Secondary Teachers and Their Quest to Prepare College- and Career-Ready Students through Project-Based Learning in a Small, Rural High School District

A Dissertation

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by

Bright Mary Anne Nichols-Stock

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Author: Bright Mary Anne Nichols-Stock

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Members — Kathy D. Geller Ph.D. Digitally signed by Kathy D. Geller Ph.D. DN: cn=Kathy D. Geller Ph.D., o=Drexel University, ou=School of Education, email=kdg3@drexel.edu, c=US Date: 2016.12.19 13:56:57 -05'00'

[signature]

Academic Advisor — Andrea Shaw Digitally signed by Andrea Shaw DN: cn=Andrea Shaw, o=School of Education, ou=EdD Advisor, email=aes68@drexel.edu, c=US Date: 2016.12.21 09:01:14 -05'00'

Department Head — Allen Grant, PhD Digitally signed by Allen Grant, PhD DN: cn=Allen Grant, PhD, o=Drexel University, ou=School of Education, email=acg48@drexel.edu, c=US Date: 2016.12.20 19:04:51 -05'00'

Dedication

For always "being there" and supporting me no matter what crazy endeavor I want to pursue next, I embrace my family (Chris, Donald, Daniel, and Mom) for your never-ending love and sacrifice through this amazing journey (and so many others).

To my sons:
You have made me so proud of the wonderful young men you are and all of your achievements. By being such an integral part of my journey, you know anything you dream of achieving is possible – if you want to do it, pursue it and make it happen! YOU are your only obstacle! I love you both to the moon and beyond!

For my best friend and love of my life, Chris:
THANK YOU for always being the one to tell me to never give up! You are my rock and without you and your continual support, love and friendship, this would not have happened. I love you forever and always.

To my mom, dad, grandparents, and great-grandparents:
I am "me" because of all of you – your guidance, love, support, strength, resilience and compassion live through me every day. I am honored to share this accomplishment with you and thank you for raising me to be who I am today.

For my dearest and best friends, Jana and Joe:
You have always been there, given me honest advice and supported me through the good and bad times. You are like the sister and brother I never had and with that, I share this accomplishment with you both. Thank you for everything. I love you.

To all of my teacher peers:
Without your consent to participate in this study, it would have never happened! Thank you for trusting me and allowing me to share in your lived experiences as the incredible teachers you are. You are the perfect example of "teacher" and why we, as a profession, should be more valued and heard with respect to what we are charged to accomplish every day with our students. As a very good friend told me years ago, "Stay the course!"

Acknowledgments

I vividly remember the night my mom called and suggested we enroll in Drexel University-Sacramento's Education Doctoral Program. After many long discussions with various family and friends and many hours of research, we decided to pursue a dream we had both had for many years. The journey has been long, but so rewarding! And without the support of many people in my life, it would not have been as successful or rewarding.

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Thank you to all the Drexel professors who provided a strong graduate level program that allowed me to grow and develop as an educator and overall, as a human being. To Dr. Geller for guiding and supporting me through the depths of my proposal, proposal hearing, and into my research study. To Dr. Bureau for providing valuable feedback and insight throughout my research study and helping me put the final touches on my last copy. And thank you to Dr. McCabe for taking the time to serve on my

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For my family and dear friends, you mean the world to me and I thank you for sharing in this professional and personal accomplishment with me. The journey has been one that will always hold a special place in my life, as will all of you! (((Hugs)))

I want to close by thanking those who agreed to serve as teacher participants in my study and my administrator for allowing me the time to pursue this dream. Without the willingness of each of you, this study would not have happened. Thank you.

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Abstract

Secondary Teachers and Their Quest to Prepare College- and Career-Ready Students through Project-Based Learning in a Small, Rural High School District

Bright Mary Anne Nichols-Stock, Ed.D.

Drexel University, December 2016

Chairperson: W. Edward Bureau

With the shift in the focus of education to preparing all students to be college and career ready, there is little research that explores how teachers in small, rural schools are preparing students through project-based learning (PBL) for college and careers. Research suggests that rural adolescents contend with greater challenges in college and career development and preparedness as they move into "post-high school transitions" and that rural adolescents may have lower career aspirations and greater expectations for entering the workforce immediately after high school than adolescents who live in other settings. The purpose of this research study was to explore how teachers in small, rural schools are preparing students through PBL for college and careers.

This study sought to understand small, rural high school district teachers' experiences with implementing curricula that integrates college and career readiness (CCR) with PBL. Further, teachers described how they view their role in preparing students for 21st-century college and careers and the challenges they experienced in a small, rural high school district. Data were gathered through a series of in-depth interviews, observations, and artifact review and analyzed for emergent codes, themes and trends.

The study's conclusions indicated the role of education and professional development in participants' understanding (or lack thereof) of PBL and CCR along with relevancy is a primary catalyst for participants to integrate PBL and CCR. PBL provides relevance, thus increasing student engagement through an understanding of the purpose for what students are being asked to do. In addition, the value of PBL in preparing students for CCR include CTE and core integration, technology, Habits of Mind, challenges of rural schools, and success in life.

Participant perceptions revealed that administrative expectations were unattainable because administration expects teachers to learn, implement, and have students successful with PBL and CCR overnight, resulting in teacher frustration. A lack of support after training and through the implementation process results in participants' frustration and the PBL concept being dropped by teachers. Lastly, teacher participants faced rural school challenges with respect to community resources available to support PBL and CCR in the classroom.

Major recommendations from the study include supporting teachers with initial and continuous professional development for PBL, CCR, and grading strategies; develop

district-wide best practices in supporting interdisciplinary PBL and CCR; and provide ongoing, regularly scheduled planning time and PBL experts within the contract day. Further, provide teachers with ongoing current community business and industry databases or websites to access guest speakers, mentors, paid/unpaid internships and externships and job shadow experiences as well as district-wide short- and long-term action plans that outline how administration is going to provide ongoing PBL and CCR support for teachers.

Chapter 1: Introduction to the Research

Introduction to the Problem

College and career readiness is based on federal policy that speaks to the:

> Level of preparation a student needs in order to enroll and succeed – without remediation – in a credit-bearing course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program, or in a high-quality certificate program that enables students to enter a career pathway with potential future advancement. (Conley, 2010, p. 21)

Such a focus calls for a shift in how high school teachers prepare students for their futures. Bray, Green, and Kay (2010) defined college and career readiness as "a comprehensive strategy to teach both knowledge and applied skills – including the four C's of critical thinking and problem solving, communication, collaboration, and creativity and innovation skills – one that employers, educators and the public are ready to support" (p. 7).

Siskiyou Union High School District (SUHSD), a small rural high school district in Northern California, conducted teacher education and training in 2010-2011with a goal to better prepare students for college and career readiness. The District initially held a three-day teacher development workshop to introduce the pedagogy of project-based learning (PBL) to a select group of teachers. The workshop content also introduced the 16 behaviors, skills, and attributes of Habits of Mind (HOM) as a strategy to foster college and career readiness.

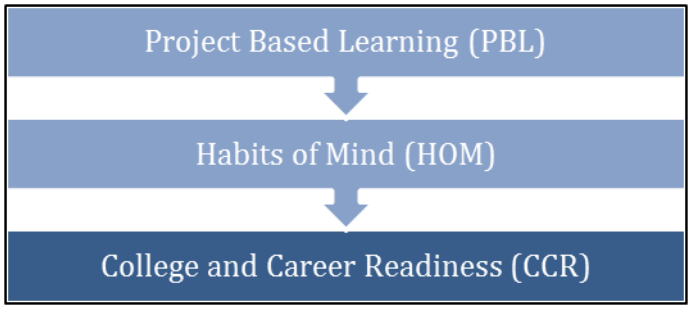

Figure 1. Pedagogy and behaviors, skills and attributes to foster college and career readiness.

The rationale for implementing PBL as a curricular focus was in response to student feedback indicating a need for more relevance in their learning and to begin the transition for preparing teachers for the Common Core Standards and Assessments. In addition, the district sought to retain students who were leaving the district for alternative secondary schools (e.g., such as charter schools).

The hope was that PBL would offer students increased relevance in their learning and would serve as a catalyst that allowed students to take responsibility for their own learning. As a teaching pedagogy, PBL supports student learning and preparation by integrating curriculum across disciplines—theory, knowledge, and college- and career-readiness skills—and maintaining rigor while students produce real, meaningful projects that prepare them for 21st-century college and careers (Buck Institute for Education, 2011). HOM identifies 16 behaviors, skills, and attributes that contribute to college- and career-readiness skills. Costa and Kallick (2008) defined HOM as what successful, "intelligent" people "from all walks of life" do "when they are confronted with decisions to make, problems to solve, creative ideas to generate, and ambiguities to clarify" (p. 1).

Examples of HOM include: (a) persisting, (b) managing impulsivity, (c) listening with understanding and empathy, and (d) thinking flexibly.

In the fall of 2010, a handful of teachers were trained to be catalysts to provide education and mentoring in PBL and HOM for those teachers who did not attend the workshop. That year, the District required all teachers to create and implement at least one across-the-curriculum PBL project integrating aspects of HOM. At year-end, many of the teachers voiced concerns that they had neither understood the scope, breadth, or depth of PBL and HOM nor how these approaches related to college and career readiness.

In the 2011-2012 academic year, the District trained all teachers directly to implement PBL and HOM in support of CCR. In the spring of 2012, the district administrators once again evaluated each teacher's PBL efforts using a published rubric and the teacher's completed project template.

Based on prior research, there seems to be an ongoing debate if there is value in PBL as a teaching pedagogy. In PBL, the role teachers are required to assume is that of a facilitator who allows students to take responsibility for their own learning as it applies to their post-secondary goals. Taking a facilitative role requires an extensive shift in teaching methodologies. If teachers are not willing to shift their teaching methodologies and learn how to become a facilitator, PBL becomes very difficult to implement and sustain (Tamim & Grant, 2013). Strobel and van Barneveld (2009) noted that for PBL to succeed, districts need to provide ongoing professional development, support, and resources so teachers can be successful with implementation using strategies such as scaffolding, modeling, and coaching.

Small, rural high school districts integrating PBL pedagogy may face increased challenges with its implementation due to higher levels of poverty, lack of business and industry partners, minimal financial resources, and fewer course offerings (Butler, 2008; Howley, Rhodes, & Beall, 2009). These districts may need to provide more extensive support and resources to teachers to effectively deal with additional challenges specific to small, rural high school districts.

Statement of the Problem to be Researched

There is little information available that describes teachers' experiences with college and career readiness and PBL, their experiences using PBL, and the understanding they have about preparing students for 21st-century college and careers.

Purpose and Significance of the Problem

The purpose of this qualitative research study was to describe the lived experiences of Siskiyou Union High School District (SUHSD) teachers as they attempt to prepare students in a small, rural high school district for college and career readiness through PBL. Teachers in the SUHSD, a small rural district in California, were charged with preparing students for 21st-century college and careers through PBL. Research suggests that rural adolescents contend with greater challenges in college and career development and preparedness as they move into "post-high school transitions" and that "rural adolescents may have lower career aspirations and greater expectations for entering the workforce immediately after high school than adolescents who live in other settings" (Lapan, Tucker, Se-Kang, & John, 2003, p. 1). Employment opportunities for young people in geographic isolation are limited (Rojewski, 1995). The intent of CCR is to adequately prepare students for post-secondary options (Conley, 2010; Hyslop, 2011).

Very little research explores how teachers in small, rural schools are preparing students through PBL for college and careers. This research sought to add to knowledge in this area.

Preparing students through PBL for college and careers has become even more pressing for small, rural schools and communities, as Jerry Brown, the Governor of California included funding in the 2013-2014 budget to support a "new overarching goal for the system, that all students will leave high school ready for college and career" (Perry, 2013, p. 2). Research showed that small, rural schools and communities face challenges and obstacles—such as lack of jobs, industry closures, persistent poverty, declining population, changing demographics, and ongoing accountability—as they attempt to provide economic stability and college and career opportunities for students (Butler, 2008; Howley et al., 2009). Zerbst (2010) found that teachers and counselors need to provide students with access and support to understand their post-secondary options and help them through support, modeling, resources, and education to pursue the option(s) of their choice.

As introduced previously, PBL allows teachers to empower students to take control of their own learning by giving students choices through projects that are relevant and meaningful to their own lives and futures. As a teaching pedagogy, PBL is based on Dewey's (1938) four basic steps: “Step 1) Teacher(s) and students seek relevant problem(s) that cause perplexity and a desire to find an answer; Step 2) Students create a plan to find the answer(s); Step 3) Students test the plan against the reality; and Step 4) Students reflect on the worth of the process and answer” (pp. 101-119). According to Short (2011), research shows that PBL as a teaching pedagogy varies among teachers.

Pieratt (2011), Short (2011), and Merlo (2011) found that for teachers to be effective and knowledgeable about PBL as a teaching pedagogy, school districts need to provide ongoing staff development and support. Clark (2011) explored how systemic intervention through PBL focused on students' academic, social, and emotional growth and prepared them for post-secondary opportunities. She found that PBL provides students with experiences that increased their self-esteem and offers 21st-century skills and knowledge.

This study draws from teachers' voices and experiences to provide insights into how they are supporting their students' college and career development and preparedness to transition more readily to more post-secondary options.

Research Questions Focused on Solution Finding

The following questions guided the research:

1. How do SUHSD teachers describe their knowledge about college and career readiness and project-based learning (PBL)?
2. How do SUHSD teachers describe their efforts to integrate project-based learning (PBL) into their curriculum?
3. What perceived value do SUHSD teachers attribute to project-based learning (PBL) in preparing students for college and career readiness?

Conceptual Framework

Researcher's Stance and Experiential Base

Researcher's stance. This research was grounded in both ontological and axiological stances. The researcher's ontological stance is naturalistic, indicating she takes a social constructivist perspective that there are multiple realities (Creswell, 2007).

As a social constructivist, the researcher believes humans are a product of their experiences and reflect those experiences in many different ways such as verbally, emotionally, physically, and intellectually. In a world where relationships are key, creating, nurturing, and sustaining relationships with living beings creates opportunities for "constructionism to move beyond the dualism . . . to place knowledge within the process of social interchange" (Gergen, 1985, p. 266). This multiplicity of reality in the research was brought forth through the voices of the participants.

The researcher's axiological stance was the medium through which she gathered and filtered data. She recognized it was the morals and values of the teachers that shaped their stories. It was their values and beliefs about CCR and PBL, as well as the challenges small, rural high schools face in meeting stakeholder expectations in producing highly educated students that informed her analysis and findings. She was aware of her own beliefs and assumptions about CCR and PBL, recognizing that these may have influenced both what she heard and found in the words and explanations of others.

