racialized and gendered portions of the population from pursuing specific career fields (e.g. historical restriction of nursing program access to white females) and has preserved greater economic privileges for White subgroups to the exclusion of those historically marginalized—especially African Americans, Native Americans, and Latinos (Waite & Nardi, 2017). Workforces with more diverse representation experience increased performance and innovation as a result of diverse ideas, which lead to improved organizational success (Cho & Mor Barak, 2008; Cho, Kim, & Mor Barak, 2017; Giffords, 2009; Gonzalez & DeNisi, 2009; Harrison, Price, & Bell, 1998; Mor Barak et al., 2016; Richard, Roh, & Pieper, 2013; Sacco & Schmitt, 2005; Soni, 2000; Thomas & Ely, 1996). The pursuit of greater workforce diversity is also considered by many organizations as a moral obligation (Cho et al., 2017).

Financial limitations of low-income subgroups have discouraged them from pursuing postsecondary education and instead have led to their overrepresentation in low-wage service jobs that lack wage increases or stackable degrees (Nelson & Wolf-Powers, 2010). Marginalized subgroups have experienced wage gaps that perpetuate socioeconomic stratification, recreate disparities, and result in skewed financial and occupational representation within a community (Dorn, 1996; Lapan & Kosciulek, 2001; Oakes, 1983; Wilson, 1996). The underrepresentation of graduates from low-income households and graduates of color entering skilled work fields, after both high school and college, reproduces social inequity: It results in greater unemployment

rates and lower wages at all educational levels, and creates divergent outcomes for community members that need to be addressed (BLS, 2016; Bowles & Gintis, 1976; Goldin & Katz, 2008; Labaree, 1997; Oakes, 1986; Oakes, Selvin, Karoly, & Guiton, 1992; Tyack, 1974). Without meaningful training, many young people will be limited to minimum-wage jobs and potential unemployment, which diminishes their ability to support themselves and their families.

Chapter Two:

Multisector Issue Convergence: Fraught with Potential and Challenges

“...the reality [is] that there are no closed systems, that every system has a gap and that in that space is a place of possibility” (Hooks, B., 2003, p. 23).

Communities face a complex convergence of issues in the skilled workforce, community colleges, and K-12 public schools. Each of these sectors faces competing demands which complicates their ability to realize their goals. They also each have issues that require resolution. If the thought of working together rather than separately on issues that really impact the entire community were more commonplace, then organizations might realize that they could fix their separate (but overlapping) challenges through collaboration. Unfortunately, this is not what happens in siloed systems and why the efforts of collaborative multisector partnerships that include educational institutions are the focus of this study.

A Convergence of Sector Issues

With half of the skilled workforce reaching retirement age by 2020, U.S. employers face difficulty remaining competitive in a global economy (Buerhaus et al., 2000; Kochan, Finegold, & Osterman, 2012; Zumeta et al., 2012). When businesses fold or move jobs overseas, especially in skilled fields, it lessens the economic well-being of communities by widening the gap between high- and low-wage earners and leading to wage stagnation (Kochan, et al., 2012).

Community colleges also face difficulties, but those are related primarily to goal and funding complications. Community colleges have been entrusted with a bifurcated mission—to simultaneously train a skilled workforce and prepare students to transfer to a 4-year college (Hagedorn, Perrakis, & Maxwell, 2002; Dowd, 2007). While community colleges enable lower-income populations and populations of color greater access to higher education, a projected

enrollment increase of 200% between 1980 and 2020, competition for funds, and inequitable outcomes complicate the increases in postsecondary enrollment (Zumeta et al., 2012).

Highly qualified students from all subgroups are enrolling in higher education at the same rate, so it is problematic that certificate and degree completion rates for White students remain higher than for African American and Latinx students and that 92% of the growth in African American and Latinx enrollment will be limited to open-access, postsecondary schools such as community colleges (Carnevale & Strohl, 2013). Community colleges need to provide increased supports to ensure student success, but since the 2008 recession there have been fewer resources per student than in the past and greater competition for those funds (Zumeta et al., 2012). Public universities and community colleges are also under more scrutiny and requirements tied to government funds (Carnevale & Strohl, 2013).

Recent decisions by some community colleges to drop *community*—some would say the most important word—from their names, also indicates the presence of an identity crisis within their organizations. In the two sites this study examines—Berkeley, CA and Puyallup, WA—the differences in community college names and missions reflect their varied focus. The two colleges involved in the startup of the multisector partnership in the Berkeley, CA, case study have subtle mission differences. The current mission for Vista College, now known as Berkeley City College (2019), is to “promote student success and to provide our diverse community with educational opportunities to transform lives,” and Laney College (2019) states it “educates, supports, and inspires students to excel in an inclusive and diverse learning environment rooted in social justice.” While the missions have likely changed for the schools sometime during the 27 years since the partnership was established, the focus on social justice at Laney College is one reason the partnership efforts there may have had a better chance of working.

The mission of Pierce College (2019), located within the PSD boundaries, is to create “quality educational opportunities for a diverse community of learners to thrive in an evolving world,” and the first objective is to provide learning opportunities that will “align with students’ educational and career goals and will be consistent with workforce needs.” The mission of the nearby Clover Park Technical College (2019), “Educating tomorrow’s workforce” is much clearer, and the first objective is for students to be able to demonstrate the “knowledge and skills necessary to access employment in their chosen industry.” The mission differences provide some indication of why Clover Park Technical College (CPTC) was more open to joining a multisector partnership centered on student workforce training.

In order to support the preparation of all students for the competitive global economy, public high schools are also confronted with pressure to merge historically separate mandates to prepare students for both a career and college. Schools are now responsible to ensure that every student is both college and career ready with multiple options for postsecondary jobs that provide a family living wage by the time they graduate (Obama, 2009; Symonds et al., 2011; Van Horn, Edwards, & Green, 2015). However, government funds to support such efforts are limited and spending flexibility is restricted by unfunded political mandates like reduced class size and supports for special programs. Most K-12 public school districts receive a portion of state funds based on the number of full-time students enrolled and some federal funds designated to support specific programs, and they rely on the local tax base to cover remaining revenue needs, which leads to inequitable resources and outcomes for students living in poverty and students of color (Morgan & Amerikaner, 2018). While the federal and state legislative requirements placed on schools indicate public interest in educational outcomes, it is also clear from the complex

designations for how funds are used that public schools face challenges in their efforts to meet the needs of all students.

Collaborative Multisector Educational Partnerships—A Potential Solution

Ignoring opportunities to work together to confront interconnected challenges isolates efforts and limits solutions. The complex issues perpetuating ongoing gaps in the skilled workforce extend beyond the high school education system, concern multiple sectors, and impact local communities (Castellano, Ewart Sundell, & Richardson, 2017; Rose, 2015; Schmitt-Wilson & Faas, 2016). Multisector partnerships may be better equipped to address multifaceted community issues than schools alone (Eramo, 2017; Murray, 2014; Plasman, Gottfried, & Sublett, 2017).

Developing collaborative educational partnerships among public secondary school districts, public postsecondary institutions, and local employers in related career fields has been pointed to as a potential avenue for solving complex issues, such as gaps in sufficiency, proportionality, effectiveness, opportunity, and climate in the workforce (Gordon & Copes, 2010; Melillo et al., 2013; San Martin-Rodriguez et al., 2009). Public-private partnerships in other fields, such as those related to healthcare, serve as examples of the potential outcomes and the need for deliberate and collaborative planning (Loevinsohn et al., 2002). For example, a multisector collaboration among healthcare systems, corporate laboratories, government agencies, and nonprofit donors that started in 1988 led to the near worldwide eradication of polio by 2015 (Global Polio Eradication Initiative, 2019). Still, challenges and unintended consequences of the polio vaccination efforts, such as the delivery of other health services being disrupted, may have been avoided through improved planning (Loevinsohn et al., 2002).

Understanding the potential opportunities and pitfalls for efforts like this in education could help in the design of more effective partnerships and programs.

While effective collaborative multisector educational partnerships are difficult to form, implement, and sustain (Bowers, 2017; Castellano, et al., 2017), connecting high school students to both college and career opportunities prior to graduation may increase on-time graduation rates, postsecondary enrollment, and wage earnings (Gottfried & Plasman, 2018). Educational collaborations tied to specific high school courses may also provide students with college credits and work experience that lead to specific skilled careers in healthcare, manufacturing technology, business, and education (Brand et al., 2013; Stone & Alfeld, 2004).

Longstanding, isolated, and potentially overlapping efforts to address individual parts of complex community-wide, socioeconomic issues may help explain existing gaps between education and jobs in communities (Lapan & Kosciulek, 2001; Reiter & Schlimbach, 2015) and point to the need for the collaboration to develop systems to better meet the post-high school needs of all students. While relationships between public four-year colleges and public high schools are natural due to their shared academic focus, multisector school-to-career systems are rare and often considered competitive in nature partly due to the divergent missions of the K-12, postsecondary, and business sectors (Klempin, 2016).

Increased collaborative, rather than isolated, efforts to create new systems of career education in high schools, which might require a sharing of power and resources, could be impeded by conflicting priorities of partners (Vangen & Huxham, 2010; Bryson, Crosby, & Stone, 2006). Even when collective goals are agreed upon, individual organizations' interests may conflict during collaboration due to unique structural, cultural, and financial priorities (Butterfoss, Goodman, & Wandersman, 1993).

Additionally, differences in political and financial power influence efforts to collaborate because of the varying degrees of expert knowledge, financial resources, community credibility, and legal policy among organizations (Arvin, Tuck, & Morrill, 2013; Butterfoss et al., 1993). Successful collaborative multisector educational partnerships will likely require equal respect for both the skills-based knowledge in the workplace and the academic pursuits in the postsecondary classrooms (Bleiklie, 2003; Rawlinson & Dewhurst, 2013; Rose, 2012). Partnership efforts may also be more effective if workforce employers help to financially support the educational efforts that directly benefit them (Krupnick, 2018), and high schools develop specific career curricula based on workforce needs (Jacoby, 2013).

A collaborative education model that includes a local high school, a community college, and the workplace is one where secondary schooling might include applicable academic instruction in the classroom connected to specific real-world careers (Schwartz, 2014); paid training, mentorship, and apprenticeship at related worksites (Neumark & Rothstein, 2006); and meaningful credentials, college credits, and stackable degrees from postsecondary institutes (Castellano, Ewart Sundell, & Richardson, 2017). Supportive and collaborative, rather than competitive, relationships among secondary schools, postsecondary institutions, and local employers may improve student outcomes (Daiski, 2004) by providing K-12 students with interactive experiences, cohesive preparation, and early entrance into career fields (Schwartz, 2014).

The establishment of mutually beneficial partnerships (Acar et al., 2012; Bringle, et al., 2009) is supported by research that identifies an urgent need for preparatory systems that will ensure the presence (Griffith, 2012; Matutina, Newman, & Jenkins, 2010) and proportionality (Knight, Abdallah, Findeisen, Melillo, & Dowling, 2011) of the future skilled workforce.

Despite a century of vocational education reform, public school systems continue to provide separate courses for career- and college-bound students that result in a concentration of low-income students practicing routine skills and wealthier students expanding academic thought (Rose, 2016). This is at a time when employers also continue to struggle to fill skilled jobs, which make up more than half of the jobs in America (National Skills Coalition, 2018).

Developing credentialing programs at the high school level so students may work while pursuing additional education and training may result in a more diverse skilled workforce by allowing access to a variety of socioeconomic and racialized subgroups (Gordon & Copes, 2010). Preparing more high school students to enter skilled professions sooner may also provide additional supports to help industries fill their own workforce needs (Gonzalez, Culbertson, & Nanda, 2017) and support earlier stability for students entering postsecondary careers and training (Perry, DeWine, Duffy, & Vance, 2007). While it may make sense for employers to consider situating themselves globally where specific skills are already concentrated, some skills, such as those related to this study (healthcare delivery and pharmaceutical production), cannot be moved easily overseas due to delivery or regulatory restrictions.

Examples of prior efforts to create educational partnerships included groups that attempted to align individual secondary courses to specific postsecondary schools (Partnership for 21st Century Skills, 2010; Stern & Stearns, 2006), connect students to employers through internships or field trips (Lerman, 2014), and develop exploratory taskforces across broad sectors (Gonzalez et al., 2017). The joint efforts point to a belief that the complexity of the issues sustaining workforce gaps (Rose, 2011) might be better addressed through collaboration than through isolated efforts (Asera, Gabriner, & Hemphill, 2017).

Developing local professional credentialing programs for high school students would require the collaborative and interdependent efforts of high schools (including career and technical education programs), postsecondary education institutions, and industry in shared training, resources, and accountability from all partners (Doerr & Wantuch, 2000; Georges, 2012; Oberg De La Garza & Moreno Kuri, 2014) to obtain the mutual, community-wide benefits of a decreased skilled mismatch in the workforce (Jacoby, 2013) and improved social and economic outlook for students through early career entrance and postsecondary enrollment (Schwartz, 2014).

Researchers have suggested that such interdependent collaborations would benefit from further research that determines how interpersonal relationships impact the outcomes of the collaborative relationship (Bringle & Clayton, 2013), collects multiple perspectives on the relationship (Bringle & Hatcher, 2002), determines the nature of the relationship (Clayton, Bringle, Senor, Huq, & Morrison, 2010), measures the quality of the relationship (Mashek, Cannaday, & Tangney, 2007), and explores the development of the relationship (Bringle & Clayton, 2013). The focus of the present study was on comparing the development of interdependent relationships (where everyone benefits) among career and technical education programs, postsecondary education institutions, and industry (within local contexts at different phases of development) to determine not merely if groups are forming and sustaining such partnerships, but how they are doing so.

Belief in the potential of collaborative partnerships has fueled the efforts of some leaders in communities, industries, and education to work together on programs that offer reciprocal and collective benefit. The out-of-the-box thinking, strategic planning, and problem-solving involved in forming and sustaining such innovative programs require trust stemming from

relational interactions between individuals and organizations—which can be fraught with both potential and challenges. Collaborative multisector educational partnerships are intended to influence, if only in part, widespread change—for students, businesses, and communities. The stories behind the efforts in the two communities in this study to effect such change, may provide some guideposts for other communities, schools, and industries embarking on a similar quest.

Interdependence as a Theoretical Lens

Assessing and improving partnerships may be more effective when they start with an understanding that successful partnerships require “genuine, trusting relationships” (Tsou, Haynes, Warner, Gray, & Thompson, 2015, p. 2). This assertion could lead to a consideration of how such relationships are built. Rusbult and Van Lange (2008) suggest that the interdependence theory provides a basis for analyzing the trust that determines interdependence, or the influence of each partner’s motives and actions on other partners’ motives and actions.

Interdependence theory grew from the writings of Thibaut and Kelley in 1959 on group problem-solving. They continued to refine their conceptualization of the influence of interactions on interpersonal outcomes and established it as a theory in 1978. Kelley et al., extended the theory in 2003 and it continues to be used across many psychological and social domains to analyze relational influences and outcomes between individuals and groups (Van Lange & Rusbult, 2011). While the theoretical roots were tied to the examination of intimate relationships (Arriaga, 2013), the theory was designed for application to a wider range of interpersonal partnerships (Thibault & Kelley, 1959).

Weick (1979) suggests the theory could be used to study organizational processes, and it has been used to study collective bargaining, conflict resolution, coordination, communication, environment, intergroup relationship evolution, organizational process, and politics (Baron &

Kerr, 2003; Deutsch, 1973; Insko et al., 1980, 1982; Kelley & Stahelski, 1970; Kerr & Tindale, 2004; Rusbult & Van Lange, 1996; Van Lange & Joireman, 2008; Van Lange & Rusbult, 2011). Victor & Blackburn (1987) used it to examine the causes of interunit conflict and the effectiveness of the coordination strategies in complex organizations. According to Bringle and Hatcher (2002), transferring the application of interdependence theory from interpersonal relationships to organizational partnerships has helped to develop a fuller understanding of relational factors that influence group collaboration.

The key concept in interdependence theory is that one way to predict relational outcomes is by analyzing the interactions between individuals (Arriaga, 2013). Kelley and Thibaut's (1978) theory outlined how interactions depend on individual and situational factors: individual actions are continually adjusted and based on situations and interactions. Kelley et al. (2003) later extended the theory to describe the way future interactions are extended or eliminated as a result of past interactions and the need for access to feedback about interactions (Van Lange & Rusbult, 2011).

The interdependence theory includes matrix-based measurements for interdependence based on the degree to which individual actions impact individual outcomes, joint actions impact individual outcomes, and outcomes correlate between partners (Rusbult & Van Lange, 2008). According to Kelley et al. (1983), the degree of interdependence is also determined by the closeness of relationships, which can be measured by the frequency of interaction, diversity, and influence. When applied to interdependent interactions by independent groups, *frequency* refers to how often groups interact, *diversity* refers to how varied group interactions are, and *influence* refers to how interactions transform behaviors (Kelley & Thibaut, 1978).

The efforts to understand collaborative multisector educational partnerships, while related to concepts in interdependence theory, are also connected to theories outside the scope of this study, including the theory of change, social exchange theory, and conflict theory, all of which could shed light on the politics related to the attempts to break chronic patterns of social class stratification. Understanding factors of interdependence within the context of the relationships among skilled workforce employers, secondary career and technical education programs, and postsecondary credentialing institutions can help determine how multisector educational partnerships might provide wider community benefit (Karas, 2013; Martin & Gardner, 2016) through more equitable education and vocation outcomes (Rose, 2013, 2014).

The Design of the Comparative Multicase Study

This study was designed to explore factors impacting the development and sustainability of partnerships among secondary schools, community colleges, and industry through an in-depth look at the efforts of two programs involving collaboration among different sectors related to science and healthcare but employing contrasting partnership models and stages.

Research questions. The research questions guiding this study were:

- How have collaborative multisector educational partnerships been established?
- How have they fared and been sustained?

Due to its focus on contextual factors, the case study is the most appropriate design for investigating “how” questions (Baxter & Jack, 2008; Cresswell & Cresswell, 2018; Stake, 1995). Using a comparative study of efforts to form and sustain collaborative cross-sector educational partnerships in two locations with contrasting longevity and approaches to partnership may also provide generalizable insight (Baxter & Jack, 2008) into the factors that may impact similar efforts in other educational career fields. In this multicase study, I employed data triangulation

from interviews, observations, and documentation to explore complex issues within a local context in a manner that would increase the internal validity of the study (Stake, 1995).

Applying a theoretical lens to the examination of the case studies focused the analysis on the most important issues related to the research questions (Cresswell & Cresswell, 2018). The multicase study design required including participants' voices through interviews and other primary source documents and provided enough flexibility to allow all members of the partnership to take part by minimizing barriers to participation.

Study participants. Study participants were selected purposefully from two contrasting cases where secondary school districts were part of a collaborative multisector educational partnership with at least one postsecondary institution and one local employer of a skilled workforce. In an effort to maximize the opportunity to learn from, and possibly generalize to, other career fields, cases were selected for the typical, accessible, and open nature of the connected organizations (Stake, 1995). The two situations were also deliberately selected for their contrasting longevity and approaches to partnership, which could strengthen the external validity of findings (Yin, 2003). I was a key participant in the Puyallup case and the dissertation chair was a key participant in the Berkeley case. At times, this meant I had unique access to specific data and in-depth insights. The potential challenge to the research objectivity was mitigated by including multiple participants with counter opinions, a decision that exemplifies the way contextual understandings of behaviors can serve as a bridge between research and practice, which is particularly applicable in qualitative education research (Sallee & Flood, 2012).

Individuals with a direct connection to the partnership efforts of each collaborative organization were invited via email to participate in interviews. The desired participants

included members of the following stakeholder groups: higher education institutions, school districts, schools, companies, community, unions, government, and program alumni. All sets of names for each organization were identified in the fall of 2018, and an email with a written introduction to the researcher and purpose of the study, including an electronic request for agreement to participate, was sent to the active partnership members. Participants included superintendents, principals, directors, department heads, and instructors of the programs at the high schools; directors and instructors of the programs at the community colleges; managers and mentors at the healthcare and biotech employer sites; and board members of participating nonprofit organizations. For both cases, participants also included some of the original developers, coordinators, and participants of the partnership programs since a primary focus of this paper is on the startup efforts to establish sustainable collaborations. Additional participants were added to the interview list as a result of the snowball sampling approach where each participant was asked for the names of others they felt should be interviewed regarding the program and why.