In her work, the researcher advocates for those who were required to produce specific outcomes, yet may not be provided with the requisite resources in which to accomplish these tasks. The researcher's ultimate desire was to explore, through the voices of the participants, the different perspectives and experiences and bring richness to the research dialog.

Experiential base. As a career technical educator and advocate with over 20 years' experience, I brought certain assumptions and biases to this study. I believed that true learning for students may begin and end with the integration of core, CTE, and

college- and career-readiness skills, including relevance and rigor, to create a well rounded, educated citizenry in this country. Over the years, I have spoken with former students—some who completed a CTE pathway and some who never experienced a CTE class in high school. Those who never experienced a CTE class in high school shared how they wished they had taken at least one CTE class because when they went to college or into the workforce, they had knowledge but not the ability to apply what they learned to real-life situations nor did they have the skills to support them as they moved through business and academic challenges.

It was my view that CCR expectations are a welcome addition to increase high school students' preparedness for 21st-century college and career. I believed this newest focus—which harkens back to early pedagogy by John Dewey (1938)—required a significant transition for our administrators and teachers. I believe that transition will take time and may be difficult because it is neither common for high school teachers to collaborate with other disciplines nor with business and industry to create integrated activities and projects embedded with CCR skills. These challenges likely occurred due to very limited resources available to teachers as they worked to create integrated PBL that incorporate CCR skills. Clearly, as a researcher, I needed to make a concerted effort to bracket these assumptions and biases as I conducted this study so the results would accurately reflect the voices and stories of the participants, SUHSD teachers from one rural high school district.

Conceptual Framework: Three Research Streams

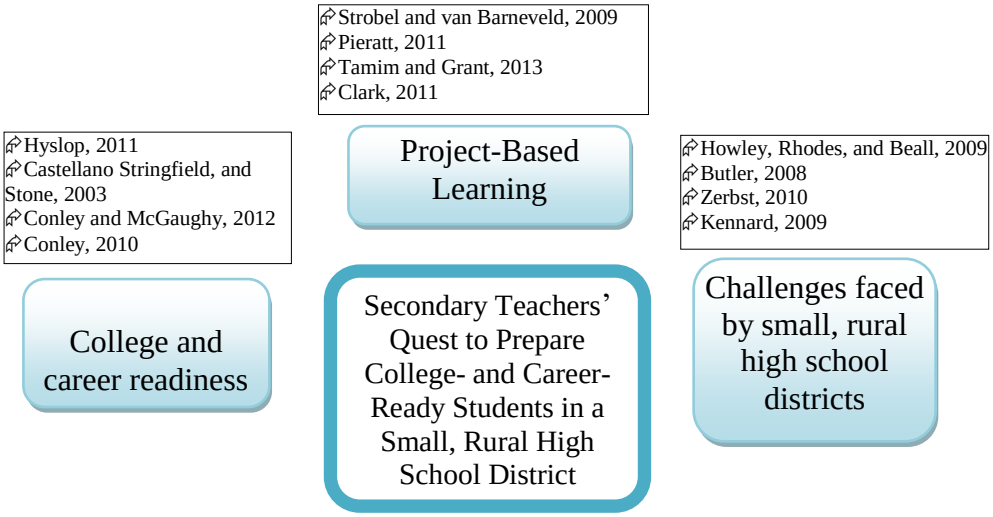

Figure 2. Conceptual framework.

The three streams of theory, research, and practice for this study included: (a) College and career readiness, (b) Project-based learning, and (c) Challenges faced by small, rural high school districts. Drawing from the theory, research, and practice, college and career readiness provides a foundation describing what it incorporates, demonstrating various methods teachers use to prepare students and seeking to understand how high school teachers perceive their role in preparing their students for post-secondary opportunities. The second stream informs the reader about PBL, how teachers use it as part of their teaching, and its role in preparing students for college and career readiness. The third stream informs the reader of the myriad challenges experienced by rural schools and communities as they search for needed resources to provide a rigorous and relevant education in preparing students for college and careers.

College and career readiness. The recent educational focus on NCLB and "teaching to the test" has become the norm, with students being expected to retain the theory and concepts within core subject areas and recall the information when they take multiple-choice standardized tests once per year. This focus has not prepared students for post-secondary college and career opportunities (Hyslop, 2011).

In October 2010, the Association for Career and Technical Education (ACTE), the National Association of State Directors of Career Technical Education Consortium (NASDCTE), and the Partnership for 21st Century Skills (P21) worked collaboratively, seeking to emphasize the importance of Career Technical Education (CTE) and 21st-century skills. The groups identified that educators may provide a comprehensive education if they embrace the "21st century readiness challenge" and suggested that the integration of core-academic subjects (currently English and math) and CTE are a requirement if students are to be prepared for 21st-century college and careers (Hyslop, 2011, p. 10).

Further, Castellano, Stringfield, and Stone (2003) stated:

> Federal legislation authorizing funding for secondary CTE has placed greater accountability requirements on local programs; those that only measure gains in specific career-related competencies and academic achievement tests. This 'marriage' creates new unions between CTE and academic departments in secondary schools" and is crucial as teachers transition to preparing students for the new Common Core State Standards (CCSS) assessments. (p. 239)

With the advent of the new Common Core Standards (CCS), K-12 education will experience a new set of shared national standards that

> ensure that every student, in every state is held to the same level of expectations that student's in the world's highest-performing countries are, and that they gain the skills and knowledge that will prepare them for success in postsecondary education and in the global arena. (Kendall, 2011, p. 1)

The most recent national and state educational reform effort, CCS, is demanding a much different outcome for K-12 schools, calling on schools and districts to determine if students are adequately prepared for 21st-century college and careers (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). At the time this dissertation is being written, California, along with 45 states, the District of Columbia, four territories and the Department of Defense Education Activity adopted the CCS.

The National Commission on Excellence in Education (1983), No Child Left Behind Act (U.S. Department of Education, 2001), and the U.S. Department of Education (2009) incentive grant, demonstrated ongoing attempts at standards-based educational reform efforts. The new CCS are different from prior legislative efforts, as these standards were developed at the national level through collaboration with multiple stakeholders, including national and state government representatives, educators, community members, researchers, and representatives from industry (Kendall, 2011).

CCS integrate the career standards of CTE with core-academic standards, currently English and mathematics, requiring teachers work across disciplines and with business and industry to create relevant and rigorous curriculum—such as PBL—for their students. This shift in teaching pedagogy is "designed to foster college and career readiness skills such as the ability to work individually and in teams to solve real-world problems" (Reese, 2011, p. 16). The new method of evaluation is computer-generated CCS assessments that measure a student's college and career readiness for post-secondary options and the global world.

As the US economy has transitioned from "agricultural and industrial jobs to service jobs," the preparation students need to compete in both college and careers has shifted (Conley & McGaughy, 2012, p. 28). Further, Conley and McGaughy (2012) suggest the knowledge and skills needed to be successful in the new economy are not only academically focused but also integrate soft skills such as "communication capabilities; technology proficiency; problem-solving strategies; and flexibility, initiative and adaptability" (p. 28).

Conley (2010) specifically described college- and career-readiness skills or "soft skills" and attributes such as

> the ability to work independently and as a member of a team, follow directions, formulate and solve problems, learn continuously, analyze information, have personal goals, take responsibility for one's actions, demonstrate leadership as appropriate, take initiative and direct one's own actions within an organizational context, and have perspective on one's place with an organization and in society. (p. 5)

Chapter 2 further describes and discusses the synthesis of soft skills, the content of core subjects, and the career focus of CTE in reviewing the literature on college and career readiness.

Project-based learning. With over 40 years of use in medicine, science, engineering, and economics, PBL is a teaching pedagogy that focuses on the central concepts and principles of a discipline, involves students in problem-solving investigations and other meaningful tasks, allows students to work autonomously to construct their own learning, and culminates in realistic products (Buck Institute for Education, 2011). The methodology relies on the teacher in the role of facilitator, draws on the career interest(s) students have, and provides them the opportunity to apply what

they are learning in real-life projects. PBL "emphasizes inquisitiveness, intellectual openness, analysis, and interpretation of multiple types of information" (Conley, 2010, p. 155). In addition, PBL generally requires students to work in groups to "investigate meaningful questions requiring them to gather information and think critically" (David, 2008, p. 80). According to Blumenfeld et al. (1991), if PBL is to be an effective teaching pedagogy, teachers need to clearly understand what they want students to know and be able to do in the projects as well as have the ability to effectively model thinking and problem-solving strategies. Projects use challenging questions and require students to collaborate to find answers. Teachers should be incorporating valid means (in PBL) to measure expected student outcomes (David, 2008).

A challenge teachers face when transitioning from a traditional teaching approach to PBL is that conflict arises in the "degree of balance needed between teacher control and student control over the activities" (Tamim & Grant, 2013, p. 2). Teachers must be willing and able to shift their teaching methodologies, embrace the concept of facilitating student-centered projects by being flexible, and allow students to make mistakes that can then be corrected as part of the learning process. They have to be willing to give students the time, resources, and freedom to fully experience PBL. Tamim and Grant (2013) noted that for teachers to be effectively trained and prepared to implement PBL, they need professional development, resources, and support to gain a deep understanding of PBL and how to implement it within the context of their course of study.

There is a continuing debate to determine the value of PBL as a teaching pedagogy. Strobel and van Barneveld (2009) found that PBL is effective for "long-term retention, skills development and satisfaction of teachers and students with traditional

approaches being more effective in short-term retention that which is needed for the current state testing expectations" (p. 44). Further, they concluded that research should focus on different support factors to understand "optimal scaffolding, coaching, and modeling strategies" for a teacher's successful use and understanding of PBL (p. 55). According to Short (2011), PBL will only be an effective teaching pedagogy if districts provide teachers with professional development and support to learn it and how to "effectively implement the practices" (p. 110).

Challenges faced by small, rural high school districts. Small, rural high school teachers may have a daunting task as they transition from providing students with an education delivered through concepts and theory to providing an across-the-curriculum, rigorous and relevant practical education—theory, knowledge and skills— in preparing students for 21st-century college and careers. Small, rural schools have a history of preparing students for "lower and middle class jobs rather than college due to their small size and lack of specializations," which is generally a direct reflection of the types of employment opportunities within the rural community (Gibbs, 2000, p. 82).

The Kellogg Foundation (2001) noted that rural areas are perceived as ideal locations to live—friendly, relaxed, and with traditional American values—and conversely, as less attractive, as there is usually a higher incidence of poverty, low wage employment, fewer job opportunities, and an increase in drug use and crime. Rural schools are a reflection of their community in that they are "often strategically positioned to be a rallying agency when the town feels under pressure, providing a sense of connection with the past, present and future" (White & Kline, 2012, p. 39).

The perceived challenges rural teachers face in preparing students with the necessary knowledge and skills for 21st-century college and careers may include: a lack of financial resources, fewer sections of course offerings, replacement of CTE courses with remedial courses, master scheduling conflicts, limited access to educational support systems, higher percentage of students from poverty levels, and limited business and industry with whom to align (Butler, 2008; Howley et al., 2009).

Definition of Terms

6 A's Rubric

The 6 A's rubric evaluates student projects using six elements: authenticity, academic rigor, applied learning, active exploration, adult connection, and assessment practices (Steinberg, 1998).

Accelerated Learning

Provides opportunities for students to do college-level work through dual enrollment or early college high school

Articulation

Refers to an agreement between a high school, community college, and possibly a university that allows high school students to earn college credit toward associate's degrees or transfer to a 4-year university (Turlington, 1994).

Career Readiness

Core-academic knowledge, career skills, and the ability to apply that knowledge and skills to concrete situations in order to function in post-secondary opportunities and in routine daily activities (ACTE, 2011)

Career Technical Education (CTE)

Today's CTE provides students with: (a) subject matter taught with relevance to the real world; (b) employability skills, from job-related skills to workplace ethics; (c) career pathways that link secondary and postsecondary education; (d) second-chance education and training; and (e) education for additional training and degrees, especially related to workplace training, skills upgrades, and career advancement (ACTE, 2011).

Career Technical Education Career Pathway

A career pathway is a coherent, articulated sequence of rigorous academic and career/technical courses, commencing in the ninth grade and leading to an associate degree, baccalaureate degree and beyond, an industry recognized certificate, and/or licensure. The career pathway is developed, implemented, and maintained in partnership among secondary and postsecondary education, business, and employers. Career pathways are available to all students, including adult learners, and lead to rewarding careers (National Career Pathways Network [NCPN], 2012).

Career Technical Student Organizations (CTSOs)

Youth professional organizations such as Future Farmers of America (FFA), Health Occupations Students of America (HOSA), and Business Professionals of America (BPA) provide students with the opportunity to work and engage with other students with common interests and abilities. CTSOs provide students with leadership, camaraderie, and competitions to apply knowledge, concepts, and

strategies they have learned in CTE programs (Gentry, Hu, Peters, & Rizza, 2008, p. 194).

College Readiness

"Students are 'college ready' when they have the knowledge, skills, and behaviors to complete a college course of study successfully, without remediation" **(**Mijares, 2007, p. 1).

Common Core State Standards

National standards that "ensure that every student, in every state are held to the same level of expectations that student's in the world's highest-performing countries are, and that they gain the skills and knowledge that will prepare them for success in postsecondary education and in the global arena" (Kendall, 2011, p. 1).

Core-academic

The high school courses every student is required to complete and pass in order to meet high school graduation requirements. Examples: English, math, social studies, science, and physical education (ACTE, 2011).

Habits of Mind (HOM)

A list of 16 behaviors, skills, and characteristics that successful, "intelligent" people "from all walks of life" . . . evidence . . . "when they are confronted with decisions to make, problems to solve, creative ideas to generate, and ambiguities to clarify" (Costa & Kallick, 2008, p. 1)**.**

Matriculation

A process when students receive their high school diploma and are accepted into a post-secondary college or university (California Community Colleges Chancellor's Office [CCCCO], 2013).

Programs of Study

Integrated academic and CTE curriculum that provides students the opportunity to learn, retain, and apply core-academic content more effectively (ACTE, 2011).

Project-Based Learning (PBL)

A teaching pedagogy that focuses on the central concepts and principles of a discipline, involves students in problem-solving investigations and other meaningful tasks, allows students to work autonomously to construct their own learning, and culminates in realistic products (Buck Institute for Education, 2011).

Small, rural high school districts

> The district or county must have a total average daily attendance (ADA) of fewer than 600 students or serve only schools located in counties that have a population density of fewer than 10 persons per square mile; and the district or county must serve only schools that have a school locale code of 7 or 8 assigned by the National Center for Education Statistics (NCES) or be located in an area of the state defined as rural by a governmental agency of the state. (California Department of Education [CDE], 2007, para. 2)

Swanson & Cosgrave Consulting, LLC

Swanson & Cosgrave Consulting, LLC is an educational consulting firm committed to helping educators create high-achieving and equitable high schools that feature the best practices in school design and instruction. Their approach includes small schools and pathway programs as well as PBL, developing

teaching teams, and effective assessment (Swanson & Cosgrave Consulting, LLC, 2013).

Transition Programs

Transition programs provide students the opportunity to experience the link between articulation and dual-access, resulting in greater college acceptance and success rates.

Assumptions and Limitations

As a CTE advocate and high school teacher for over 20 years (15 in the SUHSD); student of K-14 in small, rural schools; and a lifetime resident of small, rural communities, the researcher held assumptions that may have influenced this study. The first assumption was that small, rural communities and high school districts have greater economic and structural disadvantages than urban and metropolitan communities and high school districts. Secondly, she assumed that PBL is a teaching pedagogy that high school teachers need to know, understand, and be able to implement if students are to be prepared for college and career readiness. The researcher believed CCR skills play a critical role in PBL. Her third assumption was that SUHSD teachers were willing to participate in the study and answer all interview questions honestly. Lastly, the researcher assumed that SUHSD teachers would be able to recall their PBL training and experiences as well as describe their perspective of its impact on student preparedness for college and careers.

Possible limitations of the research included that participants in the study were only from a single, rural high school district—the Siskiyou Union High School District—and drawn from current core-academic and CTE teachers; therefore, the results from this

study may not apply to other districts. This researcher interviewed only teachers and analyzed their views; she did not seek to incorporate the views of administration, students, or parents. Hence, the findings, conclusions, and recommendations are limited to a single perspective. Because of the distance between communities and schools within the SUHSD, the logistics of conducting the study may have an influence on its methodological design.

Summary

The purpose of this study was to explore how SUHSD teachers prepared students for CCR through PBL in a small, rural high school district. The following questions guided this research study:

1. How do SUHSD teachers describe their knowledge about college and career readiness and project-based learning (PBL)?
2. How do SUHSD teachers describe their efforts to integrate project-based learning (PBL) into their curriculum?
3. What perceived value do SUHSD teachers attribute to project-based learning (PBL) in preparing students college and career readiness?

The study draws from current research of Hyslop (2011), Castellano et al. (2003), Conley (2010), and Lewis (2004) on college and career readiness; the stream of theory, research, and practice related to PBL draws from Strobel and van Berneveld (2009), Pieratt (2011), Hughes (2011), Clark (2011); and Howley (2009), Butler (2008), Zerbst (2010), and Kennard (2009) offer research on the challenges faced by small, rural high school districts. Chapter 2 reviews this literature to provide a foundation for this study.

Chapter 2: Review of the Literature

Introduction to Chapter 2

Teachers in a rural school district were asked to create and implement an integrated program curriculum that includes both core-academic subjects and Career Technical Education (CTE) to prepare students in a small, rural high school district for 21st-century college and careers. Very little available information explores teachers' perspectives of their experiences with college and career readiness or their views on how the pedagogy of PBL supports CCR.

The purpose of this study was to explore how SUHSD teachers are preparing students in a small, rural high school for CCR through PBL. This research sought to understand the teachers' experiences with implementing curricula that integrates college and career readiness with PBL and sought to describe how they view their role in preparing students for 21st-century college and careers. To guide the research, a review of the literature from three streams of theory, research, and practice provided a foundation: (a) college and career readiness, (b) project-based learning, and (c) challenges faced by small, rural high school districts.

Conceptual Framework

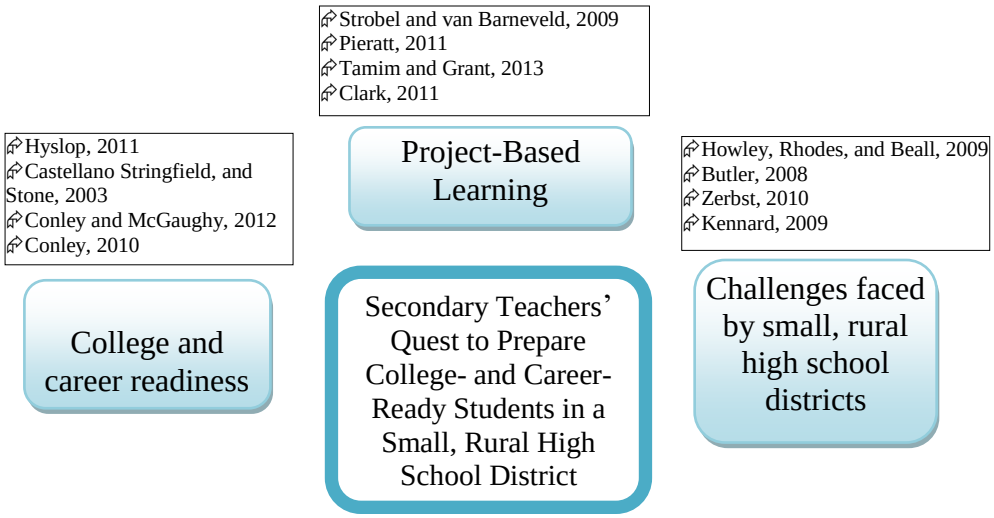

Figure 3. Conceptual framework.

Literature Review

College and Career Readiness

Readiness has been defined as students completing state and local requirements for high school graduation, which historically has implied that the student is prepared to enter college, the military, or career with the knowledge and skills needed to be successful without remediation (Conley, 2010; Hyslop, 2011). Hyslop (2011) suggested that the problem is "very few students graduating from high school are prepared to transition without remediation to post-secondary education or to careers that pay a living wage" (p. 10). She contended that most schools have "neither the expectations nor the measures . . . the instructional programs nor the learning environments, to equip students with the knowledge and skills they need to compete and succeed in the global economy"

(p. 11). In related research, McNamara (2009) described the basis for readiness challenges for millennial students:

> Millennials (who) embody unique characteristics that preset significant challenges to society and the concept of work as it is currently defined. Millennials have spent their entire lives with digital technology, nearly instantaneous information accessibility, and constant connectivity with friends or parents. This generation has been told from birth it is special -rewarded nearly immediately for even the smallest accomplishment. (p. 26)

He suggested that it is the millennials' collective attitude that has led to "me expectations" and appears to have negatively affected their workplace success and contributed to their lack of career readiness (McNamara, 2009, p. 26).

According to estimates by the Georgetown Center on Education and the Career (Carnavale, Smith, & Strohl, 2010), jobs needing "a post secondary degree in the US economy are projected to increase over the next decade by 63 percent" and result in "requiring 22 million new employees with postsecondary degrees" (p. 13). While jobs requiring a post-secondary degree are slated to increase, Sum (2010) found that the employment rate for teens and young adults without post-secondary education has experienced a dramatic 10-year decline. While Sum, Khatiwada, and Palma (2010) suggested that blue-collar jobs are declining, Cohen (2011) identified that those remaining blue-collar jobs are now demanding a rigorous academic foundation, a significant shift from previous years. Advanced levels of academic and career readiness preparation appear to be increasingly demanded by employers for both professional and blue-collar jobs.

Boykin, Dougherty, and Lummus-Robinson (2010) identified that "Skilled careers include jobs that are sufficient to support a family of four and are projected to grow in the

future and offer opportunities for career advancement" (p. 1). They found that academic skills in reading, communication, and mathematics required for college are the same as those required for skilled career job training. Boykin et al. (2010) concluded "that high school graduates need to be educated to a comparable level of readiness in reading and mathematics if they are to succeed in college-level courses without remediation and to enter career training programs to learn job-specific skills" (p. 8).

A challenge for many schools beginning CCR reform is determining how to restructure and create pathway(s) that will meet students' needs as well as fit within a school's infrastructure. Johnson, Charner, and White (2003) analyzed data from a seven-site comparative case study conducted across the United States to determine the quality of integrated teaching and learning strategies at grades 9-12. Johnson et al. (2003) suggested that effective secondary curriculum integration is based on the need to have fewer sustainable pathways rather than multiple. They concluded that the connection between academic and CTE teachers needs to be solid; the infrastructure of the school/district must be supportive and engaged with curriculum integration, providing ongoing professional development and resources for teachers to be successful. They recommended that curriculum integration is a process used to connect academic and CTE content in order to provide a more relevant learning environment for secondary students, therefore, increasing their college and career readiness potential (Johnson et al., 2003).

Bragg et al. (2002) sought to determine if CCR reform provided students who participate in K-12 integrated pathway(s) higher success rates as they transition to college and careers. They studied a specific approach to CTE called Tech Prep, which relies on a relationship between a student's school-based and work-based learning to determine if it

enhanced students' preparation for college and career readiness. In a 4-year study of student outcomes from two groups, (a) tech prep participants and (b) non-participants in eight consortia with varied approaches to educational reform, they identified that "over 80% of tech prep students in six consortia" attended a 2-year college with close to the same percentage for non-tech prep students in five consortia (Bragg et al., 2002, p. 85).

Their research suggests that in consortiums, students who continued the career tech prep pathway in college were much more likely to be placed in regular college level math, reading, and writing courses than those from other approaches. Drawing from their findings, Bragg et al. (2002) concluded that students completing an articulated tech prep pathway are overall better prepared for college than those who are designated non-tech prep students. Their study also provided evidence that participation in tech prep secondary programs suggests potential benefits for those entering the workforce right after high school.

Marumaya (2012) studied the measurement of college readiness and drew from both Minnesota state and national datasets to test her hypothesis that there were logical and methodological reasons to be wary of threshold scores when determining college readiness. She concluded that using multiple measures together (rather than a single ACT or similar measurement) provided a more accurate indication of a high school senior's academic preparation for college. She recommended that by using multiple measures, a success plan might be created for each high school student showing them what courses to take, how to remediate weaknesses in academic subjects, and why challenging themselves in more rigorous and relevant courses may positively impact their college readiness.

Hagen (2010) studied the effects of mandatory participation in a two-credit CTE class for students in the class of 2009 compared to those in the class of 2005 who did not have the required CTE class at Logansport High School in Indiana, a small, rural high school. His study sought to determine if the 4-year mandatory participation in a CTE class through a pathway better prepared graduates for life in the post-secondary world. His results indicated that participation in at least one CTE class provided relevance to what students were learning in core classes, developed their competence, and gave them "a sense of confidence" as they pursued post-secondary opportunities (Hagen, 2010, p. ix). The range of these studies has suggested that students who experience the integration of core academic and CTE curriculum through articulated pathways are more college and career readiness prepared and successful (Johnson et al., 2003). The connection between core academic and CTE along with a strong relationship between a student's school and work-based learning may provide a more relevant and comprehensive educational experience for students (Bragg et al., 2002; Johnson et al., 2003).

Research has provided insights into integrated subjects, math and English, and their effect on students' preparedness for CCR. An in-depth exploration of high school students throughout the United States conducted by McCormick and Lucas (2011) investigated why a large number of high school students graduate high school not prepared for college and career. They found that math preparation is a "key component that is lacking in their preparedness" for the 21st century (p. 1). Further, the study identified that the more difficulty United States high school students have with math, the fewer options they have in pursuing a higher education after graduation. McCormick and

Lucas (2011) concluded that the lack of preparedness for college-level math courses and the need for remediation is higher than the need for remediation in English or reading.

Stone, Alfeld, and Pearson (2008) introduced a five-principle model to increase math readiness through effective integration of CTE and math. The authors studied CTE teachers in their classes to measure the impact of integrated math instruction, measuring the results in students' math scores on three tests (TerraNova CTBS Basic Battery, the ACCUPLACER Elementary Algebra test, and/or the WorkKeys Applied Mathematics Assessment). Their findings suggested that the Math-in-CTE model demonstrates that math is experienced as more relevant and rigorous when it is integrated through CTE courses, and they concluded that this integration through application ultimately increased the students' math test scores and college and career readiness.

With respect to studies that have examined reading skills, Darr (2010) sought to determine if reading skills could be enhanced through contextualized reading in career and technical education. Darr studied CTE students participating in the Content Area Technical Education Reading program (CATER) at a single high school. CATER curriculum embedded an individual student's career aspirations into course readings offering rigor and relevance. He concluded that programs like CATER provide a combination of rigor and relevance as a means to enhance reading skills for some CTE students. He recommended that CATER and similar programs be made available to all students as education reform focuses on preparing them for 21st-century CCR. Drawing across these three studies, it appears that students may better understand math and

English when it is relevant to the students' post-secondary goals and is learned through integration of core and CTE (Darr, 2010; McCormick & Lucas, 2011; Stone et al., 2008).

President Obama (2013) noted that in Germany and other countries using the same model, the high school diploma "is the equivalent of a technical degree from one of our (United States) community colleges" (p. 7). For this to become more common in the United States, he called upon U.S. high schools to articulate courses and pathways with community colleges and universities. Articulation refers to an agreement between a high school, community college, and possibly a university that allows high school students to earn college credit toward associate's degrees or transfer credit to a 4-year university (Turlington, 1994).

Camp (2011) assessed college entrance course requirements as well as student completion rates between their intervention group and comparison schools to determine what characteristics are common in large, low-performing California high schools receiving intervention funds for students with above-average success in student preparation for college and career readiness. Camp (2011) found that between 2001 and 2008, the intervention group that received the support and benefit of additional funding to prepare students for CCR had a higher rate of college entrance completion than the comparison group. In addition to a strong intervention program, they recommended that a clear definition of "21st century college and careers" needs to be determined and ongoing articulation between K-12, community colleges, and 4-year universities/colleges needs to be a primary focus as school administrations create their CCR strategies and plans.

Historically, matriculation—a process that provides students access and support to be successful in their efforts toward achieving higher educational goals—for secondary students was accomplished when students received their high school diploma and were accepted into a post-secondary college or university (CCCCO, 2013). With college and career readiness expectations, matriculation is being tried through successful completion of dual-access integrated, articulated career pathways with community colleges and universities. Transition programs are one of many options that schools can provide students the opportunity to experience the link between articulation and dual-access, resulting in greater college acceptance and success rates.

Lekes et al. (2007) conducted a mixed method study to examine the effectiveness of matriculation for K-12 students from districts with numerous high schools and two community colleges that offer CTE transition programs. They sought to determine if high school students participating in a CTE transition program were more successful in college and the workforce than students who did not participate in the program. They found that CTE students were more likely to read and comprehend information in contextual learning, work-based experiences, and articulated courses. CTE students showed significant growth and success in math due to their involvement in relevant, contextual learning in a career pathway. They concluded that success in college and careers can be attributed to CTE students being better prepared for 21st-century college and careers.

Domina and Ruzek's (2012) research sought to determine if K-16 partnerships increase student graduation and university enrollment rates between California universities and school districts. Their findings suggested that partnerships are more

commonly found in ethnically diverse school districts, as well as in districts with comprehensive K-16 partnership programs. These two types of districts experienced significant increases in students enrolling in universities after high school. Domina and Ruzek (2013) concluded that K-16 partnerships increase high school graduation rates and the number of students attending university after high school graduation.