Before engaging in the proposed research, research plans were submitted to the University of Washington Institutional Review Board. Before data was collected, participants were asked to consent to participate in the study (see Appendix A). The intention was to get permission to use real names of people, places, and activities. Out of sensitivity to potential institutional and individual concerns, the specific names of some people, have been masked by using generalizations to protect the confidentiality of identity. Following protocols outlined by Kaiser (2009), participants helped to resolve issues of confidentiality during their review of the findings.

Two cases. The research on the two case study sites focused on collecting data on the relational factors involved in the collaboration, as characterized in the theoretical frame for this study, and relied on interviews with individuals from each of the primary sectors and organizations involved— especially those who worked closely in either the development or implementation of the partnership—and on a variety of secondary source documents. The data collection methods and interview protocols for qualitative comparative multicase studies were followed as outlined by Cresswell and Cresswell (2018).

Case 1, Berkeley, is a small urban school district (8,000 students in K-12 in 1993; city population of approximately 110,000) in Northern California involved in a collaborative multisector educational partnership since 1993. The partnership was initiated as a result of a city-mandated legal process involving a company's desire for a comprehensive zoning variance for its site. The program was conceived by the company, but it was designed, developed, and coordinated by a new 501C-3 nonprofit corporation. The program as originally conceived comprises two years of applied classroom-based science and math instruction at the high school level, paid summer internships for high school participants, and one to two years of community college instruction tied to worksite job training in the biotechnical field, including year-round, paid, half-time co-op jobs. Students earn a high school certificate and/or a postsecondary biotechnician certificate as well as access to living-wage jobs in the field. The original partners were a K-12 public school district, a community college district, and a locally based global corporation; also involved, to a lesser degree, were the city of Berkeley, the West Berkeley neighborhood, the International Longshoremen and Warehouse Union (ILWU) Local 6, and other biotech companies.

Case 2, Puyallup, in Washington State, is a large suburban school district (23,000 students in K-12 in 2018, with a district population of approximately 149,000); the district is engaged in forming and implementing a new collaborative multisector educational partnership, as of 2018. The partnership in this community was initiated by the public school district which recognized a perpetual nursing shortage for local healthcare providers. The nursing assistant preparation program has since been developed and is coordinated through the school district. The partnership involves one year of applied healthcare classroom instruction tied to worksite job training as a nursing assistant, leading to graduates earning a postsecondary nursing assistant certificate and access to living-wage jobs in the field. Partners included a public school district, one community college, and multiple local healthcare employers.

For this study, 22 interviews were conducted (21 in person and one by phone) with people in the Bay Area and Pacific Northwest. Most interviews lasted approximately an hour and a half, and some people were interviewed a second time to follow up on additional information obtained since the first interview. Each interviewee was asked a unique set of questions concerning their background, the depth of their involvement with the multisector educational partnerships, and the knowledge accumulated over the course of the interview process, which lasted from July 2018 to March 2019. Information sought in the interviews included how the interviewee had connected to the partnership, and the key people, events, challenges, strengths, and supports, both historical and current (see Appendix B for the basic interview information questions, and Appendix C for the overarching research subquestions).

Secondary sources used for this research included many produced by the organizations involved in the partnerships. For Berkeley, the documents were primarily produced by the nonprofit and included program evaluations, foundation grant applications, newspaper articles,

1994 and 2002 strategic plans, a published story on Berkeley Biotech Education Inc. (BBEI), memorandums of understanding (MOUs), organizational websites, documented communications, informational materials, and legal documents. Additionally, I had access to original documentation of communications between the initiating corporation and the city, between the schools and the nonprofit, between the nonprofit and industry, etc.; minutes, agendas, drafts, and reports; as well as historical interviews with key players through Fern Tiger Associates (FTA) and communications to and from FTA. For Puyallup, the documents were primarily produced by the school district and community college and included documented communications, recorded participatory observations, informational materials, and legal documents. At this site, as a direct participant, I had access to original documentation of communications, minutes, agendas, drafts, and reports. Other supplemental documents were collected in both cases that provided insight on interactions, decisions, and events.

The case study comparison is divided into five chapters:

- “A Global Corporation Engages a Complex Community: City of Berkeley and Bayer AG” provides an overview of local context, corporate need, and corporate experience and an outline of the people and events involved in the development of a biotechnology training program at the high school and college level;
- “Berkeley Partnership Analyzed: Impact on Sustainability” analyzes the common themes, contradicting information, and key anomalies in efforts to form and sustain a collaborative multisector educational partnership in the field of biotechnology;
- “A School District Confronts a Perpetual Shortage: Puyallup Nursing” looks at the overarching context of the events and people that affected efforts to develop a college nursing preparation program at the high school level;

- “Puyallup Partnership Analyzed: Emerging from Roadblocks” analyzes the common themes, contradicting information, and key anomalies in efforts to form and sustain a collaborative multisector educational partnership in the field of nursing preparation;
- “Two Vastly Different Approaches: Comparative Insights from Berkeley and Puyallup.”

Analyzing the efforts to form and sustain collaborative multisector educational partnerships first requires an understanding of the stories of people and events involved. The narrative story of Berkeley is divided into six phases:

- Phase one identification: Securing a legal development agreement;
- Phase two establishment: Defining independent governance through a nonprofit;
- Phase three preparation: Developing the program groundwork gradually;
- Phase four launch: Connecting classroom and workplace labs;
- Phase five adjustments: Changing partner sites to maintain vision;
- Phase six evolution: Transforming focus with shifts in individuals.

The narrative story of Puyallup is also divided into six phases:

- Phase one identification: Searching for willing collaborators;
- Phase two adjustments: Shifting partner roles to maintain connections;
- Phase three establishment: Defining entity responsibilities;
- Phase four preparation: Hitting the ground running;
- Phase five launch: Transforming efforts and pressure;
- Phase six evolution: Emerging refinements to improve system alignment.

Data analysis. An analysis of collaborative efforts is included after the narrative stories for each site and is followed by summary comparisons of the two sites that describe common

themes, contradicting information, and key anomalies. Cresswell and Cresswell (2018) suggested that the process of analyzing the qualitative data should follow five sequential steps: collecting, organizing, reading, categorizing, and interpreting data. In this research, data collection and analysis occurred alongside the development of the findings as interviews were completed, documents collected, and observations recorded. Thematic analysis was employed to categorize and interpret data through systematic file organization, source review, theme development, accuracy review, theme descriptions, and narrative accounts (Braun & Clarke, 2006; Nowell, Norris, White & Moules, 2017; King, 2004; Auerbach & Silverstein, 2003). Finally, themes were built inductively by aggregating the data sources and categorizing them in accordance with the subquestions related to relational interdependence (Baxter & Jack, 2008).

Common themes that did not fit within the theoretical frames were considered as potential alternative or supplemental factors in collaborative multisector educational partnerships that were outside of the scope of this research (consideration of these factors is suggested for future research studies). The findings were then compared to analyze what common themes existed between the two cases (Yin, 2003). A comprehensive set of themes was then deductively examined to develop a more generalizable model of the interacting factors and perspectives (Cresswell & Cresswell, 2018). This offered potential insights for those who are also working to form collaborative multisector educational partnerships in other career fields.

Chapter Three:

A Global Corporation Engages a Complex Community: City of Berkeley and Bayer AG

“Opportunities for collaborating are arising in countless arenas in which business, government, labor, and communities are finding their actions interconnected” (Gray, B., 1989, p. 6).

Phase One Identification: Securing a Legal Development Agreement

In the 1990s, Berkeley, California, was described by some as one of the most difficult places in the world to get a zoning variance for something as simple as changing the size of a garage door. It was said that the biggest traffic jam in this small city of approximately 110,000 residents was at 7:00 p.m. because so many people were heading to community meetings at that startup time. It boasted 45 official commissions holding numerous public hearings on a wide variety of proposals each evening. Each commission was comprised of nine members, each appointed by one of the eight elected councilmembers plus the elected mayor.

It was a city known for its liberal/progressive leaning; the home of the Free Speech Movement. It supported neighborhood control and was one of just a few cities whose schools integrated before the national mandate to desegregate schools and a city whose only high school is located just blocks from the world-renowned University of California. The city is bordered on the west by the San Francisco Bay, on the east by Tilden Regional Park, on the south by the cities of Emeryville and Oakland, and on the north by the cities of Albany and Kensington. Geographically, Berkeley extends from the bay to the hills. Stratified class structures, as in many communities, led to concentrations of residential wealth in the hills as compared to the flatlands. Due to labor migration for nearby shipyard work during World War II, the population

of Berkeley grew between 1940 and 1950 from 85,547 to 113,805 with the Black/African American population quadrupling from 3,395 to 13,289 (Bay Area Census, n.d.).

Berkeley is a city with a long history of protests and activism—against McCarthyism, segregation, the Vietnam War, nuclear proliferation, and more. In 1968, Berkeley Unified School District (BUSD), in an effort to desegregate schools, implemented a two-way busing program in which students from the flatlands were bused to schools in the hills for grades K-3 and students from the hills were bused to schools in the flatlands for grades 4-6 (UC Berkeley’s Digital Humanities Initiative, 2019). In 1990, the city of Berkeley was comprised of 62.3% White, 18.8% Black/African American, 14.8% Asian/Pacific, 3.6% Other Race, and 0.5% American Indian/Alaska Native subgroups with 7.8% identified as Latinx (Bay Area Census, n.d.), but the school demographics did not reflect this. In the 1990s, the student body at Berkeley High School did not reflect either the White (19.2% underrepresented) or Black/African American (17.2% overrepresented) subgroups in the residential population, and a significant achievement gap between White and Asian subgroups and Black and Latinx subgroups continued. The student body (just over 2,400 students) was comprised of 43.1% White, 36.0% Black/African American, 12.1% Asian/Pacific, and 0.5% American Indian/Alaska Native subgroups (National Center for Education Statistics [NCES], 1990).¹

Traditional blue-collar manufacturing jobs declined in the 1980s and were replaced by retail boutiques and expensive restaurants that required the support of a service industry. Former industrial sites became gentrified neighborhoods and led to an influx of young professionals.

It was in 1990, according to Tiger (personal communication, February 13, 2019), that “Bayer AG, the global pharmaceutical and chemical giant based in Leverkusen Germany,

¹ The exclusion of the Latinx subgroup from the census data and Other Race subgroup from the enrollment data resulted in an approximate 12% difference, but the census did not account for the nearly 20% difference in general population representation within Berkeley High School.

decided to transform its aging 27-acre site in Berkeley into a state-of-the-art biotechnology division.” And although Bayer (called Miles/Cutter in Berkeley, until 1995) initially believed its proposal should be a “slam-dunk” given that this new site would double its employment, provide high-paying technical jobs in an emerging field, and would include jobs that did not all require college degrees. But the community did not agree. The plant was gated, and most Bayer workers lived outside Berkeley and commuted in from neighboring cities and from suburban communities. Only one senior administrator lived in Alameda County; no administrator lived in Berkeley. Neither the community nor the city had much knowledge about the company and thus trust was nonexistent; they did not see how the growth and site transformations would benefit them.

Prior to the 1990s there had been little to no interaction between the company and city other than occasional requests for building permits, which were few and far between. After experiencing multiple roadblocks to permit approvals related to the hoped-for expansion of the biotechnology plant, Bayer hired a local strategic design firm with a substantial history of working with nonprofits and public agencies but no experience working with corporations. FTA helped company leadership realize that they needed to be transparent in their efforts and seek to understand what the city and the community might see as beneficial. This was just a part of the broader process of winning community trust. Bayer engaged in an informational campaign for city approval of a unique legal zoning tool—a development agreement—that enables a landowner (in this case, Bayer) to supersede zoning and achieve planning approval as a result of intense negotiations to ensure that the granting agency (the city of Berkeley) receive benefits equal to and with a nexus related to what the landowner will receive. The city of Berkeley had never considered this option, despite numerous efforts by private developers to achieve this kind

of approval. Bayer was in the south and west part of the city, which was historically the home of local industry and home to the majority of families of color and lower income residents.

Prior to any official process, Bayer hosted a meeting with about 50 representatives of education and training organizations that operated in Berkeley—from the high school to an organization that trained homeless adults for service jobs. The purpose of this meeting was to determine what work was already being done by organizations in the community. It was as a result of this meeting and its follow-up session that Bayer realized there wasn't any existing entity prepared to tackle the complicated process of training young people for the kinds of jobs that Bayer (and other biotech companies) would have available. Bayer had decided early on that it did not want to fund any public entity (the school district or the city). This is why Bayer supported the establishment of a new nonprofit; and it was hoped that because its sole focus would be training high school and community college students for jobs in biotech, the nonprofit would be sustainable and not distracted by other demands.

After being scrutinized by 16 different commissions (multiple times at each) and discussed at more than 100 public meetings over the course of one year, the Development Agreement received unanimous approval by the city council at a time when it rarely agreed completely on any decision. The 1990s was also a time when the council was composed of many progressives who typically questioned the motives of big business and corporations. An industry executive interviewed noted that, remarkably, “Even some of the City Council members who were adversarial to the company saw the benefit” (2018).

After a complex and extremely transparent process, the city of Berkeley and Bayer signed the 200-plus page Development Agreement (City of Berkeley, & Miles Incorporated (1992), which included just two pages describing the company's commitment to provide initial funding

and 30-years of support for a yet-to-be created nonprofit organization that would develop a new high school and community college program for biotechnology training, which would include paid internships and co-op jobs and the potential for employment. The Agreement provided only a very broad outline of the foundational structure and allowed for a great deal of flexibility in the actual program design and educational components. However, it was stated that the program would include academic coursework and worksite experience, at both the high school and college level, to prepare students for careers and Bay Area living-wage jobs as skilled technical workers in biotechnology.

Bayer would fund a minimum of \$1.4 million (in 1992 dollars, adjusted annually for inflation and consumer price index) over 8 years, for the design and startup of a new nonprofit organization focused on serving non-college-bound youth who represented the demographics of South and West Berkeley. Students living in these neighborhoods were largely from minority and low-income households, and the education-to-employment program was intended specifically to support them. The nonprofit organization, with a totally independent board of directors, would act as an independent liaison and intermediary among Berkeley High School (BHS); science-based corporations, hospitals, and labs; the community college district (with the participating community college); and to a limited extent, the city.

The Development Agreement pointed to a partnership with the Peralta Community College District (PCCD) rather than a specific college, which would be a significant fact later. The California community college system is divided into districts overseen by chancellors and board members. The city of Berkeley is located within the PCCD, which included four community colleges (Laney College, Vista College, College of Alameda, and Merritt College),

each overseen by a president. Vista College, situated in Berkeley, was the most natural choice for the college portion of the biotech training program due to its location within the city.

Bayer was motivated for the partnership to work because it needed technical workers to fill positions with significant ongoing turnover. While Bayer was a successful, global Fortune 500 company with four global divisions (pharmaceuticals, consumer health, crop science, and animal health) located in 67 countries, its pharmaceutical division (of which Berkeley was just one site) was anxious to get into the new, emerging biotechnology field. Many pharmaceutical companies at that time could only afford to do early research and would then seek support for production, which is an extremely expensive endeavor. It should also be understood that biotech pharmaceutical development is a very lengthy process, generally taking about 10 to 15 years to get from the petri dish in the lab to being marketed. It costs upwards of \$1 billion to develop a new drug. Very few companies have the capacity to do this and it is extremely high-risk (Mullin, 2014).

Similarly, once a product is approved by the FDA, a company wants to have a workforce ready for the jobs. As a large corporation, Bayer could support both research and production within the pharmaceutical business. One of Bayer's issues at its pharmaceutical plant in Berkeley was related to hiring. Production workers already at Bayer who had advanced bachelor's and master's degrees would apply for jobs in the research side of the company as they became available rather than seeking promotions in the production side of the company.

Bayer was also unusual in the biotech/pharmaceutical arena at the time because its production workers were unionized. Thus, even during the exploration of the idea of an educational program, it was known that it would be important to assure that union members were comfortable with the plan. The goal was to create a preparation program for the soon-to-be

expanded workforce (as a result of the Development Agreement) rather than a replacement workforce. Additionally, these new employees would become union members. Due to careful communication, union members, especially the shop steward, were early supporters of the program. Although the ideas of the development agreement and the educational program were not universally loved in the Bayer organization, there was a core group that became very supportive of the concept of the education-to-employment program (at a time before school-to-work programs had been developed). Several production supervisors and managers understood the purpose and quickly signed on to hire interns, which ensured the program success within Bayer at the onset.

BHS had a history of some vocation-oriented programs, such as Project R.E.A.L. healthcare training in the 1960s and job placement and technology programs in the 1970s (Institute for Scientific Analysis, 1976), but these were gone by the 1990s. Jobs in biotech required technical training. While Bayer and other biotech companies tended to train workers with company-specific protocols or standard operating procedures (SOPs), entering the biotechnology workplace required technical training that was transferrable. There was a shortage of people trained for the jobs, and Bayer's background as a German company provided it with an understanding of the benefit of training youth apprentices.

Even so, Bayer's corporate management in the U.S. acknowledged early on that as a large corporation it had little experience dealing with young people and had little interest in working directly with public schools. It felt its job was to operate its business, and schools should deal with curriculum and academic instruction. "Stick to the knitting," as one of the corporate leaders explained. The design of the education program eventually evolved into what could be called a "collaborative multisector educational partnership" that included numerous

biotech and healthcare companies and institutions—including Bayer, the BUSD (specifically BHS), and the PCCD (initially Vista College and later Laney College)—that would be overseen and coordinated by a newly created nonprofit organization that would eventually be known as BBEI.

Phase Two Establishment: Defining Independent Governance Through a Nonprofit

After the Development Agreement between Bayer and the City of Berkeley was in place, efforts to form the nonprofit were launched. Two senior Bayer executives, FTA, and the soon-to-be executive director of BBEI convened a group of representatives, critical to the enactment of the Development Agreement, to meet as an oversight committee, which would have limited tasks and exist for a very short time. They met just three times and were tasked with three things necessary to support the creation of the nonprofit. In essence, they became the “incorporators.” The group included top level leadership from the school district, community college district, state education office, Bayer corporation, the neighborhood, labor union, city council, city mayor, city manager, and planning commission. They approved the articles of incorporation, the bylaws, and the name of the organization. In approving the bylaws, they simultaneously agreed to a particular board composition, and at the last meeting made recommendations for potential board members. Most of the participants of this oversight committee were not eligible for membership on the board because they were viewed as “parties of interest.”

The oversight committee agreed that to avoid conflicts of interest no city or school district employees would be eligible for seats on the board (which would meet four times a year) since the entities would be in the position to receive funding or had legal oversight of the Development Agreement; there would be no institutional seats on the board (only individual members so that even corporate personnel, including Bayer employees, would be coming to the

board concerned first and foremost with the success of the nonprofit as opposed to corporate interest). To enable the voices of the “involved parties,” an advisory committee comprised of school, community, elected officials, and others would provide institutional input to the board two times a year, but the advisory committee had neither fiduciary nor governance responsibilities. The nonprofit would provide annual numbers to Bayer but would work independently with partners and without a parent agency. BBEI was totally independent of Bayer, the city, the BSUD, and the PCCD. The final decision the committee made was on the name of the nonprofit organization. The original selection, BBEI, was criticized as being too Berkeley focused, but it was considered necessary politically.

Board members viewed their selection as a high honor, and the board was composed of strategic thinkers and people who would represent wider worldviews than parties involved directly in the day-to-day partnership. For example, one member who served as the chair for about 8 years had previously been a Berkeley city council member, the director of the county public health lab, and had a working knowledge of lab science. Other board members included high-profile leaders of community groups, local organizations, and industry. Board members received an orientation on their role and the history of the development agreement (as did newer members as they transitioned into the role over time). The board’s role for BBEI included providing strategic advice to the executive director, maintaining fiscal oversight and fiduciary responsibility for the organization’s budget, and as in all nonprofits, the board hired, evaluated, and could fire the executive director. The board members served as boosters of the program and provided strong support with foundations and within industry. BBEI’s role was as an intermediary among all the working partners (see Appendix D, Figure 1). It raised funds and developed its budget to include both its operations and the funding of various elements of both

the high school and community college programs (see Appendix D, Figure 2). Neither BBEI's board nor BBEI staff had control over the faculty who would be hired to teach the high school or college programs. Those personnel decisions were in the hands of the BUSD. Similarly, the schools did not have any hiring authority for BBEI staff.

Bayer and FTA had carefully considered numerous different program models prior to the development agreement—one of which involved the nonprofit running its own school, hiring its own teachers, and creating its own curriculum. But after that model and others had been assessed, they were nixed and the BBEI model, as described in this paper, became the basis for the two-page description in the Development Agreement. The nonprofit board was essential and provided wise decision-making for BBEI; it opened many doors for the nonprofit, including validity, political guidance, recruitment, vision, and more. Most important, the value of the nonprofit was that it would be solely focused on the success of this particular program and would ensure continuity, funding, and attention as compared to being within another institution which might have multiple programs to administer and lose sight of this one.

Phase Three Preparation: Developing the Program Groundwork Gradually

Once the program was established, there was a need for the detailed development of many components of the program that were not yet in place. Both the BHS and Peralta Community College needed specialized bioscience courses. Paid high school summer internships and college work-study programs had to be set up with employers. Bayer had committed to no fewer than 10 high school summer internships and 10 community college co-op jobs annually (in the Development Agreement), but often offered up to 20 of each. Students needed tutoring support and graduates needed job-search help for finding long-term employment.

Additionally, education for employer mentors was needed to help industry members understand what the program involved and what their role would be.

The executive director of BBEI had been hired initially as an independent contractor until the nonprofit was established. Bayer had hired her with the expectation she would become the first executive director (a position to be hired by the nonprofit, not by Bayer), which happened a few months later. The executive director had previous school district and program development experience, which helped move things along. But she had little to no science/tech background and was not overly familiar with the corporate environment she would need to navigate to make connections for the program. Equipped with a copy of the agreement, an office and equipment donated by Bayer, and a passion for kids, she went to work to turn the words of the high-profile Development Agreement into a bonafide program. In the beginning and for the first 8 years, Bayer donated the professional time of FTA to support the creation of the organization and its structure, and provided administrative guidance on management, public relations, grant writing, planning, and local politics so that the nascent nonprofit would be able to navigate its future.

The program would start at BHS, which is the only comprehensive public high school in the city, and which had what one BBEI leader described as a “schism between elite 4-year college-bound students from predominantly White and Asian, university educated professional families and non-college bound students from working class, often single parent, families.” BHS counselors bought into the mantra that all students needed to be in 4-year college prep courses and expressed concern that the biotech courses (special science and math) would not be accepted for admission to universities. The BHS science/math departments had been geared to align with University of California (UC) and California State University (CSU) standards. Although Berkeley High knew well that it was failing to provide all its 2,413 students with the tools

necessary for success at the university level, faculty pushed all students to seek this goal. There were virtually no other paths for students. Faculty and counselors tended to steer students toward U.C. Berkeley and other U.C. colleges, which are among the most competitive in the nation; they steered students away from community college. Additionally, school counselors lacked, according to a community college teacher, an appreciation of the savings community college could offer students coming from families living below the poverty level.

BHS had struggled to address achievement gaps, especially in science, for years. Still, when the possibility arose to begin, in earnest, a program that could help many of the BHS students who were either leaving high school early or not moving on a path to a 4-year college, the high school science faculty did not immediately jump on board to support this new program. They feared industry would tell them what to teach; they feared corporate oversight; they knew they themselves were unfamiliar with biotechnology; they didn't understand the role of this new nonprofit. Still, they also knew their students were leaving high school unprepared for work.

As BHS faculty learned more about the potential for the program, and the role of BBEI, they recognized some benefits—most significantly that this program might support C and D students who were unlikely to attend a 4-year university immediately after BHS, providing them with a pathway to economic security, community college education, and the opportunity to eventually pursue a 4-year degree, if they desired. The faculty also learned that biotech companies, in general, encourage and pay for continuing education, which could help many of the students. One program teacher believed that some BUSD administrators were not overly supportive in the beginning because they too believed that all students should go to a 4-year institution but were later impressed when they saw students working in the lab.

BHS operated like a university: each department in the school had a good deal of independence and power; the district office often had little influence on their practices. For the biotech program to be successful the science department needed to be supportive and engaged. Unlike CTE programs that begin with school or district interest, this program needed to win over the support of teachers who were not yet involved in its conceptual development. A teacher with some lab experience as a biotech research associate was the BHS science department chair the year that the program was actually undergoing detailed design and development.² The Development Agreement was built during a year of funded research and development, prior to actual implementation, because Bayer was a science-based company and because FTA realized that programs like this need time to be able to consider governance, program staffing, and curriculum—and to build necessary relationships. Since schools are not accustomed to this luxury, teachers were impressed by the consideration. BHS, together with BBEI and input from Bayer and other companies, had an entire year to figure out how to build a curriculum that would meet the state science graduation requirements and still support students who had not found success in typical academic settings, especially at a highly competitive academic high school.

While the science department chair began to think the program may be a good idea, another science teacher decided to take advantage of the Development Agreement's mandate that Bayer hire a BHS science teacher each summer as a paid "teacher-intern" to better integrate industry standards and expectations with high school teaching. The teacher was surprised by how high Bayer's standards were and how much BHS students could learn from being in this

² The former chair had been involved in the negotiations for the Berkeley Unified School District portion of the educational partnership outlined in the development agreement between Bayer and the City of Berkeley. The first time the new chair heard about the biotech program was a couple of days prior to the start of school, when the Bayer consultant showed up and started talking about needing some students for a photo shoot. The chair had no context for who the consultant was or what she was talking about, and the chair said the consultant could not understand why she did not know anything about the program. Once the chair understood what the program was about and how Bayer would financially support the startup at Berkeley High School, she said she could see what a great deal it was.

environment. The science chair and this key teacher became both teachers in, and advocates for, the program over the coming years. That fall, the teacher-intern worked with the other science teacher(s) to figure out (with input from Bayer and other science-based companies) how to make the curriculum relevant, which would ultimately include not just science but also workplace preparation (e.g. being on time, calling in when sick, communicating with a supervisor, acting professionally). One BBEI leader described the key as the high school science department chair balancing the combination of traditional teaching and content with innovation to address the issue of student achievement gaps in the department. The biotech program was designed to offer hands-on concrete learning through specially designed science classes in preparation for either employment directly after high school or for transition into the community college program. At the beginning of BBEI, the goal was 2 years of high school, 2 years of community college, and entrance into the workforce with a certificate (see Appendix D, Figure 3).

In the summer prior to the start of the BHS program in 1993, BBEI brought 10 carefully selected summer interns from BHS to Bayer as a trial. Although these students had no prior training and most would actually not be in the program in the fall, it allowed Bayer staff an opportunity to get accustomed to having high school youth at the site working side by side with some staff.

Later, an interview process was established for student interns and for Bayer staff such that Bayer (and later other companies as well) would come up with the job descriptions for the potential internships. Students would select three positions they were interested in and would get interviewed by the supervisor as well as other industry staff and BBEI. They had to fill out applications much like ones they would have to do later as they looked for real work. Everything was set up to mimic real employment situations. The BBEI executive director and program

coordinator were present at all the student interviews for industry internships, along with company representatives and BBEI, which acted as the link between the sectors.

Phase Four Launch: Connecting Classrooms and Workplace Labs

In the words of one interviewee, the program could be described as building with a “village concept” that included teachers, lab techs, tutors, and Bayer (later other companies), as well as BBEI who provided and paid for numerous support mechanisms from workshops to tutors, to field trips. Once teacher training began, BBEI paid for teacher release time for training, and Bayer and other companies donated equipment to ensure that the biotech classroom operated like industry. BBEI provided Bayer and other companies with an understanding of the world of education and the population of students that they would be working with. BBEI was also the link between industry and schools. People from industry often visited the classroom at BHS as guest speakers and invited students and teachers to visit their companies. As time passed and other companies were involved, representatives from Bayer and the other companies helped students practice interview skills. Even if the training at the high school was not perfect, when students went to their industry placements, staff members engaged them to do their specific jobs and students succeeded.

Rather than watering down expectations, teachers worked on ways to support students who had never experienced success in any science courses. The science department chair’s experience in biotech research made her insist that students needed to demonstrate proficiency in their lab skills before beginning a summer internship. Meeting these requirements meant that students had to continue to repeat tests and labs until they proved that they had mastered the material. Teachers built in student support times during lunch and after school to ensure that the students would get the assignment right and were prepared.

At one point, the BHS science department chair thought she might have killed the program. After a few weeks in class, students got so upset about continually getting work returned to be redone and redone until it was right, that there was an uproar at the end of one class. She told them that the quality of their work was unacceptable. If they didn't like this process—which was a lot like industry, where you need to do the job right—they could take the regular biology course, earn a D, and get their graduation credits, albeit with a weak grade.

It was difficult because she thought students saw her as mean and continued to resist her pushing until after their first summer internships when she said they suddenly adored her; they realized they were ready to work (even as students) in industry. The program design elements that BBEI and the BHS science chair developed to support these students included small class sizes of not more than 20 students, a paid lab tech, a caring environment, high expectations, classes that emphasized real-world work and often mimicked lab situations and real jobs, and teachers who treated students with respect. The science department chair actively taught in the program for 14 years over a 22-year span.

As each cohort of students went into their summer internships (eventually at one of more than a dozen sites) between their 11th and 12th grade years, they learned not only how to do the job but also how to conduct themselves at work. They were treated as team members by their mentors and supervisors in industry, received work evaluations that mirrored company practices, and were transformed through the experience. Students emerging from the program got hired into good paying jobs, advanced to become supervisors 5 to 10 years later, and would come back to share their experiences with new students. Many of the companies, including Bayer, that hired the students, provided tuition forgiveness for students who eventually earned an associate's

or bachelor's degrees in science as they continued work and as a part of employee benefits, and many of the BBEI students took advantage of this—earning AS and BS degrees over time.

Phase Five Adjustment: Changing Partner Sites to Maintain Vision.

Because the program would purposefully develop in a linear fashion, there was no significant contact between the high school faculty and community college faculty in the first year of the program. BBEI did however have regular, although infrequent, discussions with the PCCD. The Development Agreement assured (although did not specify which community college site) that the community college program would be in the PCCD. Vista College was located in Berkeley and was one of the four community colleges that comprise the PCCD. There was a lot of political pressure to develop the college-level program at Vista. The college did not have a science lab, which it desperately wanted, and the Vista president requested that BBEI fund the creation of a lab at the college in preparation for the program. BBEI complied and awarded Vista \$100,000 toward that effort.

As it turned out, Vista's educational philosophy collided with that of BBEI and BHS. The college developed its own curriculum independent of BBEI, BHS, and industry (Bayer). It created a level of course difficulty that the BHS trained students, now used to academic and workplace success, found intimidating. A review by BBEI's industry partners indicated that the courses designed by Vista were not relevant to the kinds of jobs envisioned by industry for entry level biotechnicians. Students in the first cohort had extreme difficulty passing these courses, in spite of help from paid tutors. They had been merged in classes with older students who were not in their cohort. At the high school, Bayer had reviewed every unit and helped determine what the required workplace competencies were and the best way to teach them to young people, but the community college appeared to have wanted to "do their own thing."

“Community college instructors in Berkeley saw themselves as a miniature U.C. Berkeley; they wanted to teach highly academic courses,” explained one BHS teacher familiar with the program. They did not understand or appreciate on-the-job training or hands-on learning as core to a curriculum. The teacher believed that, “These college instructors did not want to teach at-risk students and wanted BBEI to allow other existing adult college students into the program instead of just the BBEI high school graduates.” It was a huge challenge to find college faculty who would reflect and change the way they educated non-elite college-bound students.

The high school instruction was very concrete rather than abstract. The instruction was geared toward job-based science and math skills rather than for admission to U.C. Berkeley. While Vista talked about skills training, BBEI felt it was really working to get all students ready to transfer into 4-year colleges. BBEI helped students as they applied to Vista, signed up for classes, and toured the campus. BBEI was worried but had no choice at this late date but to move forward as originally planned (and start looking into other options as soon as possible).

The Vista program was challenging for students as they transferred from BHS to the community college. The expectation by BBEI was that the community college students would work 20-hours per week in co-op biotech jobs while taking two years of college-level applied science to get their biotech certificate at Vista. As the high school teachers observed the situation, they felt it was “too much” for most students. They felt that students were not academically prepared for the level of college work that was being demanded at Vista. The constant challenge was how to provide them more support. BBEI’s program coordinator (one of the former BHS teachers), who had joined the BBEI staff, helped provide students with transitional support. The coordinator’s motivation for the work was a deep belief in the need to

remove barriers to employment and higher education for students who were traditionally marginalized. For her, it was an issue of equity; she saw that students in the program were transformed through powerful learning experiences which built their confidence and skills.

The program coordinator realized that students would need tutors because the college had not set up the program as planned. The BBEI students were now in large classes that included other noncohort students who signed up for these courses because they saw high-paying employment options in the emerging biotech arena. Some had bachelor's and even master's degrees but were either out of work or seeking higher paid jobs. When the Bayer consultant sat in on one of the classes, she realized how the situation was complicated, but also was what Bayer or BBEI expected. The courses were very academic, and once again the students felt like failures, even though they had gotten glowing reviews from biotech workplace supervisors in their internship experiences.

The college president insisted that BBEI and BHS had not prepared students for college and they were failing. BBEI paid for tutors and a notetaker who sat in on the classes to support BBEI students; the president insisted the college was teaching students what future biotechnicians needed to know. Bayer was saying the skills these young employees needed were different from the very academic science being taught. Vista said it was teaching "problem solving for the 21st Century." Bayer said they had "protocols and standard operating procedures" and they didn't want these new employees to be doing a lot of "problem solving" on their own. BBEI had planned for the program to enable students to earn a certificate in one year by completing the focused biotech courses along with a 20-hour-a-week co-op job at Bayer and other companies. Students would still have the option of pursuing and completing an associate

degree if they wanted to continue or move on to a 4-year college. Vista would not budge on changing their curriculum and BBEI would not change its focus on job skills.

The two reached what appeared to be an irreconcilable impasse. The BBEI board of directors had been kept apprised of the situation. A professional facilitator was engaged to help get through this standoff. A meeting was set with teams of two from each of the key entities: industry, community college, high school, and BBEI. The agenda included a discussion on the perspectives and the purpose of the program as seen by each participant. According to several participants, the conflict was between sectors, tied to personalities, and resulted in raised voices and obvious core disagreements. Industry described how they had “practiced degree-based hiring in the past and found that employees needed skills-based qualifications instead.” The community college insisted that critical thinking was necessary in the real world and that the college did not want the “dead end program that both Bayer and the Berkeley High School” were excited about participating in. The differences were not mollified.

The college decided to put BBEI students into remedial courses rather than bioscience courses. BBEI realized that the partnership with the college was not going to work. Students were already beginning to talk about dropping out. BBEI insisted that the college figure out how to work creatively to help students finish the college program within 2 years so they would not drop out of the program or BBEI would not continue to fund or be affiliated with Vista. The college was inflexible, held a very different philosophy about the level of preparation needed for the biotech industry, and refused to change its curriculum. Bayer had a lot at stake in terms of fulfilling the Development Agreement commitment and needed the program to succeed.

Moreover, it was a big fan of the work of BBEI and the BHS program.

The executive director, FTA, and a Bayer executive met with the chancellor of the PCCD. The chancellor did not want a partnership with such a large corporation in an emerging industry, or connections for students to a promising job market, destroyed under his leadership. He proposed to move the program to another college in the PCCD, located in Oakland, just a few miles from Berkeley. He believed that could be a better fit, and negotiations began for setting up funding, class size parameters, and curriculum content. Although Vista was angry about the move, the college retained its new lab that BBEI had paid for and had to leave behind. All the interviewees who were active during the startup year discussed this conflict with the original community college and one described it as “a big brouhaha that took a lot of unnecessary energy” and which resulted in a lot of negative feelings all around.

With the BBEI community college program relocated to Laney College in 1996, structural and relational supports for at-risk students who were unprepared for the professional workplace or 4-year college were front and center. Laney designed biotech courses with smaller class sizes that matched the BBEI cohort size. College faculty and BBEI met regularly with the student work-study cohort, asked hard questions about their performance, and held them accountable for improvement. BBEI ensured that students were connected to social supports as needed for food, housing, healthcare, and counseling.

Moving the college program was a curriculum turning point. It forced BBEI to articulate its real mission and to exert its power as an intermediary that was able to keep its mission intact and to yield weight in the college system. There were people at the second college that understood and believed in the program intent. There were individuals at Laney who were very supportive and accessible for discussing issues, and faculty members understood the diverse and complex student needs. Their goal was to help students succeed. The college offered the

students a study skills course (which the BBEI program coordinator taught, further integrating BBEI, BHS, and the college) to make learning practices like decoding textbooks transparent.

Phase Six Evolution: Transforming Focus to Longevity

The original strategic plan adopted by the BBEI board in 1994, “A Plan for Longevity” (FTA, 1994), had served the organization well as it grew its first high school and community college program. The plan built on the original concept of the high school and community college program and focused heavily on the core programmatic as well as management needs for the small organization. But once a few cohorts had completed the full program, after the departure of the founding executive director, and as the Bayer funding was diminishing (as planned in the Development Agreement), it was time to think seriously about the future of BBEI and the high school/community college program. It was 2000 and BBEI had a strong track record, significant grant funding from impressive foundations, strong support in the community and in the schools, and had expanded to a second high school. The plan, “Planning for a New Generation” (FTA, 2002), looked seriously at the realities of maintaining a small intermediary organization, the realities of creating a replicable model, and at the need for skills training for fragile high school youth in the region. It similarly looked at biotech industry needs as well as the emerging and related needs of skilled jobs in other fields (e.g. hospital and agricultural technicians). An extensive set of findings was developed, based on one-on-one interviews with more than 50 internal and external stakeholders (FTA, 2002).

By 1996, additional program structures had already begun to materialize: more work sites, more internships, and more co-op jobs; additional industry partners had been found as a result of BBEI networking, business affirmative action concerns, connections with scientific professional organizations, community outreach, and speaking engagements; an annual showcase

of student internship projects that highlighted the program and provided opportunities for the broader community to view a poster exhibition, which promoted program benefits for sponsors and employers. Employers from diverse biotech companies served as judges, and donors provided scholarship awards. Bringing diverse players together to hear students present what they were learning provided opportunities to recruit expanded industry support.

The numerous management recommendations outlined in the 1994 strategic plan were now in place. New training events for intern supervisors were held annually and involved all stakeholders, including parents and students who could explain the history, vision, and understanding of the biotech program necessary to align the work of all of program partners and participants. Student interns were working in research and development, plasma processing, production, quality assurance, filing and finishing, and even business development departments in roles as lab assistants, operators, bio analysts, and clerks (FTA, 1995). According to in-depth interviews at the time with students, teachers, and industry partners, the multisector educational partnership was making a difference for high school and community college students, and for industry.

Evolution of funding. Bayer's funding was scheduled to decrease after the first 4 years (see Appendix D, Figure 4), although some small funds would continue for another 4 years. At the time the Development Agreement was drafted, it was determined that the most funding would be needed in the startup years before the nonprofit organization had a track record and could seek outside funding from a variety of sources, including philanthropic foundations. The idea (instigated by FTA at the onset) was that after the first cohort completed the full program, BBEI should have enough evidence to show the effectiveness of its model. At that time, BBEI would be able to supplement program operations and desired expansion through support from

philanthropic grants, fundraising, and possible government grants. One fundraising event became the annual gala benefit and awards ceremony which hosted potential high-level program donors and advocates; it also fostered increased political and financial support. Scholarship sponsors and business partners had the opportunity to learn about the BBEI education program, hear about student experiences in both academic and on-the-job training programs, recognize the efforts of award winners who had helped students, and raise funds to support the program. But this effort only netted a total of about \$20,000. The larger funding would come from foundations (approximately \$300,000 per year).