A review of the literature about CCR has suggested that such readiness can be achieved through various programs such as integrating core academic and CTE through career pathways, creating articulation agreements with post-secondary colleges and universities, or matriculation with a CTE transition program. Integrated career pathways appear to provide the opportunity for students to learn using theory, knowledge, and skills focused on their post-secondary career interests (Johnson et al., 2003). Students were found to learn more when math and English were taught using contextual instructional practice and courses were articulated with post-secondary colleges and universities (Lekes et al., 2007). Ongoing K-16 partnerships have increased the numbers of students that graduate high school and attend college or university after graduation (Domina & Ruzek, 2013).

Project-Based Learning (PBL)

PBL is an approach that involves students in problem-solving investigations and other meaningful tasks, allows students to work autonomously to construct their own learning, and culminates in realistic products (Buck Institute of Education, 2011). The PBL approach commonly integrates core and CTE within career pathways with the intent to prepare students for 21st-century college and careers. Within these career pathways—a coherent, articulated sequence of rigorous academic and career technical courses,

commencing in the ninth grade and leading to an associate degree, baccalaureate degree and beyond, an industry recognized certificate, and/or licensure (NCPN, 2012)—PBL can be relevant, rigorous, and meaningful as the content relates to the students' post-secondary goals and allows teachers to differentiate teaching to meet the needs of all students (Pieratt, 2011).

Clark (2011) investigated 87 freshman students in a small, rural high school in northern Illinois comparing them to 87 freshman students from the same district's large, traditional high school. The district's goal in creating the smaller high school was designed to "foster a supportive and creative learning environment, embedded with academic interventions, and its curriculum and instructional methodologies designed to stretch students to become creative, independent, and confident learners" through PBL (Clark, 2011, p. 17). Her study explored the value of systemic intervention on students' academic, social, and emotional growth through PBL; integrated technology; and how the intervention prepared students for post-secondary opportunities. Clark's (2011) research concluded that PBL in the small high school gave students the experiences that increased their self-value and a greater awareness of 21st-century knowledge and skills.

Research has indicated that the marriage between CTE and PBL is a successful method to provide relevant and rigorous educational experiences for students. Gentry et al. (2008) offer a view of an exemplary teacher's CTE classroom, exploring the problems that 16 gifted and talented students experience in an engaging CTE PBL experience. Gentry et al. (2008) concluded that all 16 gifted and talented students in the study found success in this CTE program due to individualization of instruction, student-centered

educational choices, the instructor being able to develop student's talents, and students having the opportunity to participate in Career Technical Student Organizations.

Teachers' knowledge and understanding of PBL as a teaching pedagogy varies across the research. Short (2011) conducted a quantitative study to determine the knowledge and implementation of instructional practices teachers used in high school one-to-one computer-based math, science, social studies, English, and foreign language using four different teaching pedagogies—Collaborative Learning, Constructivist Learning, project-based learning, and Differentiated Instruction. One hundred seventy high school teachers—52 math; 46 science; and 24 in each social studies, English and foreign language—were chosen to participate in a purposeful sampling for this study. Short (2011) found that "all teachers in this study used the four teaching pedagogies in their teaching practice in the one-to-one computer-based environment; the differences became apparent when teachers had to implement the various teaching pedagogies" (pp. 108-109). Overall, "teachers in this study had a high mean score for knowledge of the four teaching pedagogies versus their implementation mean score with the differences based on discipline and specific content" (p. 111). Teachers using PBL in Short's study evidenced "significant statistical differences with regard to their knowledge of PBL pedagogy, with social studies teachers being the most knowledgeable about PBL and math teachers the least when applying PBL in a one-to-one computing environment" (p. 113). Short (2011) concluded that districts should provide professional development and support for teachers to learn and develop pedagogical understanding "to ensure effective implementation of these practices in a one-to-one computing environment" (p. 110).

Merlo (2011) conducted a qualitative study with three teachers at a single high school. All three teachers implemented PBL in their classrooms during the 2010-2011 school year seeking to determine the pedagogy's impact on student learning. Eighteen "Algebra I students exposed to PBL were compared with 22 students in a different class setting where the teacher taught using only traditional instructional methods in an attempt to ensure mastery of content while improving student's learning experience" (p. 3). The data from the study indicated "no significant difference between the PBL and the traditional math classes" (p. 22) and there was "no evidence to support that project-based learning increases a student's understanding of mathematical concepts and skills" (p. 24). Merlo (2011) noted that the implementation for PBL activities was done by teachers in the study without PBL training or experience prior to conducting this study. He conjectured that these limitations may have impacted the results of this study and that both the teachers and students described positive experiences with PBL. Specifically, teachers learned about students' abilities in subjects other than math, the positive social and personal development of students and their ability to collaborate through "effective relationships were identified results of the study" (p. 27). Some students excelled through the "freedom to create their own learning and learned from and with their peers" while other students struggled trying to "transfer their creations to algebraic symbols and thinking" (p. 3). In conclusion, there was no evidence that PBL has a direct effect on the improvement of students' academic performance while it did add relevance, motivation, and relationship development opportunities for students in a high school Algebra I class. This finding raised questions about the value of the PBL environment.

Pieratt (2011) explored the relationship between teaching practices based on relational and PBL pedagogies and their meaning for teacher-student relationships at a charter school in San Marcos, CA. The school's primary focus was that "relationships matter to student achievement" and PBL provides the environment for relationships to exist and grow (p. 35). The mixed methods study interviewed 12 teachers with varying levels of PBL teaching experience, six students who participated in a focus group interview, and a survey of approximately 300 students. Pieratt (2011) found that PBL is the most common pedagogy used in this school. Teachers believed it to provide the best method to a comprehensive education for students. In addition, her findings indicated that PBL allowed for the contextulization of personalization and differentiation of teaching. It provided teachers the means to "design projects to meet the needs and levels of every student in their classroom" (p. 45). She concluded that collegiality among teachers and the strong teacher-student relationships directly contributed to high-levels of student achievement and creation of a culture in which students felt cared for and safe. She suggested that positive student-teacher relationships developed through each individual teacher and within the structures of the school. Project-based learning provided teachers the opportunity to differentiate instruction to meet the students' personal needs and interests.

McDowell (2009) conducted a mixed methods study to explore group leadership behaviors that 266 teachers used in PBL student work groups in 27 New Technology high schools in the United States. These teachers used PBL as their primary source of instruction. Seeking to understand the relationship of leadership style and approach to PBL, McDowell found that teachers preferred considerate leadership behaviors as a

leadership style over structural leadership behaviors, meaning that these teachers "emphasized sharing, delegating, and being flexible" over giving "instructions, commands, assigning goals, using intimidation and using competition" with student work (p. 107). He concluded that PBL teacher group leaders who used a combination of considerate and structural leadership in student work groups were more successful than those who scored lower in structural and consideration behaviors.

Understanding prior research on PBL informed the present research, suggesting that the pedagogy provides opportunities for teachers to create relevant and rigorous integrated and engaging projects that are meaningful to students' post-secondary goals. Teacher-student relationships that emerged through PBL approaches were found to be an important outcome of successful PBL (Merlo, 2011; Pieratt, 2011). Multiple studies indicated a call for additional teacher training to become more effective as a facilitator of PBL. Findings conflicted as to whether PBL has a direct positive effect on student learning and preparation for college and career readiness (Merlo, 2011).

This stream suggested that PBL may provide the infrastructure to prepare students for college and career readiness through a rigorous and relevant integrated curriculum that is student-centered and allows the teacher to become a facilitator of development. Social studies teachers are the most knowledgeable about PBL as an instructional practice and math teachers are the least knowledgeable when using it in a one-to-one computing environment (Short, 2011). In addition, PBL provides teachers the opportunity to differentiate instruction and better meet the needs of students (Pieratt, 2011). Finally, PBL is only as effective as the knowledge and training of the teacher and when this is lacking, it may negatively impact the students' PBL experience (Merlo, 2011).

Small, Rural School Districts

> Small, rural school districts are defined as a district or county that has a total average daily attendance (ADA) of fewer than 600 students or serves only schools located in counties that have a population density of fewer than 10 persons per square mile; and the district or county serves only schools that have a school locale code of seven or eight assigned by the Education Department's National Center for Education Statistics (NCES) or are located in an area of the state defined as rural by a governmental agency of the state. (CDE, 2007, para. 2)

College and career readiness implementation in small, rural high school districts may experience greater challenges due to the lack of jobs, factory and small business closures, declining population, persistent poverty, changing demographics, and ongoing accountability requirements (Butler, 2008; Howley et al., 2009).

Research demonstrated that economic stability is a key component in creating a strong foundation for rural schools and communities to work together for increased college and career opportunities for students. Butler (2008) conducted a study to examine the opportunities and constraints facing rural communities and how a rural school system may support an increased social economic stability in rural communities. Eighteen people from school and community were interviewed and observed as they collaborated on a community development issue, a student entrepreneur center. A primary focus of the school and community at the time of this study was determining the viability of the center concept to provide the education and training for students to become entrepreneurs in the local communities.

Butler (2008) found that rural schools and communities have very little opportunity to create positive change in their culture and economy. He suggested that this may be due to education reform being determined at federal and state levels with little to no input from local stakeholders and noted that most reforms do not fit rural

schools and communities, as they are created primarily for urban and metropolitan areas. Further, he found that rural communities were facing factory closures and fewer small businesses and brought deep concerns about the future of rural schools and communities. Most individuals interviewed shared they enjoyed the quality of life in the community even though they expressed a "lack of hope" for its future (p. 65). Building human and social capital were identified as important roles for schools to play in rural communities and schools play a vital role in economic development. Vocational education was identified as a way to educate students to be prepared to be successful in the global economy. Butler (2008) concluded that rural schools in collaboration with their community can "resist the negative changes in social, educational and economic structures affecting rural communities due to globalization" (p. 131).

Howley et al. (2009) studied the challenges gifted students face in rural schools, and four specific challenges were addressed in the study relating to rural schools: "a) declining population; b) persistent poverty; c) changing demographics; and d) ongoing accountability requirements" (p. 516). They found that the declining population significantly impacted gifted students who were more likely to be labeled as "college material" (p. 517). Gifted students' families may approve and motivate students to attend college after high school knowing that their student may never return to the rural community; or these families influence their student to not attend college and remain in the community. School consolidation was an ongoing discussion point as a way to increase school population, resources, and funding, an option with which rural communities may not agree and a source of great dissention. Howley et al. (2009) concluded that gifted student education is generally not well received in small, rural

communities because most families do not want resources to be focused on a special population, rather believing the focus needs to be on the general population.

While students from small, rural school districts may perceive their learning experiences to be very different in rural schools, research has not supported that view. Kennard (2009) conducted a replication study, and her purpose was to compare students' perceptions in a rural school with those of students in an urban school. The urban school comparison study she used was Wilson and Corbett's *Listening to Urban Kids, School Reform, and the Teacher's They Want*. She found little to no difference in what students expected from a rural high school in comparison with an urban high school. Both studies reflected students' beliefs that smaller class sizes and smaller schools allowed for a more positive learning environment and that when teachers were proactive, discipline and classroom management problems were very minimal. Students from both groups shared that they wanted teachers who were willing to help, were strict, and knew their subject matter implicitly. In addition, students stated they enjoyed working in small groups on projects, research assignments, and active learning. Kennard (2009) concluded that students' educational experiences and expectations were generally no different in rural schools from urban schools.

To be well adjusted and successful in school, students need to feel safe, comfortable, and engaged. According to Stanley, Comello, Edwards, and Marquart (2008), rural schools face greater challenges to create this environment for students over their urban counterparts. Their study relied on a national sample of 185 students in grades 7-12 from predominately white communities to examine if being at a rural school has an effect on the adjustment of students. They found that "being female, having

greater family income, and higher parental education" all increased the chances that students were more successful in rural communities (p. 230). They also determined that extra-curricular activities were "30% more important" (p. 231) for 10^{th}-12^{th} grade students in remote, rural communities than the mean small urban student. Peer and school performance showed a strong positive relationship, as well as family, teachers, school, and non-school activities, to students being better adjusted and successful in rural schools (Stanley et al., 2008).

Similar to Kennard (2009), Stanley et al. (2008) concluded that students and school adjustment are not directly affected by the rural location of the school. The largest gap in the differences between rural and urban schools were income and parental education, both of which were significantly lower in rural areas. They suggested that students who have a positive perception of school will influence and gravitate to those who also like school, will be well-adjusted and successful with the support of parents and teachers, and have access to school and non-school activities to keep them positively engaged with the school and community regardless of their locale.

Zerbst's (2010) research examined the challenges facing 265 rural high school students in Michigan's Upper Peninsula as they prepared for post-secondary options. He found that the most frequent student challenge was not enough financial aid, followed by the academic challenge of college classes, difficulty obtaining a job, lack of motivation, and low high school grades. His study demonstrated that students need the largest amount of help gaining access to college information to apply to college. In addition, students needed help with financial aid information, completing a college application, and selecting a major. Specifically, students needed teachers and counselors to better

prepare them for post-secondary options. Zerbst (2010) concluded that parents and educators must work with high school students to provide support, modeling, resources, and education so students can "overcome perceived challenges" and experience success in post-secondary options (p. 48).

King (2012) studied the effects of grant-funded community activities in creating a college-going culture. Five of the 11 grant providers involved community at some level of implementation of their project. King (2012) noted a few successes grant providers experienced were "searching and finding community members, participating and seeking new participants, planning and organizing such events as college and career fairs, awards banquets, and workshops for parents and students" (p. 24). Parent involvement increased in college-going preparation activities as the grant providers increased marketing and diligent, ongoing communications with parents about upcoming events. Examples included "providing mentors for parents, serving food at events, parents as chaperones on college-visit trips and preparing care packages for students being accepted to college" (King, p. 24). King concluded that high school students in rural communities could be at a disadvantage because they come from households with "lower levels of education" and this could be one key driving force behind involving all stakeholders—students, parents, and community—to increase a college-going rate (King, p. 24).

White and Kline (2012) studied 263 Australian pre-service teachers participating in a rural practicum experience as part of the TERRAnova Project over 12 years (1999-2010). The Project found that pre-service teachers wanted more assistance learning how to fit into a small, rural community as well as how to teach to multi-level classrooms. Time to collaborate with peers about teaching strategies and classroom experiences, as

well as learning additional techniques for teaching students with diverse needs, was also requested. Interestingly, their findings showed that even though there were teacher education needs, if pre-service teachers experienced a successful student teaching practicum, they were more likely to apply for jobs in rural areas. In response to the results of the study, White and Kline (2012) created an online curriculum resource using thematic modules to educate and prepare teachers to teach in small, rural communities. The five modules are theory based and provide activities to reinforce what teachers need to learn if they are to be successful teaching in small, rural communities in Australia. Overall, the online curriculum emphasizes how rural teachers "connect with their colleagues both within the whole school context, across schools and within their communities" (p. 40), which enhanced the ability for pre-service teachers in rural communities to collaborate and support each other.