As a nonprofit whose role was to focus solely on the success of the program, after 4 years, it was in BBEI's best interest to raise money from other donors and grantors in order to receive matching funds that Bayer offered in the Development Agreement on top of the base commitment of \$25,000 per year for years 5 through 9. While BBEI was guaranteed a minimum of \$25,000 per year from Bayer, if the organization could raise \$50,000 in matching funds, Bayer would provide an additional \$50,000.

A serious effort at investigating and preparing for targeted grant writing began in 1995, earlier than anticipated. Careful research targeted four foundations located in the San Francisco Bay Area, which were interested in school-to-work style programs. BBEI had planned to reach out to foundations after the program expanded to the second high school, which had been planned for a year later, once a full cohort of students had completed the program, so that the organization could highlight enough experience to support program replication at other locations and to be worthy of funding from foundations.

This was fast forwarded in 1995 when it was discovered that one of BBEI's partner organizations (Vista) and another organization with only peripheral ties to BBEI had approached

the same funders with which BBEI was in discussion. Both claimed to be the “owner” of the biotech program or a significant player in the project. This confused funders who called a meeting with all parties and the four foundations. After listening to each of the major players (BUSD Associate Superintendent, BBEI, industry representatives, Vista, BBEI, and Berkeley Community Fund, although only Vista and the Community Fund had sought funding), each foundation decided whether or not to fund any or all of the applicants.

The three largest funders determined that BBEI had the oversight of the program and BBEI was invited to submit proposals for 3 years of operational funding; part of this was intended to support replication of the high school program and also to begin a qualitative and quantitative evaluation. It should be noted that none of the funders asked Vista to submit a proposal and only one foundation invited the Community Fund to apply for a fairly small grant. In 2001, BBEI teamed up with Cal State Hayward (now Cal State East Bay) to produce a successful grant from the National Science Foundation (NSF) which helped support the community college portion of the program and also built a pipeline to the 4-year college.

Site expansion. During the first strategic plan for longevity (FTA, 1995) the board had carefully considered whether to follow an expansion model that was deep or broad. The deep expansion model involved expanding the program into the middle school with a pre-science program that could help middle schoolers. While this idea had some good intentions, the Board decided to move with the high school expansion concept—moving beyond BHS to a second high school, with hopes that it would move soon after to a third school. The idea was to have a program at three different Alameda County school districts, all of which fed into the PCCD. Early financial calculations on program sustainability showed that if three high schools each had programs with 20 students each and even if only half of those students continued onto the

community college portion of the program annually, each community college cohort would be comprised of a minimum of 30 students and a maximum of 60 students. With these numbers coming from high schools, BBEI would not need to subsidize cohort-specific courses at the community college as it would be self-funded. Once the first expansion to the second high school (Fremont High School in Oakland) was in place, the recommendations in the plan stressed the importance of adding the third high school, and after assessing if this model with three high schools and one community college worked, to replicate the full program within a new community college district, in a community within close proximity to BBEI headquarters (Berkeley), and where there was a presence of biotech companies.

In December 1995, BBEI issued a request for proposals from public schools in a 20-mile radius of Berkeley that were interested in starting a biotech program. BBEI held a bidder's conference for the 11 schools that expressed interest in becoming an expansion site. The three finalist schools participated in intense interviews with BBEI, including meetings with principals and tours of the schools. The first expansion site, Fremont High School (FHS) in Oakland, was chosen based on selection criteria that included the presence of specific infrastructure supports, faculty biotech skills and knowledge, proximity to biotech companies, and student demographics.

The expansion to FHS in 1996 was challenging because the small BBEI staff was simultaneously spending a good deal of time addressing issues related to the change in community colleges (see Appendix D, Figure 5). FHS's familiarity with thematic high school programs was helpful (they had established a set of small schools inside the comprehensive high school), but Oakland Unified School District (OUSD) was a much larger school district than BUSD. New school, district, and industry relationships needed to be established. More

importantly, additional internships, co-op jobs, and jobsites were needed for the new program at FHS. Oakland did not have any biotech companies at the time. Still, the FHS student body reflected the demographics BBEI sought to serve, and there was a very dynamic faculty team that made the presentation. But the decision to expand to FHS took some different turns—none of which BBEI could have foreseen nor impacted.

Unbeknownst to BBEI, OUSD was starting a small schools program and the FHS BBEI program teachers broke away from FHS to form LIFE Academy. This new 4-year college preparatory high school did not truly align with the education-to-employment focus of the biotech program. In 2008, BBEI shifted the OUSD program at LIFE Academy to Oakland Technical High School where BBEI believed traditionally-underserved students would be provided support and the BBEI program could succeed.

FTA provided support to BBEI expansion efforts and during the second strategic planning period (1998–2001) asserted that a third school would provide the funds necessary to hire additional staff and that the current program coordinator would not be solely responsible for the additional work involved in expansions to additional locations (see Appendix D, Figure 6). The program coordinator did not believe this, felt adding a third school was too much of a burden, and threatened to quit. BBEI's hands were tied and they did not want to expand without the program coordinator's support. She had been a key part of the successful startup of the partnerships and program, but by then she had begun a PhD program, worked part-time at BBEI, and it was clear to BBEI that she would be leaving once her program was completed. The consultant felt the decision not to expand to a third high school and then replicate the program to another community college district could lead to the demise of the biotech program because necessary funding would be difficult to achieve without showing growth and continued success.

One teacher's impression was that the original BBEI executive director lost interest in the program when her focus had to shift to identifying and seeking funds from diverse private sources. Although that was not completely accurate, the teacher felt that foundations were interested in funding expansion, not sustainability. She believed that the number of available internships would not support hundreds of students in a given year. In retrospect, this teacher also felt that a lack of jobs to support expansion was especially an issue for the program during the 2008 market crash when biotech companies had layoffs for the first time.

In 1999, a few years after the expansion to FHS, the original BBEI executive director retired from the nonprofit, a new leader was hired, and the BBEI board decided to create a new strategic plan. Although the BBEI board had pushed for expansion, the BBEI staff resisted the efforts as well as the logic of the strategic plan and already felt stretched in their ability to provide a quality program with necessary student supports (FTA, 2002). The final 2002 plan included six goals that focused on program expansion (students, partners, and funds), support for underserved youth beyond teaching, and advocacy for STW reform. The BBEI plan to expand to a third local high school and then replicate the entire program in a new region connected to a second community college was essentially thwarted. By that time, a third executive director was in place and FTA was no longer providing guidance to the organization.

With the original executive director, first program coordinator, longtime consultant, and foundational Bayer leadership long gone, BBEI (now known as Biotech Partners) entered a tumultuous time. Concerns were rising over the sustainability of the program due to diminished funding (in part because while successful, the program was not growing and not adding new elements that would be attractive to large funders). In 2012, the board decided that it was time for another evaluation and strategic plan. Twenty years into the program, the nonprofit

organization set out to realize the original expansion and funding plan the board believed would be necessary for the continuance of the education program well beyond the completion of the 30-year agreement between Bayer and the city of Berkeley. Growth in both program expansion and communication were the key strategies outlined in the roadmap that was created as part of this new strategic plan. The executive director at the time disagreed with the 2013-2016 expansion plan and left the organization in 2014. Expansion efforts were supported by an interim executive director while board members searched for a permanent executive director willing to move in the planned direction.

As a result of the efforts to strengthen and scale the program, BBEI did expand to multiple school districts, experienced at least one program “takeover” (by a biotech company), as it was called by a recent board member, but continues successfully even though the conditions and context have changed. As of 2018, the Biotech Partners high school program (Biotech Academy) was connected to four high schools. Three high schools were outside of Berkeley (two were outside of Alameda County)—Oakland Technical (3 miles), Antioch (35 miles), and San Marin (31 miles), and the college program (Bioscience Career Institute) was in three community colleges (Laney College, Los Medanos College, and Solano Community College). The organization redefined its focus to helping students who were “underrepresented in the field of biotechnology” (Biotech Partners, 2016). While a few recent biotech teachers, BBEI board members, and industry partners were willing to share their experiences in interviews, current BBEI staff members rejected requests to discuss their perspectives on the current state of the program and partnership. The stance of BBEI in the wider STEM community today was described by some interviewees as self-insulated. As a result of the lack of access to the viewpoints from recent representatives from all partnering organizations, the focus in the

Berkeley situation has been limited to its first decade. This limitation also offers a more balanced timeframe for comparison to the newer Puyallup program.

Chapter Four:

Berkeley Partnership Analyzed: Impact on Sustainability

“We rely on faith in a power or cause that surpasses understanding to sustain us. With this foundation, we achieve our successes, when we do, with moral and political integrity; with this foundation, our successes become not just personal triumphs but victories for our entire communities” (Bell, D., 2002, p. 169).

The story of BBEI provides an illustration for the exploration of the initial research questions of interest:

- How have collaborative multisector educational partnerships been established?
- How have they fared and been sustained?

What follows is an analysis of how the relationships in the Berkeley-based partnership were established and how they fared and were sustained throughout the life of the organization, most specifically over the first decade. It also focuses on the role of the partners during challenging moments in the program’s development as well as any challenges brought about because of the partnership. The unique factors critical to the establishment of the organization’s multisector educational partnership included the impetus for the program’s creation, its unique governance structure, staffing model, and funding methods.

Berkeley Partnership Review: Unique Factors

As illustrated in the narrative, the BBEI program emerged as part of the resolution of a larger issue when Bayer (Miles/Cutter) sought to renovate its aging Berkley site to expand into biotechnology. A history of frustrating interactions with the city, as well as with the public K-12 education system, and a desire for the self-sustained continuance of an education and training program to prepare local youth for jobs in the broad emerging field of biotech (not merely for

jobs at Bayer), led to the creation of a nonprofit corporation to serve as an independent intermediary with responsibility for the development and ongoing governance of the program. Each partnering entity retained control over the hiring of staff working in that part of the program at their organization (e.g. teachers at BUSD), but the nonprofit staff had overarching oversight of the comprehensive program with the guidance of a uniquely independent board governance structure that was defined through bylaws. All funds for the program were provided to, managed by, and distributed through BBEI. Program funding was meticulously crafted to cover initial startup costs and designed with long-range funding goals that would ensure program continuance far beyond the initial legal and financial obligations of Bayer.

Berkeley Challenge: Community College Program Site

The Berkeley program faced a few distinct key challenges where it is possible to analyze how partner relationships helped or hindered, program progress, and problem solving. The earliest significant challenge involved the interactions the originally designated community college (Vista) had with BHS, industry partners, and BBEI. While individuals from each of the organizations were passionate in their belief in the preparation of students for biotechnology careers, a mismatch in the vision of how best to prepare students for entry into the job market became a giant stumbling block as the high school students readied themselves for the community college portion of the program.

The nonprofit supported BHS teachers and Bayer industry professionals in the development of a curriculum designed to support applied (or concrete) learning for students who had not typically experienced success in traditional science courses. After two years of high school training, the first cohort of students was graduating and leaving the high school program with confidence based on their newfound academic and workplace-internship success.

When BBEI students transitioned into the community college portion of the program, they entered a different and unexpected world where the focus and expectations were passionately designed but aligned to a different vision from BHS, BBEI, and Bayer. BBEI had not been able to convince Vista to adjust its focus from preparing every student for transition to a 4-year college degree program to seeing the potential for well-paying jobs after completion of a 2-year community college certificate program. Extensive time and energy were expended by the nonprofit staff members, nonprofit board, and high school teachers in communicating the vision for, and needs of, the program, but it was the involvement of industry (Bayer) that finally created the opportunity for a solution to the vision stalemate.

Bayer's high visibility and corporate clout convinced the Chancellor of PCCD relocate the program to a different community college site (Laney College) in order to make the partnership goals materialize. Bayer articulated what biotech production companies were seeking in employees and expressed dismay that Vista's goal was to prepare students with a different set of skills, scientific research skills, and for a 4-year Bachelor of Science degree. The chancellor listened. It was a happy accident that PCCD was the official partner rather than the specific community college (Vista) within that district, because that made the move to a different campus feasible. Rather than continue to fight against a different vision and struggle to retain students who might decide to drop out of the program altogether, the input from the industry partner resulted in a vertically aligned system that supported the goals of all three partnering entities—the ongoing success of students in the program. While in this situation, one partner became a source of challenge, while other partners served as strong advocates that provided impetus for solutions that would sustain the partnership and program.

Berkeley Challenge: Funding Source

Another pivotal challenge where it is possible to analyze how partner relationships helped or hindered program progress involved very early interactions regarding funding from private foundations. The competition for claiming the rights to grant funding demonstrated the lack of communication and agreement between partners about how program funding would be handled. It was a funder who had received multiple applications for grants that appeared to be for the same program, but not yet from the nonprofit with actual oversight, implementation, and management of the program, who first raised the issue of the disconnect between various partners and outside entities—all of whom were vying for funds. The foundation gathered all of the potential applicants and interested funders (who had received similar duplicate applications), plus industry, to a meeting where honest communication could help resolve the conflicting claims on program ownership. In the end, industry once again helped reinforce the role the nonprofit had in setting a vision that matched industry's need and in ensuring program implementation and success through the decision-making of the BBEI board of directors. With the question settled in the minds of these funders, the unique structure of the partnership and presence of a nonprofit intermediary opened the door to future private funding from multiple sources.

A few additional partnership benefits were realized as a result of the establishment of a nonprofit, especially in budgeting and its capacity to handle funds from external sources. Nonprofits have more flexibility than public school systems on how funds may be spent; they do not usually have or charge large amounts for overhead. Grantors and funders dislike providing money to cover organizational overhead, which is extensive in the public sector and minimal in most nonprofits. The ability to attract private funders because a nonprofit was involved helped

ensure sustainable sources of funding for the long term. It also ensured that the program would have an entity focused on securing ongoing funding to support the continuance of the program regardless of the fiscal, political, and personnel changes that could arise from year to year for other partners—especially schools.

A later decision by BBEI to allow Cal State Hayward to serve as the primary grantee for an NSF grant (albeit with many co-investigators) enabled BBEI to become familiar with the management of a large government grant without having full responsibility for the complex auditing required by NSF. Still, relying on the more experienced university to take on the grant might have prevented BBEI from being positioned to access larger grants in the near future. This decision, made as a result of the hesitancy of BBEI staff to take on the management of the grant, might have impacted later decisions that kept the organization from expanding.

Berkeley Challenge: Growth and Expansion

Once the initial partnership locations and funding responsibilities were resolved, the next crucial challenge where it is possible to analyze how partner relationships helped or hindered program progress involved growth and expansion. As described in the narrative, early program design envisioned expansion to two additional high schools within the same community college district, followed by the replication of the model—three feeder high schools to a community college—in other community college districts. The thought was that this partnership model had the potential to be created in other communities beyond the Berkeley-Oakland area and that it also might expand beyond biotech to other science-based industries. Creating the educational program through a complex partnership required innovative thinking, risk-tasking, and relentless focus by key individuals within each partnering organization. After efforts that resulted in the successful establishment of the partnership and full launch of the program at one high school and

expansion to a second high school, the board and some partnership leaders were impelled to realize the expansion goals while others expressed concern about expanding the program to other locations. Some preferred to serve students at the existing schools and to focus on the positive outcomes there.

Those who saw the value in expansion and replication viewed the hesitancy of others as a desire to preserve the current comfort level, fear of the unknown, or divided interests. Others felt that some individuals may have been wary following the community college challenges and were concerned that finding another community college district to share the vision could be an overwhelming undertaking. Nevertheless, as individuals exerted their unwillingness to be a part of further expansions it caused delays for a number of years. The continued existence of the program 27 years since its launch is evidence that the partnership was successfully sustained in some form (even if it evolved in a different manner or timeframe than originally intended). The nonprofit and its current board of directors (which does not include any members who served during the organization's first 12 years) continues to oversee and preserve the program integrity and partnerships (currently involving high schools, community colleges, and industry partners in multiple regions).

Berkeley Challenge: Transitions of Key Individuals

The most often discussed challenges that provide an opportunity for analysis of how partner relationships helped, or hindered program progress involved not just specific events, but also the loss of key individuals that often created gaps in alignment of institutional memory and vision. The changes in core leadership within each of the sectors resulted in challenges for the partnership as a whole and for each of the separate entities as they worked to maintain all facets of the program. Changes in leadership meant adjustments to relationships (personal and

professional) and engaging new personalities, which often, at least temporarily, impacted the structure and focus of the program. At one point, the threat that the program coordinator at BBEI would depart (over the possibility of expansion to a third high school) halted growth plans when the BBEI executive director could not imagine taking the next step without the support of the longtime teammate. Despite a strong mission, a carefully constructed organizational history, and an active strategic plan, some interviewees suggested cross-training would have helped preserve institutional consistency, history, knowledge, and objectives. Others explained that specific structures (including board member orientations, industry mentor workshops, and teacher training) were crucial for program consistency and continuity. Shifts in leadership sometimes led to some muddled understanding of the intended student population, program objectives, and training programs. There was a definite perception that program understanding and strength had been lost during times of each individual transition (BBEI had six executive directors in first 12 years), but ultimately the program was sustained—perhaps in part by the nonprofit structure and role of a committed, albeit changing, board of directors (bylaws limited members to a maximum of three 3-year terms), which continued to focus on fundraising, strategic directions and decision-making, and the evaluation of the program.

Intermediary Oversight Support for Sustained Partnership

The partner relationships in the Berkeley program withstood key challenges in the first decade of the program and allowed for significant continuity and consistency of the program to the present day. The partnership model, which focused on the creation of an intermediary for program development, vision, decision-making, financial control, and ultimately oversight, might be seen as the glue that sustained partnership efforts in this community. Because the interdependent relationships of the sectors involved in the educational program relied on the

efforts of BBEI, the nonprofit essentially acted as a fourth sector partner that primarily supported, and sometimes complicated, the relationships among the others.

More importantly, the reality was that the startup for this educational partnership was rooted in the political conditions that necessitated the larger development agreement, which was important to a large business in order to realize its interests. While the relatively tiny portion of the Development Agreement concerning the training program was advocated by Bayer, it was not a primary business focus and involved minimal demands. For the community, it has been the showcase accomplishment. While Bayer agreed, in the Development Agreement, to provide more expensive infrastructure (e.g. sidewalks, traffic lights, and shuttle buses to rapid transit), as well as more philanthropic commitments (e.g. childcare and K-8 science teacher grants), it was their commitment to funding the startup of the training program that was perceived by many as the greatest immediate and long-term benefit to the community. While student outcomes are outside of the limitations of this research, they are an important consideration for educational partnerships. This program has a history of strong high school graduation and certificate rates, growth in internships and co-op jobs that now include dozens of companies, and long-term career placements that involve many poignant stories of changed student life trajectories (Bhattacharjee, 2006).

The comparison between this mediated partnership and the autonomous model in the Puyallup community will provide similarities and differences that may help identify supportive factors for future efforts to establish and sustain other such complex formal and informal collaborations. While this program spans a 27-year history, this study primarily focused on details from the first decade, which were the most applicable for comparison to the newer effort in Puyallup with only a 3-year history.

Chapter Five:

A School District Confronts a Perpetual Shortage: Puyallup Nursing Preparation

“Any attempt to disturb the deadly routine of instruction is looked upon as sabotage. And the notion that the aims and functions of education should be determined in the local community by a close and continuous discussion among students, faculty, administration, and citizens is so visionary that it is not even seriously considered” (Ferguson, C.W., 1948, p. 31).

As described in the introduction and methods portions of this paper, the author of this article serves as the CTE director for the PSD and is therefore a key participant in the pre-nursing program.

Phase One Identification: Searching for Willing Collaborators

Puyallup is a sprawling suburban community that has emerged from a long rural history. The city of Puyallup is nestled on the south against the steep forested hills at the base of Mt. Rainier and is bordered on the north and east by the wide Puyallup River, which spills into Tacoma’s Commencement Bay on the west. While the city consists primarily of valley land and a sliver known as South Hill, the school district expands to the hills on both the north and south edges of the downtown floor.

The land was the ancestral home of the Puyallup Tribe of Indians, who were known as “spuyaləpabš,” which means “generous and welcoming behavior to all people (friends and strangers) who enter our lands” (Puyallup Tribe of Indians, n.d.). The Puyallup village was an important trade center for native tribes, situated on the river bank near the shores of the Puget Sound, with wood-framed long houses that served as permanent dwellings near an old-growth forest with eight-foot high ferns (BOLA Architecture + Planning, 2007).

Washington Territorial Governor Isaac Stevens forced leaders of nine Puget Sound Indian nations (Nisqually, Puyallup, Steilacoom, Squaxin, S’Hamamish, Stehchass, T’Peeksin, Squi-Aitl, and Sa-Heh-Wa-Mish) to sign the Medicine Creek Treaty (Treaty with the Nisqually, Puyallup, etc., 1854) and give up their lands in exchange for a small amount of money, the retention of traditional hunting and fishing rights, and relocation to reservations.³ The PSD was founded the same year, 1854, but no schools opened until 1861 (BOLA Architecture + Planning, 2007). Four students attended the first school, which was run by Emma Carson in her home—the army-built blockhouse “Fort Maloney” (Puyallup School District, 2019a).

The Homestead Act of 1862 encouraged the settlement of western lands by offering the ownership of 160 acres of public land to families who filed a land claim and completed 5 years of continuous residence (Library of Congress, 2018). In 1862, Ezra Meeker purchased a claim, 20 acres of which he platted to establish a town in 1877. The longstanding tribal village was soon replaced by a city, which eventually named streets (e.g. Pioneer, Meeker, and Stewart) and schools (Meeker Elementary School, Stewart Elementary School, and Carson Elementary School) after the White landowners who took possession of native lands.⁴

³ Local tribes objected to the pressure to agree to the treaty; some refused to sign, many resisted the move, and the Native American War of 1855-1856, under the leadership of Chief Leschi, broke out against the Washington territorial authorities, U.S. soldiers, and settlers (Kunsch, 2006). The tribes surrendered in 1856 when Chief Leschi, the Nisqually tribal chief, was captured (Caldbeck, 2012). Chief Leschi was hanged in 1858 for a wartime “murder” that the Washington State Senate exonerated him of in 2004 (S.J. Mem’l 8054, 2004). Although nearly all of the settlers had temporarily fled the area during the hostilities, they continued to arrive via ships and the Oregon Trail through the remainder of the 1800s, clear the land, and transform the valley tribal village into the city of Puyallup.

⁴ The primary crop of the settlers was hops, but a series of economic losses in the hop industry as a result of lice in 1892, the national depression in 1893, and prohibition in 1919, led to the conversion of farms from hops to bulb flowers (90% of which were daffodils) and berries in the 1920s. The new crop led to the emergence of a canning industry in the area that processed nearly 15 million pounds of fruit in 1933. By the 1940s, berries grown in the rich floodplain soil accounted for about one-fifth of the U.S. berry production—with distribution supported by the commercial railroad route that came directly through the city. While agriculture was the primary industry in Puyallup, early industries also included lumber mills, woodworking plants, brick manufacturers, and the largest beehive factory in the Western states (BOLA Architecture + Planning, 2007).

As in other U.S. communities with a settler history, people from non-White European backgrounds faced discrimination and racism. In the 1860s to 1880s, Chinese immigrants were recruited for low-paying jobs as laborers (e.g. harvest, logging and railroad), but endured forced expulsion from Puyallup in 1885 during a national depression (University of Puget Sound, 2018). Local tribal nations had additional land seized to make room for the Ft. Lewis military base on the edge of Puyallup just prior to World War I (Denfeld, 2008); Japanese-Americans were detained in an internment camp in Puyallup during World War II;⁵ and in the 1960s and 1970s tribal leaders led nationally publicized “fish-ins” along regional rivers, including the Puyallup, to protest police action limiting their tribal fishing rights (Northwest Treaty Tribes, 2017).⁶

The postwar decline in demand for Puyallup agricultural products (primarily berries and bulbs) and growth over the next four decades of nearby industries such as manufacturing and technology (e.g. Boeing and Microsoft) led to the conversion of farming fields to support the housing and shopping demands that came with the rapid expansion of the Seattle suburb. The population in the city of Puyallup grew from 1,184 residents in 1890 to 7,889 residents in 1940;

⁵ What is now known as the Western Washington Fairgrounds served as an internment camp, “Camp Harmony.” The U.S. Army forced Japanese Americans from the Seattle and Tacoma areas to assemble at the crowded camp until they were relocated to prison camps. The forced expulsion ordered by President Roosevelt (executive order 9066), began in March of 1942, and those evicted were sent to converted “fairground, racetrack, and livestock pavilion sites” like the Puyallup Fairgrounds the Wartime Civil Control Administration (WCCA) planners had designated as temporary “assembly centers.” One WCCA civil control station was set up in Puyallup where families were registered and given 5-digit identification numbers (e.g. family 10702, family 10915) and arrangements were made to store or sell their possessions. Families were bused to Camp Harmony where tar paper roofs did little to protect those crowded in the barracks from the spring rains. Unsanitary conditions also led to frequent health epidemics. A shortage of farm workers led to the recruitment of Camp Harmony inmates to volunteer for harvest labor—they harvested 25% of the Idaho beet crop that year. From June to October of 1942, interned families were transferred to the Minidoka relocation center via trains (Fiset, 2008).

⁶ Billy Frank, Jr. led the civil disobedience movement related to treaty fishing rights. Organized “fish-in” civil disobedience demonstrations were held daily in the 1960s and 1970s. The Boldt decision of 1974 restored fishing rights to federally recognized tribes. Judge Boldt’s decision in *United States v. Washington*, 384 F.Supp. 312 (1974) affirmed that fishing rights belonged not only to the tribes as a whole but also to individual tribal members. Washington State’s resistance to the Boldt decision led to the need for the U.S. Supreme Court ruling that also upheld the treaty fishing rights (Chrisman, 2008).

by 1941 the PSD included 31 schools and 19,800 students (BOLA Architecture + Planning, 2007). The continued demand for more suburban homes led to a housing industry increase of about 40% between the 1990s and the 2010s (BOLA Architecture + Planning, 2007). Some housing developments within the PSD are planned for as many as 4,000 homes (Charaba, 2017). In 2018, Puyallup was the 9th largest school district in Washington State with nearly 23,000 students and a PSD population of approximately 149,000—only 37,000 reside within the city limits (Puyallup, 2019b; Suburban Stats, 2019).

Rapid growth brought demographic shifts and historical racial tensions within the community, which spilled over into the public schools. Racially-charged incidents during the 1999–2000 school year (e.g. harassment, slurs, assaults, graffiti, and blackface) led several families to file a civil rights class-action lawsuit against the PSD (Pemberton-Butler, 2000). The district agreed to a settlement in 2002 that involved a \$7.5 million payout, changes to district policies and curriculum, the creation of the Office of Diversity Affairs, and staff diversity training (Roarke & Heckman, 2002). The focus on serving the educational needs of all students within the PSD became the primary focus for healing a community that, according to the PSD superintendent at the time, was no longer small or rural (Pemberton-Butler, 2000).

The PSD enrollment continued to grow from 19,617 students in 2000 to 22,831 students in 2018. Student demographics also continued to shift from 82.8% White, 5.6% American Indian/Alaska Native, 5.1% Asian/Pacific Islander, 3.7% Latinx, 2.8% Black/African American subgroups in 2000 to 58.8% White, 17% Latinx, 12.6% Two or More Races, 5.2% Asian, 4.0% Black/African American, 1.5% Native Hawaiian/Other Pacific Islander, and 1.0% American Indian/Alaskan Native subgroups in 2018 (Office of the Superintendent of Public Instruction, 2019). Rather than agriculture, the two largest employers within the city were now the PSD

(13.9% of workforce) and MultiCare's Good Samaritan Hospital (12.7% of workforce) with all other local employers having about 2% or less of the workforce each (City of Puyallup, 2019). It was not surprising then that a recent effort to support the transition of a wider range of students into local living-wage career fields would start as a result of the connections between these two entities.

In 2015, the PSD superintendent served on the local hospital board, where he was involved in repeated conversations concerning the chronic need for nurses in the community and the chronic shortage of nursing slots in local colleges. He was struck by the question of why the system that produced the shortage continued to be perpetuated. The PSD had preparatory healthcare occupation courses that seemed more exploratory in nature, and students were not leaving with the ability to effectively access highly rigorous nursing programs. The idea of aligning the capacity of the school district with the capacity of postsecondary institutions and need in the healthcare sector stuck in his mind. In 2016, when he hired a new CTE director, he moved the idea forward by sharing the goal of building a nursing preparation program in the three comprehensive high schools.

The plan was to figure out a way for the school district to disrupt the cycle of perpetual shortage by creating a collaborative educational program. The PSD had experienced some success with partnerships that specifically created access to postsecondary education. A direct matriculation program, Pathway to Promise (PTP), had been developed between the PSD and the Tacoma campus of the University of Washington (UWT) that met an identified need for each organization. UWT hoped to grow its enrollment and the PSD wanted to provide students an option for guaranteed matriculation to college. PTP grew quickly to serve nine school districts, but all of them were duplicate versions of singular partnerships (i.e. K-12 schools to community

colleges or community colleges to employers). The new nursing program would entail the coordination of multiple entities and would first require understanding the goals of each potential partner.

The ambition within the PSD CTE program was to develop a collaborative multisector partnership with a local public postsecondary institution (Pierce College) and a local healthcare employer (MultiCare) to help address the complex issue of the nursing workforce gap, which could not be solved through traditional singular partnerships. This idea impacted all three entities in different ways, and it had the potential for negative community repercussions for a population of about 120,000 district residents. The PSD knew that MultiCare needed to solve its nursing shortage, believed Pierce College would benefit from increased direct matriculation of students into their programs, and assumed the formation of a collaboration would be welcomed by both organizations.

The school district was focused on ensuring industry-level student career preparation for, and entry into, living-wage jobs. The CTE director was working on ways to embed stackable postsecondary career credentials into middle school and high school courses. The nursing preparation program provided numerous opportunities for ongoing education (e.g. direct matriculation to 2- and 4- year colleges) and career advancement. Together, the PSD superintendent and director approached Pierce College and MultiCare leaders to learn about their needs and to discover if there was a willingness to partner. In both cases, the PSD leaders met with polite dismissals of the idea.

Approaching Community Colleges

Instead, it took a full year before the school district found an interested local community college partner for the nursing preparation program. Pierce College, the only college located

within the city, had been approached first about partnering to build a nursing preparation program in the high schools. The first joint meeting between the PSD and Pierce College in the fall of 2016 resulted in a resounding message that such a program was not feasible. The college leaders politely shared that it would not be possible to find qualified instructors, there were not enough clinical spaces available to support more students in the region, and the nursing commission would not approve it. Because the superintendent and CTE director did not accept the conclusions of the college administrators, they continued to seek another path.

Around the same time, the PSD was exploring ways to reduce the need for agency hires to fill its nursing positions in schools. If current school health-room staff members were able to gain advanced nursing degrees, they could be placed in positions that were filled by agency nurses. The need for an educational partner to provide approved Washington State nursing commission credentials, nursing and pre-nursing, for both employees and students within the PSD led to increased urgency and determination of efforts.

While the CTE director worked on state program approval, the PSD nursing administrator researched the nursing commission's requirements for becoming an approved nursing program, reviewed available curriculum options, and gathered the locations of existing programs in the state.

In the spring of 2017, the PSD discovered that a college in another county, Lower Columbia Community College (LCCC), had a distance learning nursing credential program that could support the professional advancement of school health-room staff and also had a pre-nursing program for high school students. The CTE director contacted the LCCC to explore a potential nursing preparation partnership. The LCCC administrators expressed interest in a discussion and scheduled a time for PSD administrators to visit the campus. During the meeting,

LCCC shared a willingness to consider an educational partnership with the PSD for the advanced healthcare training of both employees and students but encouraged the PSD to continue to seek a more local option. This was the first positive sign indicating the possibility for the development of a program partnership.

In the fall of 2017, the CTE director reached out to the college nursing program director at another local community college—Clover Park Technical College (CPTC). Representatives of the nursing program from the college had rejected the idea during a conversation at a 2016 Chamber of Commerce event because they said that the PSD should be working with Pierce College (which had already denied the partnership request). The CTE director became aware that the nursing program director would be interested in this kind of partnership and wondered why no one had approached her yet. An email exchange between the two directors was followed quickly by a meeting that included the nursing assistant program director on the CPTC campus. The interest on both sides to collaborate was immediately confirmed.

The following week, a meeting was held among the president of CPTC, a college dean, a college recruiter, the school superintendent, and the CTE director. The CPTC president wanted to understand how the two organizations might create more meaningful connections between the PSD and CPTC for students in the Puyallup area. The superintendent discussed the PTP partnership the PSD had developed with UWT, the PSD desire to partner with a community college on the nursing assistant certification (NAC) program, the goal of creating a pipeline for students wanting meaningful healthcare careers, and options for students to earn as they learned once they matriculated into a community college to complete a nursing degree. The group agreed that the CPTC dean and PSD director would work together to determine partnership options with common programs in the two institutions. Soon after, in late 2017, the CPTC

nursing program director and CTE director began to exchange drafts of memorandums of understanding about the proposed nursing preparation program.

Approaching Industry

MultiCare was the first healthcare employer the PSD approached for potential partnership in the fall of 2016. The superintendent and CTE director met with the chief human potential officer and the director of workforce development of MultiCare. Knowing both the stories and data about the local nursing shortage, school district leaders were surprised that the healthcare system insisted they only needed nurses at the registered nursing level and that that a high school nursing preparation program would in no way support their needs. MultiCare encouraged the PSD to focus on more exploratory healthcare career programs that would inspire students to enter the field later. The human resource team followed up with an email politely thanking the school district team for the discussion and attached a copy of a workforce training report that they said would show there was no need for any nursing professionals below the level of registered nurses. It was the same report from which the district administrators had found evidence of a workforce need for healthcare professional preparation at all levels to support the eventual development of registered nurses. The two school district leaders decided to continue to work on finding a direct connection within Good Samaritan Hospital (GSH).

Soon after a partnership was being developed with CPTC in December 2017, a GSH executive expressed interest in finding a way to partner with the school district on the NAC program and met with the CTE director at the beginning of 2018 to discuss the potential partnership. The executive shared her connections to high school programs in former hospitals and her own experience as a high school Health Occupations Students of America leadership student who competed nationally. The GSH executive expressed enthusiastic interest in

supporting the entry of high school students into healthcare careers and working with other hospital nursing leadership to consider how to develop the partnership with the PSD and CPTC.

Phase Two Adjustment: Shifting Partner Roles to Maintain Connections

In an attempt to connect the CPTC to the hospital, the CTE director arranged a February 2018 meeting among leaders of the three organizations (MultiCare, CPTC, and PSD) to facilitate collective conversations about the NAC program. After introductions were complete, the group went over a brief summary of the program and partnership goals and the status of the program development so far, and they began discussing potential ways to partner.

More specifically, both the GSH and CPTC officials described the terms required by their organizations for working with the PSD. The hospital needed their nursing staff that would be supporting instruction in the classroom to feel comfortable about having students in the hospital during clinicals. The college required that the teachers of the program be employees of the CPTC. The hospital suggested that their nurses could volunteer alongside the teachers in the classroom and wanted access to the program curriculum.

The CPTC team reiterated that the instructors in the classroom had to be approved by them and hired by them and stated that the curriculum had to remain their property. CPTC expressed concern over the complexity of the hospital onboarding process and available clinical opportunities. The hospital team described ways they might decrease the typical onboarding requirements as a result of having their staff involved in the classroom and how having hospital nurses alongside students could allow for access to clinical opportunities. CPTC explained their requirement to have their instructors in the classroom and alongside students during clinicals.

The interactions were described as tense by several participants.

The groups left with an agreement to go back to their individual organizations and consider how the challenges of clinicals and instructional oversight might be resolved. The district promised to share the course frameworks with the hospital and continue to work with the college on instructional program development. A week later the CPTC nursing program director sent the CTE director an email regarding concerns about working with the healthcare system. The program director of high school nursing preparation had to be from CPTC; the instructors had to be hired by CPTC; and the curriculum could only be shared between CPTC and the PSD.

While the PSD thought it would be possible for the hospital to provide the necessary clinical experiences for students and develop future employees for MultiCare, it quickly became apparent that CPTC did not share that belief. The CPTC nursing program director communicated confidence that the program could launch in the fall of 2018 and detailed concerns about working on a partnership with MultiCare. In addition to hesitancy about the onboarding process for students, the CPTC nursing director expressed new concerns about whether the hospital setting could offer students opportunities to practice the full range of required clinical experiences. She was also unsure that groups of students would be allowed to stay together closely enough during clinical experiences for supervision by approved program instructors.

With the growing gulf in compatibility between MultiCare and CPTC, the PSD paused efforts to establish a specific clinical site until work on the memorandum of understanding between the CPTC and PSD was complete. After such a long search for a willing college partner, the fear in the PSD was that continuing to push for the partnership with MultiCare might jeopardize the partnership with CPTC. There were other potential healthcare industry partners in

the community CPTC was comfortable working with, and the PSD decided to revisit the conversations with GSH once more details about the NAC program had solidified with CPTC.

Once the instructional program design had CPTC approval in August of 2018, the CTE director reconnected with the GSH executive to set up a meeting to work on possible connections with the hospital for at least a portion of the clinical experiences. MultiCare and PSD teams discussed the progress of the high school program setup, the submission of the nursing commission applications by the college, and efforts by MultiCare to simplify onboarding. The hospital executive asked if a copy of the textbook and class schedule could be provided to her team so they could meet and determine how to set up their portion of the partnership—especially for spring clinicals. After the PSD provided the requested materials, no further communication was received from the nursing executive (who, it was later discovered, had resigned), and MultiCare sent the PSD a message to contact them about required documentation for student clinicals.

With the disappearance of the primary advocate for the partnership from the hospital and uncertainty about a committed clinical site to support the nursing commission program application, the CTE director and CPTC nursing directors agreed that the PSD would reach out to a variety of long-term care facilities in the city to see if alternative partner sites could be found. The CTE director reached out in emails to facilities, prior to visiting the sites, made in-person introductions at sites, and followed up with meeting requests with sites that expressed an interest in participating. On one of the visits, the CTE director met with the director of nursing care services at a large long-term care facility, Puyallup Nursing and Rehabilitation Center (PNRC), that was centrally located in the school district. The PNRC nursing director was enthusiastic about working with CPTC and the PSD to provide strong clinical experiences for

students. During a site tour, the CTE director noticed how positive and happy the staff members and patients seemed in their setting. The PNRC director described spaces where the teacher and students could meet and store belongings. She also described ways the facility could offer required vaccinations for students who might need them and the ability to take students from all three schools rather than just one. While the CTE director continued to work on opportunities for collaboration with GSH, the assured ease and enthusiasm for partnership at the PNRC secured it as the initial clinical site necessary for establishing the program.

Phase Three Establishment: Defining Entity Responsibilities

Once the clinical partner (PRRC) was tentatively identified in August 2018, other issues requiring coordination and agreement among and between entities remained unresolved. While those in the human resources, finance, and instruction offices in the PSD worked together closely on decisions, the same responsibilities at CPTC were more departmentalized. Further, decisions within the healthcare system also involved layers of institutional review and approval. With just a short preparation window for the fall program launch, these negotiations had to occur at a fairly rapid pace and in many instances simultaneously with active preparation. CPTC and the PSD worked to define details that would need to be included in the MOU for the partnership (i.e. hiring, oversight, and finances).

It was decided that the NAC program would be offered at the three comprehensive high schools in the PSD under the umbrella of CPTC (which already had a training program on their campus, approved by the Washington State nursing commission). This meant that although the instructors would be part of the teaching staff in the high schools, their employment would officially be with the college, and they would need very specific nursing credentials and experience. This was a new type of arrangement that the school district had to implement with

care. The PSD human resources department needed to consider how to handle potential union concerns about hiring new teachers from outside the school district and how to establish protocols for district intervention if the need for resolution of any college instructor performance issues arose.