Small, rural communities expect teachers to be leaders not only at school, but also in the community. Schools are a reflection of their community; a small, rural community's culture, economy, and sustainability are reflected in their schools and the school "is the heart of the community . . . operating at the focus point of external economics and social influences, as well as political requirements for change" (White & Kline, 2012, p. 39). Small, rural school districts may face challenges unknown to urban and metropolitan school districts. Implementing positive change in small, rural schools can be difficult due to budget limitations determined at federal and state levels and reforms primarily benefiting urban and metropolitan school districts (Butler, 2008). In addition, limited economic opportunity and persistent poverty increase the possibility that students have limited options for career or college.

Summary

The literature review explored the key themes of college and career readiness, project-based learning, and the challenges faced by rural high school districts. The research highlighted the important role PBL has in preparing students for college and career readiness. Teachers who are trained, knowledgeable, and understand PBL will find greater success with this pedagogy and its outcomes as they prepare students for college and career readiness.

Small, rural school districts were challenged when faced with needing community resources and support to implement and sustain PBL to prepare students for college and career readiness. The challenges ranged from a lack of business and industry partnerships to demographic changes and persistent poverty (Howley et al., 2009). To resist the challenges, schools and communities needed to collaborate to seek positive solutions and grow the economic, social, and educational infrastructures of the community (Butler, 2008).

While the subject of PBL is explored, an addition to the present research that adds value is to understand the lived experiences of teachers implementing PBL to prepare students for college and career readiness in a small, rural high school district. This study sought to explore these experiences through experiences of high school teachers as they implemented PBL with the goal to prepare students for college and career readiness in a small, rural high school district.

Chapter 3: Research Methodology

Introduction

The purpose of this study was to explore how SUHSD teachers are preparing students in a small, rural high school district for college and career readiness through project-based learning (PBL). This research sought to explore these teachers' experiences with college and career readiness and PBL and to understand how PBL prepares students for 21st-century college and careers.

The following questions guided the research:

1. How do SUHSD teachers describe their knowledge about college and career readiness and project-based learning (PBL)?
2. How do SUHSD teachers describe their efforts to integrate project-based learning (PBL) into their curriculum?
3. What perceived value do SUHSD teachers attribute to project-based learning (PBL) in preparing students for college and career readiness?

To address these questions, a case study research design was employed. The various expectations, experiences, and general perceptions of individual teachers in a single rural high school district were explored with a goal to share success and remove barriers.

This chapter describes the research and design rationale, site and population, research methods, and considerations regarding access to the site. The research design and rationale are introduced, followed by a list and description of the specific methods

used to collect and analyze data. Lastly, the chapter culminates with a discussion of ethical considerations associated with this study.

Research Design and Rationale

A single, instrumental case study approach to qualitative inquiry was utilized for this study. The single, instrumental case study is used to conduct a study in which the researcher "retain(s) the holistic and meaningful characteristics of real-life events – such as life cycles, small group behavior, organizational and managerial processes . . . school processes" (Yin, 2012, p. 4). A case study is appropriate for this study because it provided the researcher the opportunity to delve deeply into the lives and experiences of SUHSD teachers to discover their perceptions about their own knowledge of college and career readiness and PBL, how they teach (or plan to teach) PBL, and how teachers perceive PBL preparing students from small, rural high schools for 21st-century college and careers.

SUHSD teachers were a "bounded social phenomenon" and an "object of study that were evaluated over time through in-depth data collection methods using multiple data sources" (Bloomberg & Volpe, 2012, p. 31). The findings of this study may transfer to other similar situations. It is hoped that this study will provide data and findings to lay the foundation for future discussions and studies for this topic.

Site and Population

Population Description

Teachers were located at one of four school sites within the Siskiyou Union High School District (SUHSD): Happy Camp High School (2012-13 8th-month enrollment at 58), McCloud High School (2012-13 8th-month enrollment at 9), Mount Shasta High

School (2012-13 8th-month enrollment at 288), and Weed High School (2012-13 8th-month enrollment at 171) (SUHSD, 2013). The SUHSD opening enrollment in 2009-10 was 734 students, and in 2012-13, opening enrollment was 598 students, a 3-year decrease of 135 students (SUHSD, 2013). The data demonstrated a continual, steady decline in student enrollment in the district over the three years.

SUHSD employed 45 full-time equivalent (FTE) core-academic and CTE teachers; of the 45 teachers, 37 were core-academic teachers and eight were designated as credentialed to teach CTE. For the purposes of this study, participants were selected through a purposeful sample of teachers from the four school sites in the SUHSD.

According to CDE's DataQuest (2012), the average years of service for teachers in the SUHSD is 14.6 years. Two teachers were in their first year, and three teachers were in their second year of teaching. The educational level of teachers in the SUHSD were classified as one with a doctorate degree, three with a master's degree plus 30 units, nine with a master's degree, 32 with a bachelor's degree plus 30 units, and five had a bachelor's degree (CDE, 2012). Six teachers voluntarily attended the initial two-day Swanson & Cosgrave, LLC PBL training in 2010-11; and in 2011-12, all teachers attended the same Swanson & Cosgrave, LLC PBL training.

Site Description

Siskiyou County is home to the SUHSD as well as the "fifth largest county in California by area, and the largest county in Northern California with the Federal and State governments owning more than 60% of the total land mass" (SUHSD, 2012, para. 1). According to the United States Census Bureau (2012), the population of Siskiyou County in 2010 was 44,900. Each of the four high schools within the SUHSD is located

in a separate, rural community allowing each school to reflect the unique cultural, historical, and educational elements of their community. The "most rural high school is Happy Camp which is a two and one-half hour drive from the District Office in Mount Shasta, CA" (SUHSD, 2012, para. 2). The one commonality of all the communities where SUHSD high schools are located is that they are small and rural with very limited educational, business, and industry resources (SUHSD, 2012).

Site Access

Site access was determined through communication and scheduling with the district superintendent, site principals, and individual core-academic and CTE teachers. I did not anticipate any issues of access for this study, as I had conversations with the Superintendent and each of the principals to ascertain their willingness for their location participation. Site permission was obtained from the Superintendent of the district.

Research Methods

Description of Each Method Used

Data collection methods utilized for this bounded case study included: (a) open-ended, semi-structured interviews and (b) artifact reviews.

One-to-one interviews. One-to-one semi-structured interviews were conducted with five core-academic and one CTE teacher(s). The interviews were conducted according to the protocol in Appendix A. Interviews were scheduled with teachers at their convenience and conducted at the school sites. A set of semi-structured questions was asked of each participant. Additional probes were asked based on individual responses. Interviews were recorded and transcribed, and the researcher documented non-verbal cues and reactions of participants to add to the transcription. The

transcriptions were analyzed and coded using in vivo coding—"literal coding" based on the words of participants lived experiences (p. 74) and emotion coding—"labeling the emotions recalled and/or experienced by the participant, or inferred by the researcher about the participant" (Saldaña, 2009, p. 86).

Instrument description. Semi-structured interviews were conducted to allow the researcher to learn of the participants, their thinking, their worldviews, and their assumptions (Merriam, 2002). The interview consisted of 21 open-ended questions for core-academic and CTE teachers (see Appendix A). Probes were used to fully understand specific participant responses.

Participant selection. Participants were selected using purposeful sampling. A minimum of five core-academic and one CTE teacher(s) participated in this study.

Identification and invitation. The participants of this research study were five core-academic and one CTE teacher(s) presently employed with the SUHSD. They were identified to represent a range of tenure, location, and gender present in the District. Teachers were sent an invitation (see Appendix B) via their work e-mail requesting their voluntary participation in this research. The notification informed all participants of the purposes of the study, teacher confidentiality, teacher anonymity, volunteer rights of the teacher, consent information, teacher withdrawal, non-compensation for the study, who to contact for concerns or questions, and how their data would be maintained to assure confidentiality once the study was complete. The researcher followed up the email invitation with a telephone call seeking to answer any questions and confirm willingness to participate.

Data collection. The interview process consisted of meeting individual teachers at a date, time, and a location that fit best with their schedule. At the start of the interview, teachers were given the opportunity to opt out and were informed about confidentiality, anonymity, recording of the interview, and whom to contact with any concerns. The projected length of each interview was between 45 and 90 minutes. Prior to the start of the interview, each participant was informed of the study's purpose; the interviewer followed a script requesting each participant's verbal consent to participate. They were informed that they may have withdrawn from the study at any time without any negative repercussions.

All data from the one-to-one interviews were recorded on a computer and transcribed into a physical document. Notes were taken during the interviews and safeguarded along with the computer recording device. All data pertinent to the teachers were kept in a locked cabinet on a drive without Internet access, according to IRB directions.

Data analysis procedures. Data analysis was drawn from narrative descriptions based on teacher interviews, researcher observations during the interview, and artifacts. Through this analysis, themes emerged, which lead to findings that were considered in light of prior research discussed in the conceptual framework. Due to the large amounts of data analyzed and coded, open coding was used to categorize the raw data (Bloomberg & Volpe, 2012). As themes and patterns were identified, a "framework is created to show what the data reveals given the purpose of the study" (Bloomberg & Volpe, 2012, p. 100). The conceptual framework became the catalyst for framing the data.

Focus group interviews. Two focus groups were used to develop rich data from a specific group of people (Merriam, 2009). Focus group interviews are beneficial when "interaction among interviewees" may produce the best data and when they work well together (Creswell, 2007, p. 226). Two focus groups, with a minimum of three teachers each, were conducted: one group represented teachers from Happy Camp High School and the second group comprised teachers from Weed High, Mount Shasta High, and McCloud High Schools. Each participant was invited through e-mail and a follow-up phone call. A consent form was read and signed by each participant explaining that their participation was completely voluntary and they were free to withdraw at any time (see Appendix C).

Instrument description. The instrument used to conduct the focus group interviews was a Focus Group Protocol (see Appendix D). The protocol was used to guide the focus group interviews and include Brief Opening Remarks, Purpose of the Focus Group, Explore what teachers know about and how they have used college and career readiness and PBL to prepare students for post-secondary opportunities, Questions, Comments and Questions from the participants, and Closure.

Participant selection. Participants were selected using purposeful sampling. Two focus groups, with a minimum of three teachers each, were conducted—one group represented teachers from Happy Camp High School and the second group was teachers from Weed High, Mount Shasta High, and McCloud High Schools.

Identification and invitation. The participants in this research study were current core-academic and CTE teachers employed with the SUHSD at the time of the study. Teachers were sent an invitation (see Appendix E) via their work e-mail account

requesting their voluntary participation in this research. The notification informed all participants of the purposes of the study, teacher confidentiality, teacher anonymity, volunteer rights of the teacher, consent information, teacher withdrawal, non-compensation for the study, who to contact for concerns or questions, and how their data would be maintained to assure confidentiality once the study was complete.

Data collection. The focus group interview process consisted of meeting the group of teachers at a time, date, and location that fit best with their schedule. At the start of the interview, teachers were given the opportunity to opt out and were informed about confidentiality, anonymity, recording of the interview, and who to contact with any concerns. The projected length of each focus group interview was between 45 and 60 minutes. Prior to the start of the interview, each participant was informed of the study's purpose and the interviewer followed a script requesting each participant's verbal consent to participate. They were informed that they could have withdrawn from the study at any time without negative repercussions.

All data from the focus group interviews were recorded on a computer and transcribed later into a physical document. Field notes were taken during the focus groups and safeguarded along with the computer recording device. All data pertinent to the teachers were kept according to IRB directions.

Data analysis procedures. Creswell's (2007) data spiral analysis was used to analyze the data with the texts or images of data, and as the researcher became one with the data, a narrative was created. The process may have been beneficial, as it allowed the focus group interview to move in a circular motion rather than linear, thus providing a better opportunity for all participants to be involved in the dialogue. Data analysis

included narrative descriptions based on teacher focus group interviews and researcher observations. Within the case, themes from the focus groups emerged and were integrated with themes from the one-on-one interviews. In vivo coding was used to "enhance and deepen an adult's understanding of their cultures and worldviews" bringing alive the voices of the participants themselves (Saldaña, 2009, p. 74).

Artifact reviews. The researcher asked interview and focus group participants for examples of their lesson plans, course syllabi, and units of study related to CCR and PBL. Additionally, administrators were asked to provide artifacts related to the initial training and subsequent performance standards.

Instrument description. The physical artifacts for this study included (but were not limited to) individual site and district meeting agendas and minutes, Swanson & Cosgrave, LLC (2013) Project-Based Learning Guide, Project Design Template, Project Scaffolding, Group Skills Rubric, Anatomy of a Project: Everyone Teaches-Everyone Learns, School Change Rubric, Small Schools Toolkit, 6 A's Rubric, Alternative Pathways Project, and Professional Learning Communities Toolkit: The Rigor and Relevance Circle. In addition, a binder of completed teacher's Project Design Templates, handouts, brochures and pamphlets marketing the end-of-the-year celebration for completed project-based learning activities, as well as individual teacher lesson plans, course syllabi, and units of study that provide evidence of integration (or lack thereof) of PBL and CCR skills were requested. All artifacts were kept in a safe location away from the school sites to maintain confidentiality and were returned to the participants upon completion of the study.

Data collection. The researcher asked participants for examples of their lesson plans, course syllabi, and units of study. If the researcher was not already in possession of the documents, she requested copies from the district administration of the individual site and district meeting agendas and minutes, all Swanson & Cosgrave, LLC (2013) training documents, the binder of completed teachers' Project Design Templates, handouts, brochures and pamphlets marketing the end-of-the-year celebration for completed project-based learning activities. Those shared by the participants and the district administration were reviewed and coded during the analysis portion of this study.

Data analysis procedures. Once the data were received, they were analyzed to make sense of what they said (Merriam, 2009). Similar to the interview analysis, coding processes suggested by Saldaña (2009) were used as a guide for analysis of the artifacts. This analysis was reviewed in context with themes that emerged from the interviews and focus groups.

Stages of Data Collection

To begin data collection, the study first received Institutional Review Board (IRB) approval from Drexel University and then SUHSD. Once IRB approvals from both locations were received, participants were recruited for this study. A timeline for data collection, analysis, and reporting is presented in Table 1.