Due to the difficulty in finding instructors for NAC programs, the community college welcomed the district's willingness to work on recruitment, screening, and selection. Once potential teachers were identified, the community college would screen them through the nursing commission for approval as instructors, they would be hired by the college, and the district would place them as contracted agency hires in the schools. The CPTC nursing program director provided the CTE director with details on the required teacher credentials and a sample teacher contract so the district could start searching for qualified candidates. A quick survey of the current Puyallup teaching staff confirmed that no one had the credentials required to teach the program, so no current teacher would be eligible for the positions, but the plan was that the new teacher hires would continue working in the high school programs in future school years as well.

After learning that planned launch of the nursing assistant program was set, the principal of one high school immediately expressed a desire for the current school nurse (and former health careers teacher) to be hired for the position there. There was some concern that she could not document the required amount of recent long-term care experience given that she had been a school nurse, but her ongoing work experience supporting medically fragile students eventually resulted in her approval. The second full-time instructor who would teach at the other two high schools was found through an internet advertisement on Indeed.com.

The district chief assessment and accountability director suggested this job-posting avenue because it had been a successful resource for finding school nurses. As the CTE director

received applications she forwarded them to the nursing coordinator who had expertise in selecting school nurse candidates. After screening and interviewing potential candidates, an individual was recommended for hire. This LPN had already taught in a NAC program at the college level and had a 100% student pass rate. Once both instructors had been selected, their applications were submitted to the nursing commission by the college.

While CPTC worked on acquiring teacher and program approval from the state nursing commission, the PSD worked on gaining similar approval from the state Office of the Superintendent of Public Instruction (OSPI). The CTE director had gathered copies of curriculum frameworks from other high school nursing preparation programs across the nation as references for building the required frameworks that would be sent to OSPI for approval as a high school program. It was in early conversations with an OSPI supervisor that she was advised to start with a NAC program before considering building a higher level LPN certification program. The CTE director developed a draft framework for OSPI to review, but the state course approval could not occur until CPTC received state nursing commission program approval for the high school sites. The OSPI supervisor assured the CTE director that the two state agencies worked closely on district healthcare program approvals, so the coordination of approvals would basically be simultaneous events. This relationship and reassurance served as a significant support later during a critical course approval delay.

With both teacher applications submitted to the nursing commission and a memo of understanding nearly agreed upon, presentations regarding the proposed partnership were made to the board members of both the district and the college in May of 2018. The local newspaper began to ask for information on the program. Administrators from both organizations expressed

positive expectations for the potential partnership and both the CPTC and PSD boards provided their approval of the continuance of the efforts to partner.

Efforts to partner were proceeding amicably, but there was an ongoing financial issue that held up the formal agreement necessary for further progress on the program. The school district was concerned about the changing indirect rates described in the variety of MOU drafts from the college. The college finance department had moved from an indirect rate of 44% to 11% to 30% to 49%, which ranged from \$15,000 to \$83,000 in additional fees beyond the facility, materials, instructor, and nursing director costs that the district had already agreed to cover. The CTE director insisted that a contract with more than \$15,000 in extra annual fees could not be sent to the school board for final approval. The CTE director explained the reasons for her stand with the college finance department to the PSD superintendent. The superintendent discussed the concerns with the CPTC president, the finance issues were resolved, and the MOU was accepted and signed by both organizations in May of 2018.

Phase Four Preparation: Hitting the Ground Running

After the program agreement between the college and district was official, CPTC submitted the initial program approval applications for each of the three high school sites to the nursing commission in July 2018 and provided lists of the necessary program supplies to the PSD so the physical preparations for the program could begin. Within the school district, internal interdepartmental planning had already started on facility needs, budget considerations, classroom spaces, and student recruitment.

The summer of 2018 was spent purchasing the required equipment and transforming classroom spaces at the three participating high schools into replicas of clinical spaces with the guidance of PSD structural engineers, administrators, and teachers—as well as CPTC. Finding

appropriate classroom spaces was complicated by the requirements of an existing sink and electrical support for six hospital beds. High schools were already overcrowded, and every space was being used to accommodate the ongoing enrollment increases as a result of rapid population growth within district boundaries. Principals worked strategically with the CTE and operations directors to select classrooms that could work until permanent nursing classrooms could be built. Short timelines created intense pressure in the PSD to prepare for site inspections and program approval required by the nursing commission prior to the start of school. It took dozens of employees to work on the summer delivery and assembly of the supplies and equipment that would transform classrooms into replicas of clinical spaces.

The two teachers selected by the school district for hire by the community college had many questions about the terms of their employment (e.g. pay, benefits and schedule) while they waited for the official CPTC hiring and onboarding. While the CTE director and instructors had direct access to information from the human resources department in the PSD and the nursing program directors at CPTC, the human resources department at the college were the only ones with the knowledge to answer benefits and compensation questions for the incoming instructors. It took several months for the contract details to be outlined for the instructors, which made them uneasy about the security of their promised positions. Both instructors expressed the need for access to pay and benefit documentation while they waited for actual contract drafts. Multiple emails and phone calls among several individuals in both organizations eventually led to a basic common understanding of the benefit offerings, contract timing, and pay guidelines for the positions the college would fill within the high school through their hiring process.

Questions around contract pay and working hours may have been complicated by publicly contentious contract negotiations between school districts and teacher unions, which

resulted in strikes across Washington State and delayed the start of the 2018–2019 school year in Puyallup. Two court cases—*McCleary, et al. v. State of Washington* (2002) and *Janus v. American Federation of State, County, and Municipal Employees Council 31* (2018)—had created a perfect storm for contract negotiations between teacher unions and school districts. It was an even more sensitive topic for the NAC program teachers who would be hired to work in the PSD but who would not be represented by the Washington Education Association (WEA), the state public K-12 school teacher union, as they would be employees within the community college system instead.

Two families, several school districts, and teacher unions filed a lawsuit (*McCleary, et al. v. State of Washington, 2002*) against Washington State over the state constitutional statement that “it is the paramount duty of the state to make ample provision for the education of all children residing within its borders, without distinction or preference on account of race, color, caste, or sex” (Washington State Constitution, Article IX, Section 1). The allegation was that the state (and the legislature) was not adequately funding public schools and instead forced communities to supplement state funding with local levies to run basic education programs, which provided more money for schools in areas with a richer property-tax revenue base (Mishkind, 2012).

The state Supreme Court agreed and ordered the legislature to fully fund public K-12 education by 2018 (*McCleary, et al. v. State of Washington, 2012*). In an effort to pressure the legislature to make progress, the state superintendent of public instruction filed a lawsuit against seven school districts for funding basic education with local levies, and when the state failed to develop a detailed plan on how it would meet the 2018 deadline, the state Supreme Court issued an “unprecedented contempt ruling against the state” (Cornwell, 2016).

So, by the 2018–2019 school year, the legislature had completely redesigned the public K-12 school funding model, eliminated the state teacher salary schedule, restricted the use of local levy funding, and provided disparate levels of state funding to districts (Morton, 2018). While the legislature publicized that it had fully funded education, others disagreed as did an editorial that stated, “Instead of fully funding the basic needs of teachers and children in our classrooms, the state decided to play a bunch of semantic and legal games in order to weasel out of their constitutional duty” (Cruickshank & Stinson, 2019).

In another recent court case, the U.S. Supreme Court *Janus* decision had removed the ability of public sector unions to require the collection of union dues (*Janus v. American Federation of State, County, and Municipal Employees Council 31*, 2018). Teachers work in what has been considered a relatively “undercompensated field” (Reville, 2018, p. 28), their unions needed to find a way to retain the third of their membership they were predicted to lose (Goldstein & Green, 2018), and school districts wanted to provide competitive salaries that were sustainable (Needles, A., 2019).

One headline “‘We’re screwed.’” (Morton, 2018) painted a picture of the pending implementation challenges for school districts, which were reflected in contentious local contract negotiations and teachers’ strikes for the 25% raises the WEA leaders encouraged union members to seek as a result of the influx of state funds (Geigenmiller, 2019). Because the new funding failed to cover many educational costs beyond basic education (e.g. special education, textbooks, nursing, and counselors) school districts argued that they would face “massive budget deficits” if they agreed to raises (Geigenmiller, 2019). After a 3-day strike, the PSD, like other districts, reached an agreement with questionable sustainability (Needles, 2018).

With the start of school finally scheduled, the CTE director worked with a state CTE program supervisor to consider multiple options for maintaining district program compliance while waiting for nursing commission approval. Rather than starting students in an already approved healthcare course and then transferring them into the nursing course once it received approval, the program supervisor said she would contact the nursing commission directly to see what could be done, considering the start of school was less than a week away. The necessary state-level healthcare official requested details on the application trail and, after it was provided, the high school NAC program was issued temporary nursing commission approval as well as state course approval on the first day of school. The NAC program within the PSD had its official launch on September 10, 2018.

Phase Five Launch: Transforming Efforts and Pressure

With the school year finally underway, the pressure to establish the multisector educational partnership in time for a fall start was replaced by new pressures. Community attention, both internal and external, was high. Local administrators, community members, media, and government officials expressed interest in the partnership that led to the development of the NAC program because of the way it provided overlapping individual, sector, and community benefit.

Teachers and students hosted visitors on an ongoing basis throughout the first semester of the program. Stakeholders wanted to show their support by visiting students during class and interacting with them. Communication about the program and partnership was a critical component for reinforcing and sustaining both; the publicized feedback was always positive; and the directors of each system continued to express how smoothly things were going, considering all the complications they experienced in the launch.

Now that responsibilities were defined and structures were in place, the focus was on supporting the students, teachers, and schools implementing the new program to ensure that it would be successful. In the short term, it was important that teachers had access the supplies they needed to run the program (e.g. electronic gradebook, office supplies, and laundry services). The more critical focus was on how to support students who would not have traditionally selected a 4-year nursing preparation pathway, but now had access to a rigorous certification program that could support their entrance into the nursing profession pathway through employment and direct matriculation into a 2-year college program.

Due to the training requirements of the state nursing commission, the course had specific attendance and exam benchmarks that had to be met before students could move to the lab and clinical portion of the course. The course had to fill two of the six course slots in the typical student class schedule in order to meet the necessary instructional, laboratory, and clinical hours for certification. Students were not used to such rigid requirements for ongoing enrollment in courses, and high school teachers, administrators, and counselors were facing a new burden to enforce test pass rate requirements. Staff from the PSD, CPTC, and PNRC expressed a desire to help students reach their goals for entry into the nursing field through both jobs and further education. High school teachers also shared fears of letting the community college down if expectations were not high enough to ensure student success in clinicals and final exams.

The pressure to realize student outcome goals for a nearly 100% certification rate was imminent, but there were also the longer-range goals of ensuring students were connected to jobs and ongoing education in the field after graduation. Additionally, there was a need to develop internal connections to the other healthcare career courses (e.g. Anatomy and Physiology, Medical Terminology, and Introduction to Medical Careers) in the school district. The ultimate

CTE goal is to design genuine districtwide career pathways rather than standalone courses. The ongoing challenge is to develop relationships between the teachers of the nursing preparation program and the teachers of the other healthcare career courses, who lacked experience working alongside each other within the same building.

Events of nature, like weather, also resulted in stress that was uncontrollable but might have been anticipated. The number of instructional and clinical hours must be carefully recorded by teachers for each student in the NAC program, so power outages and snow delays created added stress for both teachers and students because they resulted in missed instructional hours. Makeup times were needed to meet time requirements, and details on how teachers would schedule or be compensated for additional time were not outlined in the contractual hiring agreement. The school district was able to flex some designated work days to compensate for the additional time teachers would need to work, but it was clear that the annual MOU would need some revision to provide future clarification for similar circumstances.

Phase Six Evolution: Emerging Refinements to Improve System Alignment

The first significant challenges began to surface as recruitment efforts for the second cohort began in January 2019 and the first semester grading results approached. Breaks in redundant communication between and among individuals in key roles in each system surfaced as an initial challenge that required clarification of the information needs within each organization and recalibration of plans that improved the support of interdependent relationships. Early communication breakdowns tended to result in the unintended exclusion of at least one key individual on critical information, which created confusion about what was needed in the classroom, resulted in missed opportunities to strengthen program support, and led to temporary tension in some relationships.

One example of such a communication gap occurred during recruitment efforts in early January 2019. Individualized student recruitment plans were developed at each school prior to winter break to help provide students, counselors, and administrators a clearer understanding of the program now that the first year was underway. After break, scheduling issues led to adjustments in the dates of the NAC recruitment events by teachers, but others within the school (e.g. students, counselors, and administrators) were unaware of the changes. The specific issue was resolved by clarifying who the multiple people were (PSD office, school offices, CPTC, and PNRC) who needed to receive future notices about information that concerned individuals from each organization.

More importantly, the bigger realization by key individuals in PSD, CPT, and PNRC as a result of situations such as this one was that NAC program teachers (and most individuals in each of the organizations) were not yet familiar with the dynamic needs in all three settings: K-12 public school, community college, and healthcare industry. Additionally, while some relationships between individuals were established based on trusting transparency, other relationships between key individuals were still developing. The need for an orientation on the decision-making structures and communication norms within each organization for all individuals in key roles became clear during times of misunderstandings, which led to temporary tensions due to different expectations.

An example was when parents and students raised concerns with the program grading. Student participation in the program was contingent on the agreement to sign a student MOU with CPTC that outlined a grading and attendance policy that was more stringent than that of the PSD. While parents and students knew and agreed to abide by the requirements, the reality of

how that impacted student grades at the end of the semester led families to question the fairness of the college requirements.

The PSD and CPTC worked together to discuss possible options to handle the difference in grading policies between the college and district. It was decided that two sets of grades would be recorded—the high school grade and the college program grade. Student high school transcripts would not be impacted by artificially lowered test grades due to missed tests, and the official college program scores would determine whether students were qualified to continue in the course during the second semester—as required by the nursing commission for participation in the program laboratory and clinical experiences. Moving forward in the course would still be completely dependent on the official college and program grade recorded for nursing commission purposes.

Other differences among college, district, and nursing systems concerned curriculum modifications and student accommodations. While a reader could be provided for a student as a test accommodation in the CPTC nursing assistant program, time extensions and test modifications could not be given due the nature of the certification requirements. Clear information needed to be provided across the schools about what prerequisite skills a student needed to have to be successful in the course and the available accommodation limits within the accredited college program.

Near the halfway mark of the school year, there was concern that over a third of the students would be lost in the transition to the second semester due to academic performance. This was a concern about how students transitioning out of the program would be supported by the PSD during the second semester and the implications for student screening and entry into the program's second cohort. Again, the newness of a highly regulated college program on the high

school campus led to the need to clearly outline to students and their families the danger of removal from the program's second semester if they could not meet the average grade requirements of the college program. When the final semester exams were scored, all but one student had scored over 78% on the final exam and were eligible to move on to the laboratory and clinical portion of the course second semester. The differences between the college and high school requirements and, more specifically, the certification regulations led to misaligned expectations that had to be understood and resolved in order to realize program success for all.

The two program instructors came with different teaching experiences, one as a nurse who had taught in K-12 briefly and the other as a nurse who had taught in the college setting. Each teacher had a clearer understanding of one of the two systems they were now a part of. The unique experiences of the individual teachers enabled them as a team to consider the supports and requirements of each system as they supported each other and refined the program for the second year. Their ability to support each other and the program was evident as they began to develop common documents for communication and worked together to ensure that the community college, clinical site, district office, and school administration were all included in major decisions on public messaging (e.g. parent letters, student contracts, and recruitment guidelines). High school teacher efforts to collaborate also led to a variety of changes to student recruitment and expectation communication—for students and their families.

With the addition of interactions within the partnering clinical site, there is an expectation that additional institutional learning will continue to occur within the school district where this is the first experience of such a regulated learning partnership experience for students in the healthcare field. Although the district has worked with manufacturing apprenticeship partners, those have been managed primarily through an independent nonprofit apprenticeship agency.

The experience of participating in a collaborative work among the clinical site, college, school administrators, and district office within the multisector educational partnership model without outside intervention and support is still in an infancy stage. Many unknowns exist on what opportunities and challenges in the partnership will arise as students enter clinical experiences. New connections have also been made with the local director of the hospital healthcare system partnership, which may lead to nonclinical opportunities at the hospital site connected to student celebration and recruitment.

Chapter Six:

Puyallup Partnership Analyzed: Emerging from Roadblocks

“Whatever our passion, we encounter detours, roadblocks, collateral difficulties. The challenge is to get beyond these inevitable barriers” (Bell, D., 2002, p. 27).

Like the Berkeley story, the Puyallup story serves as an illustration for the exploration of the original research questions of interest:

- How have collaborative multisector educational partnerships been established?
- How have they fared and been sustained?

What follows is an analysis of how the relationships in the Puyallup partnership were established and how they fared and were sustained through key challenges. Like Berkeley, the unique factors critical to the establishment of the Puyallup collaborative multisector educational partnership included the program impetus, governance, staffing, and funding.

Puyallup Partnership Review: Unique Factors

As illustrated in the narrative, the Puyallup program emerged from efforts by the school district to prepare students for direct transition into the local nursing career field, which employers said had a perpetual workforce shortage. Without a nonprofit that could mediate and oversee the program partnership, individual organizations created autonomous three-way agreements for shared oversight of the program. Special program staff (e.g. NAC program teachers) were selected collaboratively to operate primarily in the high school and clinical sites but would be hired and evaluated by the community college as required by the additional layer of oversight from OSPI and the state nursing commission. Program funding (see Appendix D,

figure 7) was negotiated among CPTC, PSD, and PNRC to support the initial startup and long-range goals and to ensure ongoing sustainability for each partnering organization.

Puyallup Challenge: Search for Partners.

The Puyallup program also faced key challenging moments where it is possible to analyze how partner relationships helped or hindered program progress. The first and most significant challenge involved the interactions during the search for partners. While individuals from each of the organizations were passionate in their belief about the preparation of students for the nursing career field, a mismatch in the vision concerning which students should be prepared and how they would be prepared became a huge obstacle for establishment of a partnership in Puyallup.

The school district leaders envisioned a high school nursing preparation program that would encourage wider access to the nursing career field for youth through authentic entry with a certificate that would offer multiple routes to advancing toward a career as a registered nurse. The healthcare providers and community college leaders saw the need for increasing the number of local nurses, but their viewpoint was that this increase would need to come in the form of registered nurses from baccalaureate programs rather from a program designed to launch students into the career field starting in high school. This viewpoint focused on increasing the output from traditional program paths for developing nurses and discounted the potential value of an alternative high school avenue. Finding organizations that would be willing to partner required finding individuals in key roles in the entities who were tenacious innovators. Once those individuals were identified, it was possible to develop an aligned vision and goals that made program development progress possible.

Puyallup Challenge: Funding Negotiations

Another pivotal challenge for the Puyallup program involved the interactions between partners, as in Berkeley, concerning funding. The difficulty in negotiating a tiny, but significant, detail regarding the indirect rate that would be paid to CPTC by the PSD demonstrated the lack of direct communication and agreement between and among partners about how funding should be handled. Initial MOU drafts from CPTC program directors included fees for the PSD that provided greater revenue for CPTC than expenses but were still sustainable for the PSD to pay from enhanced CTE funding. Later in the negotiations, those with financial oversight at CPTC continued to adjust the indirect rates upwards to align them to specific internal policies regarding the use of campus space by outside programs. This resulted in wildly varied indirect rate proposals depending on who was negotiating the rate for the college during each draft. Indirects were fees designed to cover administrative and building maintenance costs at CPTC, but the administrative costs were already included in another portion of the financial agreement, and the facilities being used were within the PSD and clinical sites, not the college site. This lack of institution-wide understanding and alignment was a sticking point that stalled the partnership agreement and program preparation for months. The strength of the connection between the directors at CPTC and the PSD helped the leaders remain committed to finding a solution, and it was the unique relationship between the superintendent and college president that led to the ultimate resolution. Without the amicable agreement on this small, but critical, portion of the MOU, all of the other work to create a multisector program could have fallen apart due to the lack of financial sustainability for all entities involved.

Puyallup Challenge: Clinical Site Adjustment

Once the funding responsibilities were resolved, the next crucial challenge for the Puyallup program involved interactions regarding the need for an adjustment of partners. Although two-way relationships and understanding were positive between the school district and the community college, and also between the school district and the hospital, initial attempts to bridge a three-sector relationship was fraught with tension. Individuals in key roles at CPTC wanted to protect the integrity of their own program and avoid onboarding complications with the hospital. MultiCare questioned why there was such hesitation on the part of CPTC to involve the hospital nursing staff and site in the program. Once the person who had primary responsibility for access to the hospital site left her position, it was clear that more effort would be required to establish a working relationship among all three organizations than was possible in the short timeframe before the program launch. A shift to a clinical site that could quickly and unequivocally commit to support the basic CPTC program structure requirements was necessary. While the ultimate connection to the hospital would continue to be worked on, the goal would be to first find another individual at MultiCare who could help build a bridge between the systems.

Puyallup Challenge: Union Events and Concerns

Political events that impact public school funding resulted in specific challenges connected with the initial program launch in 2018. As described in the narrative, basic education funding was in an upheaval statewide; public employee unions were fighting to retain their membership nationwide; and the PSD and teacher union were engaged in tense contract negotiations. This was not the ideal time to hire externally-contracted teachers—both in terms of relationships with current teachers and in explaining to teachers in the nursing preparation program why they had to accept contracts outlined by the college rather than those negotiated

with teachers within the district. Fortunately, the community college was sensitive to the tense climate in the high schools and worked closely with the school district to provide a comparable contract.

The delay in getting information about contract specifics led to repeated moments when the selected teachers felt so unsettled that they considered walking away from the program before it started. Much of the reason for the delay in contracts was the financial holdup in the MOU but having a draft contract and benefit information to refer to during the wait would have been reassuring to the teachers. Calming the contractual concerns involved several daily communications among the teachers and multiple departments in the CPTC and within the PSD. The strength of the individual relationships and communications helped weather systematic unknowns until they could be officially clarified.

Puyallup Challenge: Autonomous Oversight Support for a Sustained Partnership

The partner relationships in the Puyallup program overcame key challenges in the initial formation of the program that allowed for ongoing refinement in response to and in anticipation of evolving needs. The partnership model, which recognized the need for flexibility in program design and partnership participation, was a factor that helped establish the program in this community and prepare for its future sustainability as long as the community need for nursing field preparation continued.

The startup of this educational partnership was rooted in finding a solution to a community-wide issue—broadening the access for underrepresented youth to access a high-demand career with a family living wage. Rather than focusing solely on increased advanced placement courses and singular college-for-all visions, which limit student options, this nursing preparation program was to provide multiple entry points for students into the healthcare field.

The NAC will provide access to immediate jobs in the community and will serve as a stackable credential that meets the prerequisite requirements to continue education by transferring into licensed practical nursing or registered nursing programs at 2- or 4-year colleges. In a community that is striving to remove barriers to meaningful careers for all students, the design of this collaboration between sectors serves as a potential roadmap for other opportunities. More importantly, it recognizes the need to include the wider community to resolve interconnected challenges.

The comparison of these autonomous partnership relationships to those in the mediated model in the Berkeley community will look at similarities and differences which may help identify factors that could support future efforts to establish and sustain other such complex formal and informal collaborations.

Chapter Seven:

Two Vastly Different Approaches: Comparative Insights from Berkeley and Puyallup

“I am convinced that the people . . . are the only ones capable of transforming society. It’s not just another theory” (Menchú, R., & Burgos-Debray, E., 2010, p. 289).

Differences between Berkeley and Puyallup

While there are key differences between the Berkeley and Puyallup partnerships (most notably the mediated versus autonomous governance structures), the primary finding of this comparative study was that individuals, rather than institutions, matter. The relationships between organizations in collaborative multisector educational partnerships are important for establishing and sustaining programs that will meet reciprocal needs and provide wider community benefit, but the unique relationships between individuals in key roles within each organization are critical factors for success.

The Berkeley and Puyallup cases differ in governance partnership structures (mediated vs. autonomous) as well as in the impetus, startup time, and longevity, as described in the analysis of each site. The Berkeley case study looks at the first decade of a 27-year collaborative multisector educational partnership, whereas the Puyallup case study involves just three years of partnership efforts and is only in its first year of implementation as this paper is being written. While the companies in the biotech industry are highly regulated, as in the Berkeley situation, the individual qualifications are also very highly regulated in the healthcare industry, as in the Puyallup program. The Berkeley program emerged as part of the resolution of a larger issue that involved a city and a large corporation and led to a program that aims to transition high school students into a certificated program and high-paying jobs in a high-demand career field. The Puyallup program arose from efforts by the school district to support students in the attainment

of a certification during high school that would allow for immediate transition into a high-demand career field with a family living wage and direct matriculation into 2- or 4- year college. Despite the differences in the impetus for the partnership and program development between the two sites, both programs were intentionally designed to achieve wider community benefits and with the goal of increasing underrepresented populations in particular career fields.

The independent board governance structure of the mediated partnership in the Berkeley case provided program funding and decision-making oversight with the intention of ensuring self-sustainability of a very clearly defined program model. In the Puyallup case, it was the autonomous three-way agreements for shared oversight that allowed for flexible development of a program that once established could be launched under tight deadlines, revised as needed to meet current realities, and adapted rapidly as the need arises. Both structures (and the relationships within them) had strengths and challenges which helped and hindered efforts to establish and sustain their collaborative multisector educational partnerships.

Commonalities between Berkeley and Puyallup

The Berkeley and Puyallup stories offer a comparative illustration for the exploration of the original research questions of interest:

- How have collaborative multisector educational partnerships been established?
- How have they fared and been sustained?

Both efforts went through five similar partnership phases: identification, establishment, preparation, launch, and evolution. This is true even with the limited implementation timespan within the Puyallup program. A surprising commonality between the two sites was the addition of an adjustment phase for each program as a result of the need for a shift in one partner. In both cases, the shift involved a change in community colleges selected. In Puyallup, it also involved a

change in the planned clinical site. The ability to identify and shift partners was critical to the establishment of the program in Puyallup and the sustainment of the program in Berkeley.

Another finding in the study relates to the primary finding that individuals matter; it was the presence or absence of individuals in key roles that led to the need for shifts of partners in both studies.

Thematic analysis of the collected interviews and secondary documentation led to the identification of five major themes regarding partnership-effort strengths and five companion themes concerning partnership-effort challenges. The themes, which were described as both strengths and challenges in both the Berkeley and Puyallup cases, include structures, relationships, communication, tenacity, and vision.

Structures

The Berkeley site had purposefully and methodically established structures that were described as strengths when they were present and as challenges when they were fragile. Part of the Berkeley partnership model that may have led to this phenomenon was the investment of time and money Bayer provided for program development prior to implementation but actually started sooner than in the Puyallup situation. Bayer's position as a science-based company with deep financial pockets provided both the financial backing and understanding of the need for time to complete the program research and development, which was commonplace in their work. In comparison, the Puyallup site also had purposefully flexible structures established to allow for a short implementation timespan and rapid adjustments as needed. The missing structures were described by interviewees as challenges when they were initially faced and as strengths once they were developed and adapted collaboratively when needed.

Relationships

Both the Berkeley and Puyallup sites had carefully developed relationships that were described by interviewees as strengths when they were present and as a challenge when individuals in key roles were lost. Relationships between organizations were highly dependent on the relationships between individuals in key roles within each organization. When relationships between individuals in different organizations were close and reciprocal, they resulted in optimism and energized the efforts of the partnership. When relationships between individuals in the same organizations were one-sided, combative, or nonexistent, the results were frustrations that stalled the efforts of the partnership. A key finding on the impact on these partnerships was that it was the presence or absence of positive relationships between individuals that were the primary factors that necessitated major partner shifts at each site.

Communication

In the Berkeley and Puyallup situations, communication was described as both a strength and a challenge depending on the circumstance. In Berkeley, communication between partners was described as a positive whenever it was present, except in the case when Vista had a different vision and goal for the program. It was the misaligned vision that led to the communication frustrations among multiple individuals within organizations. The loss of relationship between individuals in key roles during transitions at the Berkeley site also created challenges when new and existing collaborators lacked a shared understanding of the program. In Puyallup, the direct and immediate access to communication with individuals in key roles was described as positive, but it was described as negative when it took a long time (sometimes months) to get specific information that could be obtained only from supporting departments within partnering organizations. There were also issues in Puyallup when critical communication was sometimes provided to key individuals in only one organization rather than

all and was complicated if communication stopped at or skipped key individuals within schools. Once a plan at the Puyallup site was developed as to how to ensure all necessary individuals were included in key communications, the challenges related to missed information and misinterpretations were greatly reduced.

Tenacity

Tenacity was described as a concept, rather than a specific term, at both sites. Tenacity was a strength when it was applied to realizing an innovative effort; it was a challenge when some individuals tenaciously desired to maintain the status quo. The strength was described when individuals and groups acted with tenacious innovative thinking to make things happen or overcome obstacles; in contrast, the challenges were described when individuals appeared to be tenaciously resistant to growth. Tenacity made things happen regardless of circumstances and required a willingness to take risks and seek growth. Tenacity could also result in people wanting to avoid further innovation once a level of satisfaction was reached.

Vision

Particular individuals or organizations within both case studies were always described as having a passionate purpose or vision. Passionate vision was seen as a strength for partnership efforts when visions were aligned and as a challenge when they were misaligned. Almost every expression of pride or enthusiasm about the partnerships was tied to a vision of the impact on students. Every organization and individual discussed by interviewees were acknowledged to have exhibited strong vision. It was the misalignment of vision about who, where, or how to serve students that created challenges in the relationships between individuals in different sectors.

Conclusions from Findings, Limitations, and Recommendations

The key findings from the two sites provide some answers related to the research questions of interest:

- How have collaborative multisector educational partnerships been established?
- How have they fared and been sustained?

Two very different programs, within two unique local contexts and with two distinct developmental influences, share commonalities that point to some conclusions that could serve as useful guideposts for other communities considering developing complex collaborative multisector educational partnerships. These two partnership sites established and implemented such partnerships through five similar phases: identification, establishment, preparation, launch, and evolution. They both experienced a major partnership challenge that required an additional adjustment phase to shift partners. They both survived specific challenges (e.g. finding partners, working with partners, and agreeing on funding) due to the strengths in structure, relationship, communication, tenacity, vision, and key individuals with passionate commitment to excellence within their field. The same categories also hindered partnership efforts as particular challenges were faced when these factors were missing or misaligned.

Both programs continue: there are years of evidence that the program in Berkeley, even if it has changed to some extent, it has been sustained; efforts at the Puyallup site are still relatively new, and so it is impossible to know at this point whether or not the governance structures of the programs will result in different long-term outcomes. This could be a subject of follow-up research after a few more years have passed and multiple cohorts have matriculated from Puyallup.

Ultimately, however, relationships between individuals in key roles at each organization had the greatest impact on partnership efforts. That conclusion seemed so obvious that I almost discounted its importance because I was seeking information on what impacted the ability of organizations in more than two sectors to develop complex and collaborative relationships. As I listened to the stories and experiences of the individuals at both sites, reviewed secondary documents, and processed the pivotal events they each went through, I realized that organizations are not alive; rather, they are influenced by the collective lives of individuals. It is not surprising that individuals in key roles influenced the direction of each organization and each program. At times of role transitions, communication and transference of information to new individuals was key to ongoing partnership stability. This implies that individuals selected for key roles within organizations should be those with awareness of the need for system structures, belief in the importance of relationships, cognizance of the need for communication, history of demonstrating tenacity, and a vision that is aligned to that of the organization. It also implies that partnering organizations should be those that employ individuals with similar attributes in key roles.

Methods for the objective evaluation of these five traits in potential job candidates extends beyond the scope of this study but could offer important guidance for executives seeking to develop and implement collaborative multisector partnerships. The conclusions from this study would benefit from the extension of future research that defines how to measure these attributes in individuals. In the case of mediated collaboration, such as in the Berkeley situation, individuals hired within such an independent nonprofit are hired primarily for this purpose; in cases such as the one in Puyallup, individuals hired likely have other primary roles and the consideration of their ability to form collaborative partnerships might be a secondary

consideration. From these two examples, the implication is clear that collaborative efforts to connect multiple sectors would benefit from the assignment of such individuals to the efforts as their primary responsibility and that their efforts would be enhanced by work experience in more than one of the fields engaging in collaboration. Additionally, individual attributes mentioned repeatedly by interviewees as helpful included concern for the needs of stakeholders in all systems (especially students), ability to communicate clearly, and dogged determination to realize goals.

More importantly, the bigger implication is individuals in key roles within organizations should be obligated to consider the political, social, and historical systems that create barriers making it difficult for some students to reach their full potential, realize their dreams, and find meaningful inclusion in our communities. Rather than supporting some with a limited college-for-all mantra, we need to be considering multiple entry paths into the careers that provide meaningful options-for-all. The broader purpose for the partnerships in both Berkeley and Puyallup was to influence that type of systemic change in the communities the partners belonged to and hoped to serve. While there is some evidence in the two communities that collaborative efforts may have had impacts on individuals within the various organizations (especially in terms of the willingness to consider other collaborative efforts), there is little evidence that the institutions (e.g. schools, school districts, colleges, businesses) themselves were motivated to change in broader ways.

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Appendix A

Participant Recruitment and Electronic Consent

Dear [NAME],

My name is Maija Thiel, and I am a doctoral student at University of Washington Tacoma. I am working on a study about educational partnerships between schools, employers, and community organizations. I got your name from [INSERT]. As part of my research, I have been speaking to individuals connected to [PROGRAM] from inception to the present. [NAME] referred me to you because of your role as a [ROLE] in [ORGANIZATION]. Your experiences with this program are of extreme interest to me, and I'm hoping you will share your story and your knowledge of [ORGANIZATION] with me.

I am happy to answer any questions you might have about the nature and format of the interview. It will be informal and there is no need for you to do any preparation. The interview will last approximately 60-90 minutes.

I'm hoping to hear back from you soon so that we can set a date for the interview at a time that works best for you. If I don't hear back within a week, I will reach out again.

I look forward to connecting with you,

Maija Thiel
Doctoral Student
University of Washington Tacoma

Appendix B

Collaborative Multisector Educational Partnership Interview Questions

Interview questions will be designed and adapted to align with specific roles within specific organizations encompassed within this study. Follow-up probes and interviews may be requested for clarification or increased understanding.

Interview Information: (recorded by interviewer)

Interview date and time, interview location, interviewer name, and case study site.

Audio Interview Consent Agreement:

Do you agree to being audio taped during this interview that will be used to gather information about educational partnerships that will be published in a research study? The recording will be kept for approximately one year and will be securely stored on University of Washington drives. After the data is collected and transcriptions are made, the recordings will be destroyed.

Professional Involvement:

Have you always lived in [*location*]? [*if not, probe for were moved from and what year*]

Can you give me little context about your professional journey?

How did you get involved in [*program name*]? [*probe for role if not described*]

Community/Industry Context:

How would you describe the [*location*] community?

Have there been significant changes in the community over the past 20 years?

How would you explain the [*biotech/healthcare*] industry?

How has the industry changed over the years?

Have these changes necessitated changes in the workplace? Jobs? Preparation? How so?

Program Context:

How would you describe [*program name*]?

What is the history of [*program name*]?

What was the motivation for starting [*program name*]?

What, if any, specific issues were being faced at the time of startup that impacted the structure, content, direction, etc. of the organization and program?

What organizations are currently involved in [*program name*]?

Were other organizations involved over time? [*probe for roles if not described*]

What do you know about if and why some organizations are no longer involved?

What, if any, role has the broader community played in the program?

How well informed do you think the community is about the program?

Has there been any government involvement? If so, how?

Program Structure and Leadership:

How is [*program name*] funded? Budget? Key contributors?

How is [*program name*] governed?

How are decisions made for *[program name]*?
What protocols are followed regarding decision-making?
How would you describe the leadership of the program?
Has the leadership changed over time?
What impact has that had on the original goals of the program?

Relational Context:

How would you describe the relationships between the various organizations involved in *[program name]*?
Are these relationships different today than they were in prior years? How?

Strengths and Challenges:

What benefits does *[program name]* provide? [*probe for whom if not described*]
What do you think the key strengths of the program are?
How has *[program name]* sustained itself over time?
What key challenges has *[program name]* been faced with over time?
What are the current challenges for *[program name]*?

Closing Question:

Who else do you think should be interviewed regarding *[program name]* and why?
Would you be willing to answer follow-up questions at a later date, if needed for clarification?
Would you be okay with this information being included in other future use about this educational partnership such as in presentations or publications?

Individual Demographics: (self-identified by interviewee)

Age: 18-25 26-35 46-55 56 or over

Gender:

Ethnicity:

Appendix C

Collaboration Research Subquestions

Interactions

1. How frequent are the relational interactions between organizations?
2. What methods for relational interaction are engaged in between organizations?
3. What influence do relational interactions between organizations have on decisions and behavior?
4. How have interactions impact the effectiveness of the collaboration?

Structures

1. What are the structural demographics within the organizations?
2. What is the nature of the structural leadership and decision-making within the organizations?
3. What are the legal structures of the organization?
4. How have structures impacted the effectiveness of the collaboration?

Participation

1. How shared are the actions of the organizations?
2. How shared are the purposes of the organizations?
3. How shared is the responsibility of the organizations?
4. How has levels of shared participation impacted the effectiveness of the collaboration?

Overall

1. What recommendations do you have for improving this group?
2. What do you think is working well in this collaboration?
3. What else would you like to share?
4. Who else do you think should be interviewed regarding this program and why?

Appendix D

Figures

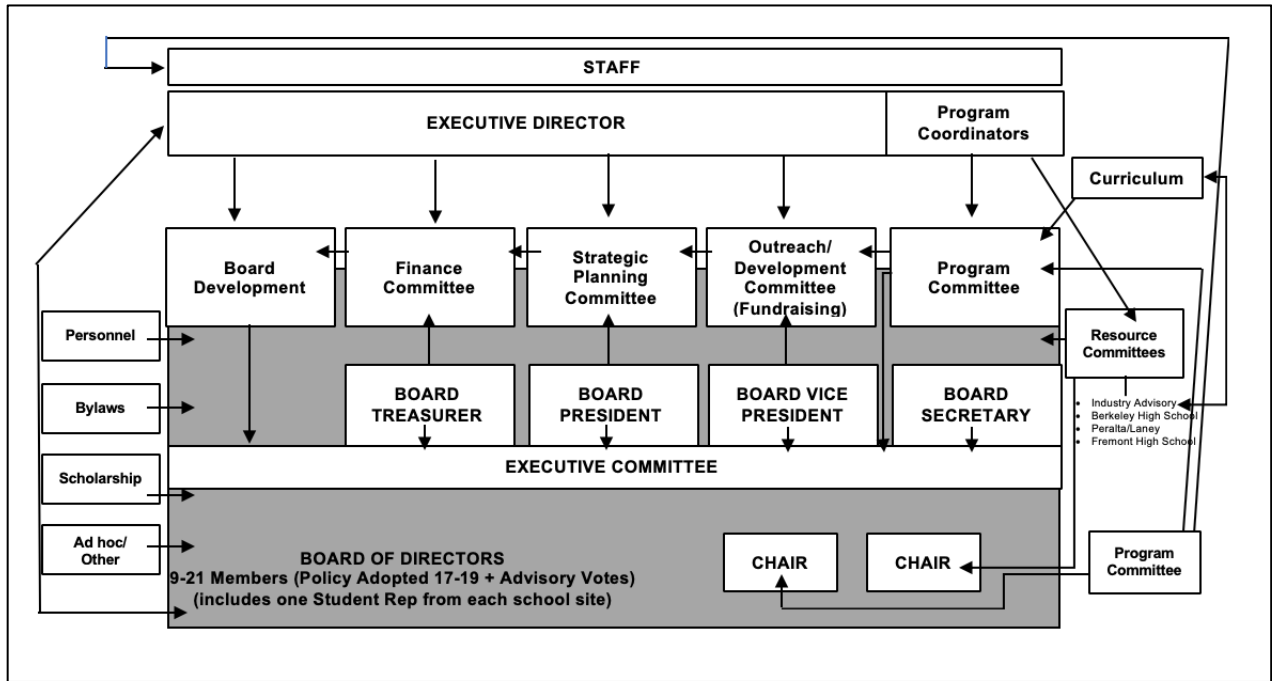


Figure 1. Berkeley Biotechnology Education Board Structure. Adapted from "Board Structure Chart" by Fern Tiger Associates, 2001.