Table 1

Timeline for Study

Activity	**Date**
Proposal defense hearing and approval	June 2013
IRB Certification - Drexel University and SUHSD	October-November 2013
Recruitment of participants	February-March 2014
Field research – Interviews	March-May 2014
Field research - Artifact review	March, 2014-January 2015
Data analysis -	March-July 2015
Write Chapters 4 and 5	July 2015-October 2016
Review and update full dissertation	
Dissertation to editor	November-December 2016
Dissertation to committee	November 2016
Submission and defense of dissertation	December 2016

Ethical Considerations

Site approval to conduct the study was sought from the SUHSD and the four high schools. Letters of site approval were submitted with the Drexel IRB process. Participants were informed that confidentiality was important. Each participant was randomly assigned a pseudonym and an identifier as data were collected. Participation in the research was optional, and participants had the option to end their participation at any time throughout the research, without any negative repercussions. Assurances were

provided to participants that there would be no reprisals or employment-related ramifications resulting from choosing to participate or not in this study. Data were maintained in a locked cabinet and kept in a separate drive that was not accessible from the Internet.

Summary

The purpose of this study was to explore how SUHSD teachers are preparing students in a small, rural high school district for CCR through PBL. This research sought to explore these teachers' experiences with CCR and PBL and to understand how it prepares students for 21st-century college and careers. A case study research design was employed to explore the expectations, experiences, and general perceptions of individual teachers in a single rural high school district to share success and remove barriers. The target population for this study was 14 high school teachers who served in a public school district in Siskiyou County. Semi-structured interviews and two focus groups were the primary data collection methods used along with observations, field notes, and artifact collection. Data analysis methods and stages of data collection were described in detail in this chapter, and the chapter concludes with ethical considerations necessary to ensure ethical treatment of study participants and the data collected from the study.

Chapter 4: Findings, Results and Interpretations

Introduction

The discussion in Chapter 4 is based on data collected from individual interviews, focus group interviews, and artifacts. To recruit perspective participants for the study, emails were sent to all teachers in the school district regarding the opportunity to participate. Prospective participants' questions or concerns about the process were answered in one-to-one discussions. After teachers who wanted to participate were identified, individual or focus group interviews were scheduled and completed. A profile of the participants is located in Appendix F.

Thirteen participants were interviewed from within a small, rural high school district for this study, presenting various perceptions related to each of their individual experiences as they have attempted to learn and implement PBL as a means to prepare students for 21st-century college and career readiness. The study participants were employed in one small, rural high school district in Far Northern California and represent four separate school site locations. Pseudonyms were used to preserve the confidentiality of participant feedback. The results are presented based on findings, literature review, and the conceptual framework.

Findings

The findings presented in this chapter are the result of analysis and coding of data from verbatim transcriptions of six one-on-one interviews and two focus groups, artifact review process, and the researcher's observations of the participants during semi-structured interviews. Three emergent themes from the 13-question (one-to-one) and 10-

question (focus groups) interview protocols were: (a) Formative Experiences; (b) In The Classroom; and (c) Preparing Students to be College and Career Ready in Small, Rural Communities. Each theme is organized with multiple sub-themes. The three themes are described at length in this chapter. A graphic depicting the themes and sub-themes is shown in Figure 4.

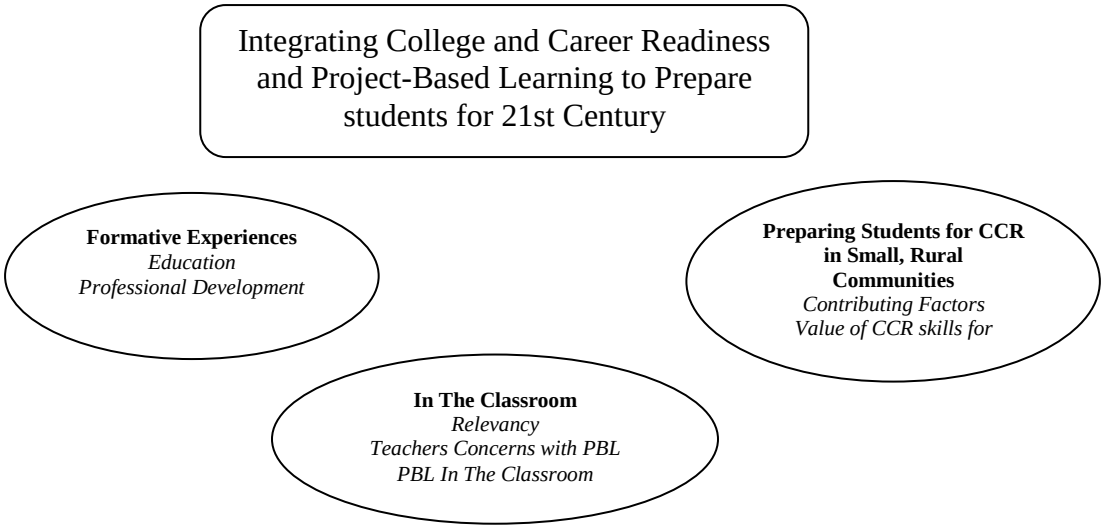

Figure 4. Themes and sub-themes.

Theme One: Formative Experiences

Teacher participants described various factors they experienced as they were introduced to PBL and CCR in the Siskiyou Union High School District. From these experiences, two sub-themes emerged from the study participants' interviews: Education and Professional Development. Participating teachers described, in specific detail, their lived experiences as they attempted to learn and implement PBL and CCR in their classes through teacher credentialing programs and district-sponsored professional development.

The following subthemes delve deeply into the participants' personal formative experiences.

Education. Two (15%) beginning teacher participants in the district described their introduction to PBL and CCR as taking place in their teacher credentialing/master's degree programs with gaining very little depth of understanding. The two beginning teachers focused primarily on their experiences during their teaching credential and/or master's programs, discussing the challenges of their university instruction as they struggled to understand and implement CCR. In a focus group, Emma reinforced this by stating:

> For me, we talked about it in my masters in teaching program . . . this is college and career readiness. You're going to be taking kids to college. You're going to be doing this. You're going to be setting them up to take tests.

Martha, as a beginning teacher, recalled similar experiences:

> I was introduced to it during my master's program and also when I was earning my credential two years back. In a very flippant way, there were various emphasis placed on it. It was like, "Here's a piece of paper. Here's college and career readiness and go do it." To be honest with you, reading a piece of paper probably would have been enough for the college portion of it.
>
> In terms of career planning, I feel like the guidance or the career portion has been very limited mostly because they don't know what kind of questions are going to be out there in the future and problems that are going to need to be solved. Because technology is moving at such a fast rate that where to start training my kids for career readiness is a strange proposition for me because I don't know what I'm preparing them for.
>
> In terms of that, I feel a little bit more undertrained that I do for the college readiness because I've been to college. I know what that looks like. I know the patters to get there and the patterns to fail getting there, to not attaining that goal.

Emma further elaborated on her university experiences from a PBL perspective:

> Project-based learning was just kinda starting. They were like, "You can go to a couple of other schools in our district and see what they're doing with that right now, but we're not going to teach you anything about it." I didn't actually see it in

> place until I went to (name of school). They started implementing it two years ago...I was thrown into that and learned how to do it on the fly, which was interesting and fun.

Because Emma and Martha are beginning teachers, their teaching experiences are limited and are reflected in their dialogue within this section. The remaining teacher participants in the study had been in the teaching profession for five or more years and participated in professional development focused on PBL and CCR both within and outside the District.

Professional development. The remaining 11 tenured teachers described learning about PBL and CCR through professional development provided by the district such as workshops, trainings, guest speakers, and planning time. The participants shared a variety of methods used by the district in an attempt to provide teachers with the knowledge, skills, and resources to understand and use PBL and CCR in their classes. Participants suggested that the initial information and trainings were somewhat satisfactory; however, teachers expressed concerns about a lack of continuing support and trainings along with the trainings and expectations being disseminated "too much, too fast," resulting in teachers being unable to complete a solid implementation of PBL and CCR.

Multiple participants described professional development and education as their primary method of formative experiences with PBL and CCR. Joe shared his experience with PBL and CCR:

> In terms of project-based learning, we had a training through our district which attempted to give us the standards and also the descriptions and skills that we would need to put in place in order to be able to integrate project-based learning into the classroom. That was a 2 or 3-day training at the district. Then, we were basically put on our own after that. We didn't have a whole lot of coaching, there

> was not a lot of follow-up but we attempted to go through and we looked at the six days of doing an authentic project. We were actually given some time, a couple of hours a week at least to try and implement this into our classrooms and get things going.

Joe further expanded his thoughts into CCR:

> The college and career readiness, we started talking about that a number of years ago, 4 or 5 I think. This was all in preparation with the common core and we had to define what that meant and that took a while. Basically, we came up with a definition for being college ready is that you don't have to have any remediation when you go to college. That seems like the best definition because we pounced around on that for a long, long time, what does it mean to be college ready. In career ready, we really have never talked about a lot of things in terms of career ready. We've done surveys. We have our little bank of skills that we publish . . . we have kids who fill out a form that has been looking whether or not they're career ready. I can show you some of those forms. I would tell you that the way they fill them out, a way a teacher would fill them out are probably done metrically opposed. They probably rate themselves very, very high and there's teachers that would say, "Are you kidding me, responsibility? Are you going to tell me you're excellent?"

Additional participants further describe how professional development and education have influenced their understanding of PBL and CCR. The examples below explain Paige's, Frank's, Karla's, and Martha's perceptions of how professional development and education have shaped their understanding of PBL and CCR.

> As for project-based learning, that's a term that's been fancied out around a lot. We were actually asked to do it as a district at rather formal series of project-based learning trainings. Then it was sent on its merry way. It was not easy to do in a really small town. A formal project-based learning project takes a lot of time, planning and coordination. It's easy to say, "Do this." It's a lot harder to actually successfully pull it off. (Paige)

> "Yeah." (Frank)

> Project-based learning I was familiar with just from having children and being a parent. The expectation was there. There was no training. It was like, "Well, you're here so this is what you need to do. You can do that, right? So do it." There was no training. There was just a high expectation and I learned on the job through staff meetings for sure. (Karla)

> Project-based learning . . . there was a lot of movement. It wasn't called project-based learning. It was called Authentic Assessment. Of course, building those authentic programs again was experienced in that. Then reintroduced to it just recently in the last few years again in a staff meeting. "Hey, this is what we'd love to do. We want you guys to do it. We're going to give you two hours a week. Let's go ahead and work on it, folks." Had a couple of presenters and of course, a couple of in-services for six hours and said, "Hey, let's deliver these authentic project-based learning experiences to our students." That's been it. (Sara)

> When I first became really aware of career technical education was about three and one-half years ago in the fall . . . I was asked to go to a workshop at College of the Siskiyous where various entities were there. Basically College of the Siskiyous was attempting to reach out to high school teachers. It was really poorly attended. It was that that made me quite aware of the importance of introducing career technical Ed and college and career readiness at a very young age. It was a pretty interesting workshop. I went to it. I don't think very many other teachers have been given the information I was given at that. (Paige)

> My experience . . . actually began in (year) at (school name). Our teachers were trained at that time to develop college and career readiness lesson plans for students. We had specific skill in character building, lessons that we had to deliver to our students. Then, of course, the New California State Standards took over in 1994 and so our emphasis was redirected in another area to focus on delivering those new state standards. (Karla)

Based on the focus group dialogue, PBL has been a topic of discussion for a while, just called a different name, and teachers are exposed to it in staff meetings. CCR was learned through professional development. Vera incorporated business and industry into her understanding of PBL and CCR:

> I can’t remember the names of the inservices we’ve had. However, we have had different kinds of training for the project-based learning. For college and career readiness, we’ve just been working with that at our school a lot. I’ve just been introduced to that bit-by-bit. I also work with some local organization like (local business). The very same kinds of things we’re learning is what they’re looking for with their employees and so forth. I guess that’s how I would have to say I was introduced . . . to PBL and CCR.

Diving further into PBL and CCR, Sean shared his understanding (and confusion) based on his experience:

> Okay, well I heard of project-based learning before. From what I understand, it was 1970s education paradigm that was around, but my first exposure to it in this district was at a professional development training that took place over a week before the school year began, 2012-2013, maybe 2011-2012 because it happened 2 years in a row.
>
> The first year was a week-long training on project-based learning and then the next training that following year was something like a few days, a recap. College and career readiness, I don't know that the project-based learning project development made college and career readiness its primary emphasis, not to say that I don't believe college and career readiness was the goal of project-based learning. But rather, I felt like college and career readiness, as a concept, was briefly discussed at the beginning of the training and then the rest of the training dealt with the nuts and bolts of project-based learning.

Martha shared her frustration with the lack of support and resources in the implementation process:

> I've been given these sheets of paper that say, "Here's the 15 things. Here's the 15 college and career readiness standards for Common Core now. Here's this." I've never been given any timeline or planning or structure that would say, "This has been tried and true. It's been successful in other elementary or high schools or junior highs or whatever and maybe you should try it." That hasn't even come in to my teaching existence, the planning portion of it. I'm not sure whether I was supposed to come up with that out of my head.

In this section, participants shared their formative experiences with relation to this study. Two sub-findings were discussed and include education and professional development. The next finding, In the Classroom, provides insight into teachers' experiences with using PBL in the classroom.

Theme Two: In the Classroom

Participants discussed their excitement and concerns about using PBL in their classrooms. Excitement was shown as they talked about bringing relevance to learning for students. Teacher concerns were expressed and associated with the challenges with students lacking basic skills; a lack of planning time; grading; misunderstanding about

PBL; and difficulty recruiting community members in small, rural communities as a vital component of PBL in the classroom.

Relevance. Relevance is the primary reason participants perceived PBL and CCR to be important in teaching and learning. Brook explained her excitement with regard to relevance in a PBL classroom:

> What excites me is there's more application to the real world. I also teach the standards I was given, but I can go outside the box and do more real world issues in (discipline) and more up and coming things and then take that and have the kids actually devise experiments and research about that.

Sharing her excitement, Brenda expanded on her PBL experience:

> I think first of all the freedom that I have to be able to teach and provide opportunity to students of where they need. If it's learning for college and career, I can drive the topic or the curriculum, try to get something that's relative, but challenging for students, that they're involved makes all the difference in the world. That they have their say-so and that they are a part of the decision-making of project-based.

Additional teacher study participants Brook, Karla, and Sara recalled similar experiences.