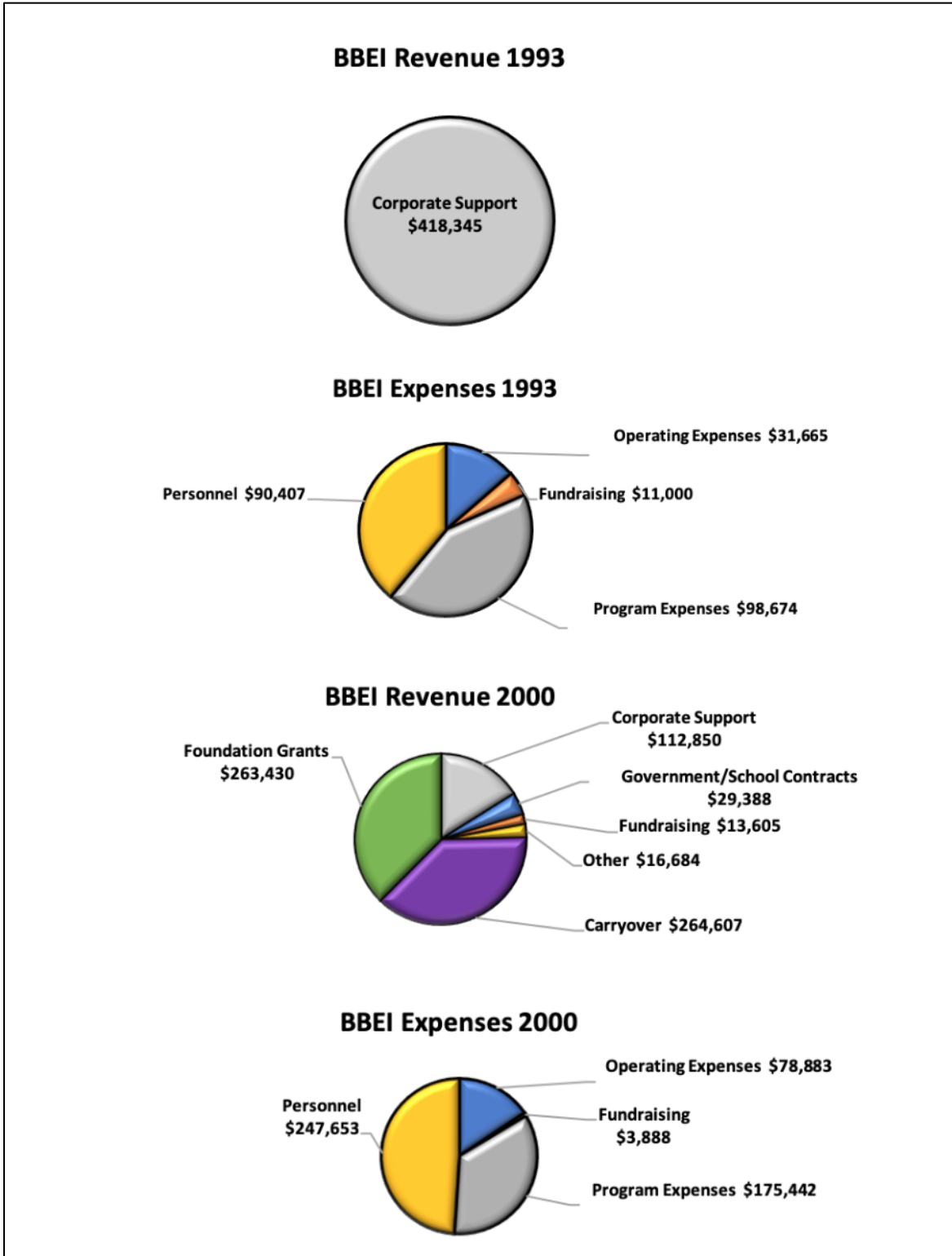


Figure 2. BBEI/Biotech Partners Budget Comparison 1993 to 2000. Compiled from "BBEI Budget" by Fern Tiger Associates, 1993, 2000.

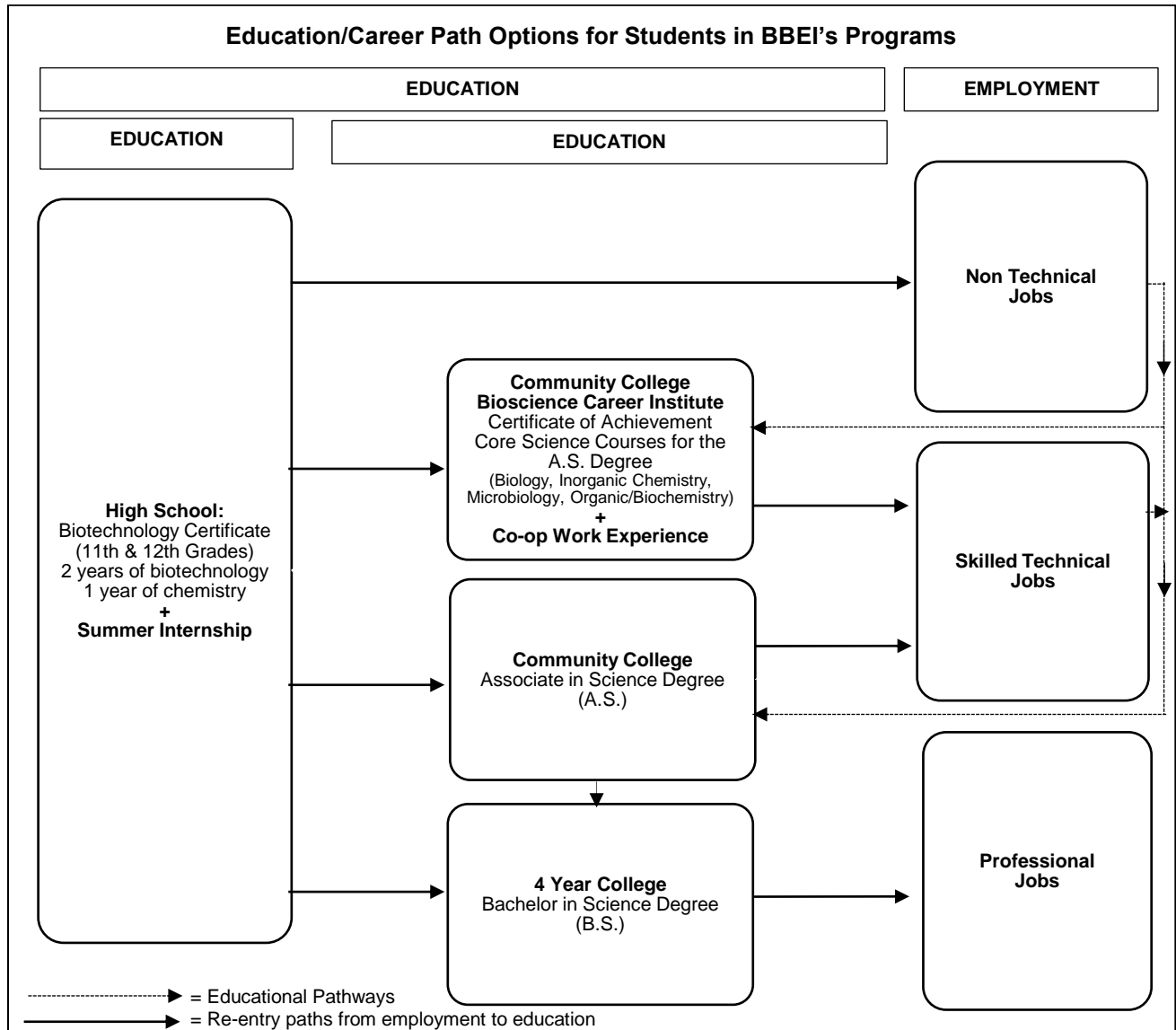


Figure 3. Education career path options for students in BBEI's programs. Adapted from "Flowchart Ed Career Path Options" by Fern Tiger Associates, 2001.

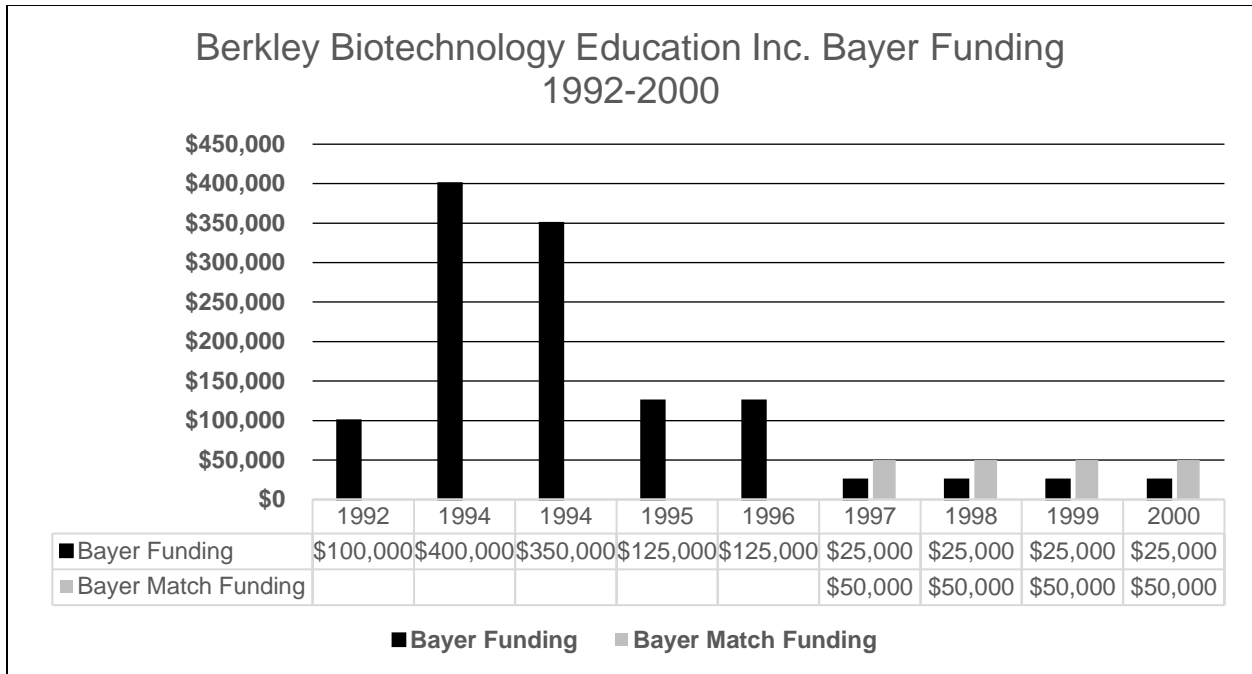


Figure 4. Berkeley Biotechnology Education Inc. Bayer funding 1992-2000. Compiled from "Building new lives; Constructing a New Organization" by Fern Tiger Associates, 2002.

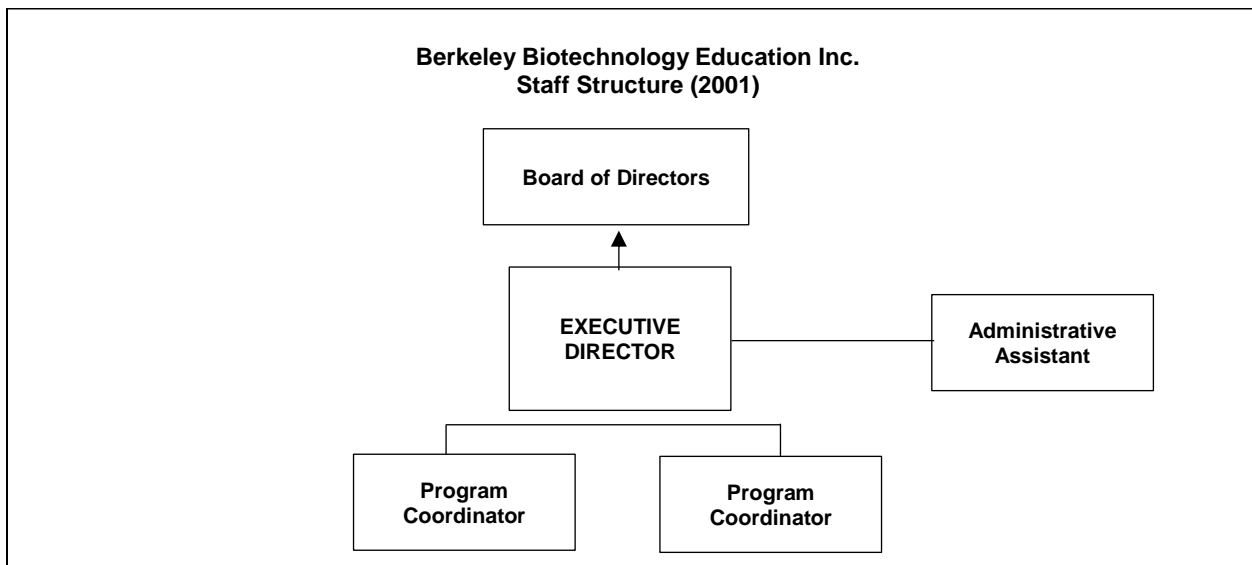


Figure 5. Berkeley Biotechnology Education Inc. Staff Structure. Adapted from "Staff Organizational Chart" by BBEI, October 6, 2001.

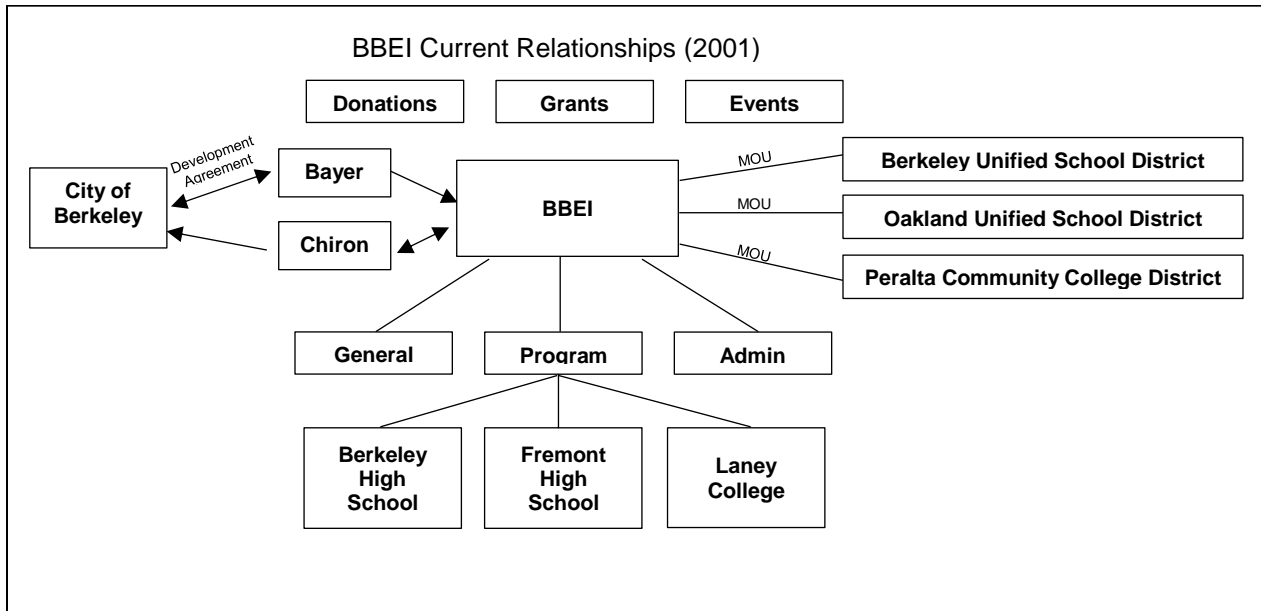


Figure 6. Berkeley Biotechnology Education Inc. Relationships. Adapted from "BBEI Current Relationships Chart" by BBEI, October 6, 2001.

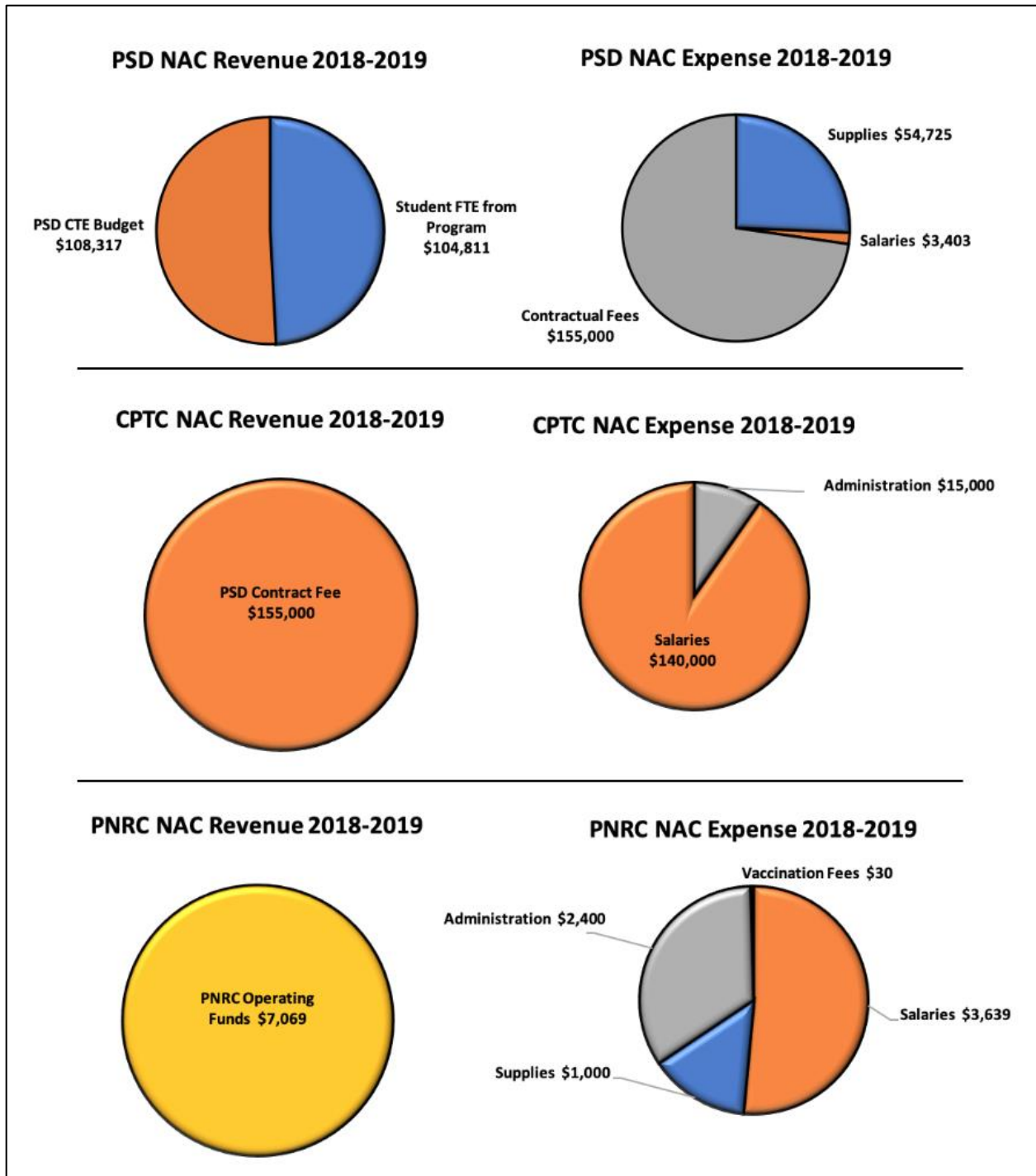


Figure 7. NAC Budget Exchanges Approximation 2018-2019. Compiled from "NAC Budget" by Puyallup School District, 2019b.