> What excites me is there's more application to the real world. I also teach standards I was given but I can go outside the box and do more real world issues . . . more up and coming things and then take that and have the kids actually devise experiments and research about that. It just presses out more. I can use more real world text and information . . . than I did before. (Brook)

> Real world application is pretty exciting and thinking versus remembering. So much of what I have had to teach previously was rote memorization with one correct answer. . . . I love the teamwork. It's a challenge in a class where classroom management is a challenge. I love teamwork because that's what they are going to need in the real world, is to communicate with all different kinds of people who either agree or don't agree or so forth. Building their social skills. There's no absolutely dogmatic right or wrong answer, that it looks different in terms of grade evaluations. It looks different in terms of classroom management in a classroom where everyone was sitting politely at a desk with a pencil in hand and their face bent over a worksheet. That's not happening anymore and it could look like the classroom is not being managed properly. . . . It's exciting to the students because it's relevant. (Karla)

> I think another exciting component to it is just sitting back and letting students take control. So much has been the "I do, I do, I do." Now it's "You do, You do." Students are engaged more I think in their learning. They're realizing it's not just doing work to get a grade. It's "I'm learning. I'm producing for my education and how this is going to help me in the real world." (Sara)

Marge emphasized how relevance creates excitement and learning among students in her classes:

> Because I think it can be more relevant to the students and again they're not just in a textbook. They're not just writing essays. There's a purpose for everything. They're coming together in a group. They're planning out what they're going to do. They are assigning different people in the group jobs. This is like a real workplace environment for them. They create this project and they present it. They are using all of those, reading, writing, speaking, listening, group skills, working together, persistence, managing their impulsivity, all these things come together in a project and they actually enjoy what they're doing it. That's what excited me about it because it seems to be more relevant to the students and it was . . . it seems like it was better preparing them for the real world.

Authentic learning was a focus that Joe shared as providing increased relevance in his classroom:

> I think what was exciting about using project-based learning in my teaching . . . is that it's more authentic. It's real. I wasn't just evaluating students; they were being evaluated by members of our community. I respect the members of our community. People in the business community were evaluating them and then people were coming in and holding their feet to the fire. The deadlines were not deadlines imposed by me. The deadlines were imposed by people outside the school. When quality work wasn't happening and deadlines were missed, it wasn't me just saying, "Your grade is going to suffer." It was somebody from CDF or somebody from a business . . . saying, "Look, you dropped the ball here. You didn't come through."

Cody expressed that the application of theory and skills by students was the best way to provide relevance for students.

> What excites me . . . the skills that the students get actually apply, that's the biggest thing that excites me. Because you can talk to somebody and you can teach him a specific skill, but if they don't have any way to physically apply it to something, there's no relevance. They don't every get good at anything. Whereas,

> if it's project-based, they get higher level skills and it makes them so they're actually ready to go do something instead of just having the theory behind it.

Participants shared their excitement and the positive experiences they had as they learned and began implementing PBL. Next, participants expressed their concerns related to experiences and challenges with PBL.

Participant concerns with PBL. Concerns about PBL from participants' perspectives included challenges with students lacking basic skills; a lack of planning time; grading; misunderstanding about PBL; and difficulty recruiting community members in small, rural communities. A core teacher, Brook, described her concerns about students not having reading and critical thinking skills to do the work, as well as how she, as the teacher, assesses this new way of learning:

> I'm really concerned, number one, that the students do not have the reading ability yet. They don't have the critical thinking skills yet to do the work we want them to be able to do, especially on the tests. I'm concerned about evaluating them. How do I evaluate them when there's not going to be one right answer anymore?

Cody, a CTE teacher with six to nine years of business and industry experience, continued his concern about grading when grading is student-to-student vs. evaluating a student based on his her own growth and achievement.

> Sometimes it can be challenging to grade individuals, that's the only issue I've ever had. Every person has different traits, and when you put them in a project-based environment, some of them will achieve different levels. To me, the grading portion is secondary. Because every person gets a certain level of skills either way, and gets to whatever plateau they get to. The grading can be interesting as far as comparing student-to-student. When you just compare a student to themselves, it makes no difference. That's the only concern I've ever had. Otherwise, it doesn't matter. It's the easiest way to let students grow.

Vera expressed concern that PBL can be trivialized, which can result in misunderstandings about what PBL is:

> You have to realize that it's a bigger picture than doing what you would consider projects in your classroom, just on a basic level. I think some people misunderstand what that concept is about. I think you'll learn from doing things and realizing what you want to do better.

Reflecting a similar perception as Vera, Marge shared her concerns about the lack of connection to the bigger picture:

> Some of the projects that we have chosen, while they were fun and exciting, I saw a shift to something important, they really weren't making a good connection with the real world. We needed to have pathways, a way that students can see that by doing this, they are preparing themselves for jobs someday. The projects we had were fun, interesting. They did learn, but I couldn't see a bigger purpose, that relevance piece, for the real world was missing - even if they were doing something like a website for helping the team. That's wonderful. They had a great time doing it. It was very creative, but it didn't connect to a bigger picture.
>
> It was like what we did is really cool websites and some teams will look at it, but that's it. It didn't go further. It wasn't deep enough. I feel like it was more of a cosmetic approach. It did do many of the things we wanted it to do but it wasn't nearly deep enough. It wasn't making those connections so the kids could see the relevance of it.

Lack of time, from both planning and implementation, was discussed as a significant challenge by one-third of the study participants. Planning time was not sufficient, as Joe reflected in his dialogue:

> It's time consuming. It doesn't always fit neatly into a curriculum, which is trying to teach common core. When I say it doesn't fit neatly, it doesn't mean it doesn't fit, it's just very difficult to try to figure out how to implement it. You've worked with members of the community. They have limited schedules. You try to schedule things around them.

In a focus group, Karla and Sara shared their concerns about the challenges associated with the time needed to plan and implement PBL.

> Frontloading. I want to say something about administration. They do not understand how much frontloading is involved in this process. I'm obviously an educated person or I wouldn't have this job, but yet I have to read the new material more than one time. I can't just glance at it, pass it out and expect it to be absorbed and discussed and dissected. I really have to understand it. So, I'm reading the pieces that I'm giving to my students several times. I'm looking for a

whole new process of how do I make this thing happen. Once it's happening, then my whole roll changes from teacher to a manager as I go around and keep the discussion alive . . . sometimes the discussions get really hot and those are new skills. We're stirring them up and we're causing them to think. These are going to be little metaphoric fires started here and there that we have to . . . I mean, that's new to us, the thinking and all that. Then administration doesn't . . . First of all, I don't think that they understand fully what they're asking us to do. (Karla)

My biggest concern is time and resources...there is so much frontloading. As a historian, yes, I have a vast realm of primary source documents to dip into. However, again, it's the time to prepare those document, evaluate them for my own self. How do I present them accurately to my students giving them the time to dissect them, to annotate them, to evaluate them? Those are all big concerns. I mean, I spend one day of the weekend just reading through new materials. There's things in there that I would love to continue to do for my students, but yet, time is of the essence. I do have to get through two hundred years' worth of history before the end of the year. Sometimes I have to get through more of that 600 years because they haven't even had history in elementary school or junior high because of PI. They've got their state run program and it doesn't allow for students to have science or math or history. I think, again, adding to that, our administration has no idea of the time this is going to take. Another, I don't think the state has an understanding of how much time this is going to take for educators to prepare in our rural areas. (Sara)

I think for all of us educators, the time investment that we're giving to this, the concern is always, "Well, are we going to throw the baby out with the bath water? How long is this going to last?" We've all been here long enough to see how curriculum changes, program ideas change. I mean, our project-based learning started three, four years ago and we're already moving on to the next thing. (Sara)

Our time has been taken away to work on it. (Karla)

Exactly. (Sara)

How can we develop? We all were taught in credentialing school, it takes five years to develop a good lesson. We haven't had that. You're going to test us this next year and we haven't even had the five years to develop the lesson yet. (Sara)

I'm so frustrated with the whole administrative strategy for educating us that instead of giving us time with our colleagues, they hire these people who don't know what they're talking about to come and lecture us for hours on end. Then they don't give us time to get back together with our colleagues to do anything with it. We protest in mass. We protest singularly. We protest as staffs. We protest as union. We protest as district and still they do not hear our needs. They

> want all these beautiful results that they fully don't understand, but they're not giving us the process that we need to accomplish our goals. (Karla)

With some frustration, and yet, in support of her peers, Vera discussed her thoughts and concerns regarding additional planning time for PBL implementation, leading participant discussion into the next section, focused on PBL in the Classroom.

> Sometimes, of course, I think we all wish we had more time for planning. I don't even know if that's even valid because things are so fluid when teaching in a high school that you may think you're going to plan the whole dang year. It's a waste of time. In reality, I think planning closer to when you're going to present the outline that you're looking ahead to. As far as really planning in detail, no. It changes with every class anyway with your clientele. Have different clientele for the same classes but all four of those classes have different clientele. I find myself presenting it in different ways to each class even though it's the same thing.

Participant concerns regarding PBL implementation focused on concerns with assessment of PBL, lack of connection of PBL projects to the real world and a lack of planning time, and administration's lack of understanding with regard to frontloading when preparing PBL. PBL in the Classroom delves into participants' experiences with the process of implementing PBL in a classroom environment.

PBL in the Classroom. The 13 teacher participants described their experiences with implementing PBL, both in his or her own classroom and also integrated with various core teachers. Each teacher's description is very personal and demonstrates the vast variation in, and at times confusion with, understanding what PBL is and what it looks like in classroom environments. Joe described his concern about the time it takes to begin, implement, and sustain integrated PBL:

> I would just say, to reiterate again, that it's time consuming. It's time consuming. I think there needs to be more of a partnership. I'm thinking about it right now . . . there needs to be more of a partnership between Career Technical Education. The problem is we want to have PBL but do we want that in every one of our classes?

> I can't handle that. I can only take one group and I'll say work with that one group with PBL. If I try to do it every single one of the my classes, it's overwhelming - the amount of time that that would take. To try to hold them accountable, and myself accountable and try to get things meshed from period to period, it would be tough to do. If I had another teacher to work with, that's the other thing too, is that it's supposed to be 2 or 3 or 4 teachers working together. Many times it comes down to 1 or 2 working together.

Sean discussed a more traditional approach to teaching and learning PBL and showed uneasiness with understanding how to implement PBL:

> so the one project-based learning assignment that I can think of is the original research paper that students drafted last year, 5- to 8-page original research paper. We went to the library. They were given a tour of the library. They learned how to find sources. They looked at different sources that were assembled for them. They had to look through information and understand a way in which that information from different sources composed a body of knowledge about a particular topic. They had to think about what was missing, what they could possibly say in regards to that larger conversation. They then read articles and books that might help them do that. Then they interviewed people in the community for their expertise, and then they went through the steps of taking this information and drafting it into a paper. Then they presented it.
>
> I ask them to get out of their seat sometimes and that's about as physical as it gets sometimes, to move over and talk to people in groups. For the most part, it's pretty within the realm of academic reading and writing modalities. I tried other kinds of modalities where they do skits, more physical modalities, and somehow doing skits about the (topic name), something like that just doesn't work. I don't think that more physical learning modalities are necessarily bad, but those projects that incorporate those more or lean on those more make it more related to what ends up higher on Bloom's Taxonomy.

Paige, Martha, and Frank found that PBL improves student retention and learning when working with multiple teachers and involves a strong tie to the community. Paige began by discussing her belief that a strong community tie is one of the principles of PBL:

> One of the principles of project-based learning is a strong community tie to this facility. For my subjects, we have a really strong group of artists and scientists that are very supportive. I'm really happy about that.

Martha shared that she finds that when students work with multiple teachers, they hear the learning more than one time which makes PBL a more effective method for student learning:

> I found the most effective thing with project-based learning is to incorporate multiple teachers. They'll get it. When they're hearing about it for two periods instead of one, they're more likely to get it. The (project), I tried linking it to biology or chemistry or science discipline or physical education or health or find some other discipline where you can collaborate with somebody else to make it hit those guys twice a day instead of just once a day.

Frank was excited with PBL because his students learn how to "market" themselves through the selling of a product created in his class:

> I get really excited when my kids learn to promote themselves and they sell a piece of their work. They sell a piece of work because, as we know, dollar bills drag all of us. When they actually carry in their pocket a dollar and the thrill that they get, thrills me. …I have some kids that really are learning how to sell themselves. They underestimate what they're worth. That's my job to teach them how to price themselves.

Martha concluded the discussion by agreeing with Frank; his use of PBL in his class excited her to learn that students are doing relevant and meaningful work, producing and selling a product.

> Your class excites me. When I come into your (class), I come in there for a reason. I want to feel better. I want to see products really. Every time I leave there, I feel better. I also get to see my kids doing something that's…very tangible that they're producing with their hands. For some of them, it's the thing they are good at and they love coming into that place. It's a place where I get to see them happy, producing and actually showing that they value college and career readiness ideology. They're using those ideas there. They're making money. They're making the grain, which is what they want to do.

As core teachers, Vera and Brenda shared experiences with PBL implementation and reflected how they modified their teaching to be more like career technical education, a student-centered approach with positive results. Vera found that with teaching on-line

courses, she concentrated more on CTE, which includes employability skills, not just teaching core curriculum:

> I would say I concentrate a lot more on career technical education now since I teach on-line and since we're teaching employability skills than I do just teaching core curriculum. Like I said, that is the vehicle that we learn bigger concepts with. I think it's more important than anything really. I've changed the way I teach totally. (My teaching is) definitely student-centered. They don't like that. Some of them don't like it either because they want . . . Like I said, do you want me to get out the pabulum now and spoon it into your mouth? You have to think about things. I'm the facilitator. I don't lecture much. I give instruction and then I provide support for them finding their way through the material.

Student behavior is evidence of change with the use of PBL in Brenda's classes. She is able to increase the involvement of her students, which allows her to give students choices of topics to learn in her classes.

> I think my teaching before was much more teacher-directed; grade emphasis, passing skills. I think it's changed in just what we do in the classroom, and I noticed one evidence of change is behavior. I have far less behavior problems than I did before. I think the fact that our students have more involvement, more decisions, with more choice on their part, and they're more interested in the topic. It can have more to do with that and things that are relevant; the topics. I feel like I'm allowed to use more creativity as well as the students are. What makes it fun.

Cody described how he changed his teaching within CTE to integrate more text and writing in an attempt to find ways to integrate with core teachers:

> It (teaching) has changed a little bit. Because I end of doing more text based to try to make it so that the students are hearing it from me as well as other core-based teachers. They definitely change the way I teach, but I found that I am not as efficient or as qualified to teach core subjects, so I struggle with that. It's changing me because I accept more than I have before, if that makes any sense. It has changed my project a little too, because I end up making the students write more in the beginning of their decision on whatever it is they're doing, and then more at the end of it all, for project assessment. . . . it's not a whole huge change for career tech ed. They're changing to us, not us changing to them.

This section focused on the In the Classroom findings with three sub-themes of relevancy, teachers' concerns with PBL, and PBL in the classroom. Relevance was the

main thread among teacher respondents as the reason PBL is so crucial to teaching and learning. The majority of study participants shared some form of excitement related to their implementation of PBL in their classrooms due to increased student engagement, fewer classroom management issues, and empowering students to be responsible for their own learning. Participant concerns with PBL included, but were not limited to, lack of planning and implementation time, challenges with grading, confusion about what PBL is, and relevance of professional development. PBL implementation discussion encompassed participant experiences within his or her own classroom as well as across the curriculum. The following section discusses the third and final finding, Preparing Students for CCR in Small, Rural Communities.

Theme Three: Preparing Students for College and Career Ready (CCR) in Small, Rural Communities

The majority of the participants were able to definitively describe contributing factors and the value of CCR for students with respect to CTE and core integration, technology, HOMs, challenges of rural schools, and success in life. Some participants shared their concerns about administrative expectations such as lack of planning time, lack of support, and ongoing training. A few expressed concerns about a lack of a specific definition of CCR along with an unclear understanding as to what CCR means in teaching and learning.

Contributing factors. During a focus group interview, Brook shared her concerns about students not being able to step up and teachers unsure about how to prepare them for 21st-century college:

> I don't think our students have been able to step-up to the level they need to be so they're prepared for 21st-century college. We're still working on baby steps. We

> need to still bring them up to that level. I can't say that what I've done so far is preparing them.

Karla and Sara contributed their experiences and struggles as they attempt to prepare students for college and careers using new resources such as Say-Mean-Matter, a visual and graphic organizer used to assist students in organizing their thoughts and resources to depict the relationship between facts, terms, and or ideas within a learning task.

> I feel like we're in the process. It feels like baby steps. Away from the right answer and that rote memorization and that sit and listen to a lecture and take notes, but don't ask questions kind of mentality is going away. I was really excited on our campus that we talked about Say-Mean-Matter instead of talking about trying to get things put into a five paragraph essay format. I was excited because my niece went to a very high end, very, very top end school in (specific area), went away to a top school, top college in (city name) and was given the same thing which is fancier names for Say-Mean-Matter. She said that her professors were very happy that they could reiterate what they had read, that they could extract the meaning out of it and that they were able to defend their perspective and apply it to their life and that that was the way to go. (Karla)

> I felt like that was only the second year that I had been doing that particular way of teaching. I feel like yes, baby steps. We're on the way. We can't expect to...and this is what administration needs to get. They can't expect that they're going to introduce us to something in August and that we are going to master it and have our students have mastery of all aspects of it after only one year exposure and be ready to go on to college with it. The system is backwards that they should be evaluating these children from the time they're itty bitty. They should be evaluating the (grade level) when they've had (specific number) years of this, not when they've had, "Okay. There's a whole new way of thinking." In business, no matter what your business is, if you're going to have a major paradigm shift, you don't expect everything to change and be perfect and fly right overnight. You don't. You honor those little steps along the way. They're called marketing strategies in real world. We're marketing these kids for college and we've got to figure out that it's going to take some time for them to become the product we want. They're not going to change overnight. (Sara)

Acknowledging Karla's and Sara's input, Brook continued the discussion as she shared her concerns about how to reach the lower level students using resources such as Say-Mean-Matter to support them as they strive to reach higher-level knowledge and skills.

I guess what I'm feeling is they're asking me to get my lower level kids up to the AP level kids. That's what I'm saying. I'm going to get my lower level kids and they're not ready. They don't have the basic reading skills and the cognitive ability to Say-Mean-Matter yet. They want them to be like my AP kids who are going to Berkeley, UC Davis now. That's why I'm saying I haven't got them ready yet. (Brook)

You can't. You can't. They can't get ready now. We really need to look at structure in...I mean, math has levels. Why do all students come in at the same level in English? Why do they come in at the same level in Science? I mean, we all have different levels. What is so wrong with finding where a student is and taking them from that point forward instead of drowning half your class or boring half your class? We teach to the middle because that's what we've got - this huge conglomerate mess of all these different abilities and we're expected to take. Although we're being told that they're supposed to be critical thinkers which means are you going to be unique and different? We're expected to cookie cutter them all and to make them all pass at a rate of 98% by 2015 or whatever it is. It's not going to happen. It is frustrating, but how much more successful would you be if you're low end students were in a low end class, just for low end students and you could start there. (Karla)

Yeah, much better. (Brook)

If you could take your middle students and lead them up to your top students to stimulate the heck out of them. How awesome would that be? (Karla)

It would be amazing. Challenges of rural schools because we don't have that. We don't even have a selection of teachers. When we have personality issues with student(s) . . . this is a small community and I think that needs to be noted. I mean, for those of us who've been in education in this community a while, we get the second generation and we get the cousins of and we get the neighbors of. Sometimes a teacher and a student are not a fit and they have no choice in that matter either. (Brook)

I think, in part, we have to give ourselves permission to fail. That's part of the reality. I've never been one to follow the standard. I've never been one to teach to the test. You know what? It's okay if my kids ended up on some years where they were below basic. I knew by the time they were done in June, that I have covered my framework. The students had a greater understanding of (subject). That's how I'm approaching it this year, I now have permission to teach students to be (subject) detectives. They're balking at it. They're like, "No, no, no. You got to give me the date, the event." They're not like, "You mean, I have to read this and decide for myself what really happened? I don't get that." I'm like, "You know what, it's okay. I don't get it either and it's all right to do it that way." It's stumbling through together and I think that's the part we have to go, "You know

> what? Administrators have to understand that we're striving towards that at some point. We're going to reach that goal." I'm advocating, give us five years. Give us time to develop that lesson, to develop this next generation coming in who are just starting. I mean, I see it in my own child in (primary grade). They're developing that at that level. Oh my gosh, when (my child) comes up to high school, it's going to be incredible. (Sara)

> That's where we untangling bad education happens . . . where we teach them how to learn. They're done the rote method all 10, 11 years. You know what I'm saying? We can't break those habits, but those young ones are coming up, they will be ready. (Brook)

Sean emphasized his concerns about PBL as a means to prepare students to be college and career ready:

> It's dangerous to say that project-based learning needs to be the mode and single paradigm that we go to. Sometimes I find myself questioning where it comes from and on these grids of power, who occupies these places where they possess the power to make project-based learning have that kind of status, whether it's here or there.
>
> I have my own ideas about how that all works, but I don't think that teachers are really asked to be participants in the discussion process around this. When we were told that we're doing project-based learning, we were told that this is it folks.

Vera expanded the discussion by sharing her wish for more planning time in preparing students to be college and career ready:

> Sometimes, of course, I think we all wish we had more time for planning. I don't even know if that's even valid because things are so fluid when teaching in a high school that you may think you're going to plan the whole dang year. It's a waste of time. In reality, I think planning closer to when you're going to present the outline that you're looking ahead to. It changes with every class anyway with your clientele. I find myself presenting it in different ways to each class even though it's the same thing.

Cody shared his thoughts about the challenges of the structure of the school system to prepare students for college and careers:

> I think . . . structure of our school system, in general, don't blend well to project-based learning and trying to put the core into project-based learning. It's just the old school thinking way we prepare kids for life. When you feel that kind of

> changes, I don't know how successful any of it will be but at least it's an attempt. At some level, it's pretty successful no matter what.
>
> To make big changes, we have to change our culture around the way we education . . . I don't know if we're good at that, to our best abilities and our best use of our student's time. That's a whole other theoretical subject.

In addition to the contributing factors expressed by study participants as they attempt to prepare students for CCR, multiple participants described a variety of various CCR skills that are of value to students, as catalogued in the following section.

Value of CCR skills for students. Marge, a core teacher, explained her belief of the immense value technology plays in both core and CTE and, ultimately, in preparing students for CCR.

> I think realizing that everything you do in the world is related to technology. The car you buy, the music you listen to, the refrigerator, whatever it is, all has technology involved with it. If students don't get involved with technology in its various forms and get used to and comfortable using it, that's going to hold them back from the real world.

Marge continued her insight and provided discussion about the concept that not all students go to college and how the big push that every student has to go to college actually resulted in losing many students.

> They (students) need to have . . . they need to know that just going to college for four years does not guarantee them an education. There are a myriad of other careers out there, in career technical education for kids to explore and find out that, "Hey, I'm really good at this. I may not be good at reading this book and answering these questions and taking this test, but I can show you what you know, what I learned in career technical ed. They can make a good living at it, a better living than some people who graduate from college with a degree. When I started realizing . . . because we used to have this big push about they have to go to college, they have to go to college, and we were losing so many of these students. Then, when CTE really came to the forefront in our school, because, for a while we were kind of not aware of how much was really there to our technical department, start showing us all the possibilities that were out there for kids. We started realizing, "That boy, we were cutting him short because we weren't showing him all these things."

> Core needs to support CTE, because right now, I feel our school, we have more students that will find the job through CTE . . . than going the traditional course work because every day I see more and more kids that are not engaged, are not, seem . . . full of apathy. There's so much out there that we aren't even aware of as core teachers. It has to come together if we really want to reach these students, to give them career pathways. CTE and core need to join together and we need to be the support piece to CTE, in my opinion.

Relevance is a key term, as Cody delved deeper into Marge's insight about the role core and CTE should play in achieving the relevance needed to prepare students for CCR.

> As far as preparing them (students) for 21st century skills, any of those engineering courses made it so that computer-based learning had relevance. That relevance seems to be the biggest piece for me as far as preparing them for careers. When they get relevance, and when I say relevance just . . . we can give them all the tools in the world, but if they don't have an idea where to use those tools, and where to take them, it doesn't always make sense. I know there's students that were able to achieve that, but definitely it made a difference.
>
> There's a lot of students that struggle in other core courses, but they don't always know why they struggle. The specific stories I like to think about are the ones that the students excel in CTE, and it gives them that sense that they still have a place to belong and they are just as smart, just as successful, whatever. They have the same skills, but they also have the relevance and understand how to apply them. There's lots of stories where those kids can actually be more successful than our core courses. I can think of several that are . . . in college or in careers that weren't the best core students but they got the same skills and they've figured how to function due to CTE. It is partially an integration between the two. They've actually been able to succeed.

Vera added her perceptions of the value of CCR in preparing students for life after high school.

> Don't think there's any job that you sat and look in a textbook and write down answers. Any job that you do will have that project component to it. Even if it's just something that's a short project. I have to get this done in the next hour. Or if it's a long project, we have to prepare this package of whatever it is in the next two months or whatever. Or this proposal or whatever. I would say that . . . it's the same with college these days. I understand pretty much that students work in teams and they prepare different kinds of more of a real life project than just the book learn, put that in quotes, "book learning kind of thing." Yeah. (Vera)

Brenda and Karla synthesized the value of CCR in preparing students for life by emphasizing that 21st-century skills thread through personal, professional, and social aspects of life.

> The value that they offer (CCR skills) is that they will be successful in life. Not only whatever jobs they choose or whatever colleges they are going to go and learn and study, but how they're doing in their present jobs, how they're doing in their relationships with their family and their community, how they function as a citizen, I think they're just invaluable to have 21st century skills. They're going to help tremendously too in their esteem, their confidence in what they can do. It kind of catapults them into really striving. (Brenda)

Karla shared her excitement about PBL, which allows students to be engaged and realize the relevance of what they learn in her classes:

> I'm seeing students that were former sleepers participate and get involved and stay involved beyond the classroom. When the bell rings, their thought process is not over. I think that's pretty exciting!

Authentic learning and community involvement was the focus of Joe's excitement with respect to PBL and preparing students for CCR.

> I think what was exciting about using project-based learning in my teaching . . . is that it's more authentic. It's real. I wasn't just evaluating students; they were being evaluated by members of our community. I respect the members of our community.
>
> People in the business community were evaluating them and then people were coming in and holding their feet to the fire. The deadlines were not deadline imposed by me. The deadlines were imposed by the people that were outside the school.
>
> Those kids were accountable to them because they knew those people were coming back and were going to look them in the eye and say, "What have you accomplished?" They didn't want to be unprepared when those people showed back up. For me, it just reinforced when quality work wasn't happening and deadlines were missed, it wasn't me just saying, "Your grade is going to suffer." It was somebody from business saying, "Look, you dropped the ball here. You didn't come through." That means w whole lot more to the kid than I guess I can take a seat on this and maybe make it up later.

The findings within this chapter show three main themes that emerged from the data analysis of relevant artifacts, field notes, observations, and transcriptions from six individual and two focus group semi-structured interviews. The three main themes demonstrate participants' perceptions of their formative educational experiences, in the classroom experiences, and preparing college and career ready students. Within the findings, participants shared their positive experiences along with ongoing challenges as they try to prepare students in a small, rural high school district to be college and career ready in the 21st century.

Results and Interpretation

This section reviews the results of the study arising from the findings and sub-findings previously discussed. Three results became evident: (a) Education/training and professional development influence the implementation of PBL and CCR; (b) Teacher experiences bring relevance and excitement, and concerns bring challenges in the classroom; and (c) Identifiable factors contribute to preparing students to be college and career ready in a small, rural high school district.

Result One: Education/training and professional development influence the implementation of PBL and CCR.

Teacher study participants described various education/training and professional development influences as lacking in their implementation of PBL and CCR. They identified initial information and trainings were somewhat satisfactory; however, they expressed concern that lack of continued support and trainings resulted in teacher frustration and unsatisfactory implementation of PBL and CCR. Two beginning teachers described their PBL and CCR training as beginning in their teacher credentialing and or

master's programs with outcomes being very vague and lacking in depth of knowledge and understanding. The remaining 11 teacher participants, who are tenured in the district, shared their experiences learning and implementing PBL and CCR through district professional development.

Training(s) were stated to be the gateway for teachers to be exposed to PBL and CCR, and limited, short-term, ongoing District professional development was offered to participants during the initial phase of implementation. Participant concerns focused on lack of time, planning, and or structure along with little to no continued coaching and follow-up, all of which resulted in teacher participants being frustrated with the implementation process. Overall, the experiences of the teacher participants' implementation process was "too much, too fast" and lacked comprehensive initial and ongoing support and resources. Short (2011) specifically concluded that districts should provide professional development and support for teachers to learn and develop pedagogical understanding "to ensure effective implementation of these practices" (p. 110). In addition, Johnson et al. (2003) found that ongoing professional development and resources for teachers are a necessity to provide a solid connection between academic and CTE teachers, and the infrastructure of the school/district must be supportive and engaged with curriculum integration for teachers to be successful.

Result Two: PBL Teacher Experiences Bring Relevance to Student Learning along with Concerns with Implementation and Sustainability in the Classroom.

The PBL approach commonly integrates core with CTE within career pathways with the intent to prepare students for 21st-century college and careers. Within career pathways, PBL can be relevant, rigorous, and meaningful, as the content relates to the

students' post-secondary goals and allows teachers to differentiate teaching to meet the needs of all students (Pieratt, 2011). Eight of 13 study participants described their excitement about PBL due to the relevance it brings to student learning. All eight participants shared that relevance is demonstrated by student engagement and application of information to the real world. Many responded that they enjoyed having the freedom to teach and allow students to take ownership of their own learning. One participant shared the paradigm shift to "You do, You do, You do" and how it allows students to learn by thinking and doing, actively solving real-world problem(s) without focusing on getting a grade. Learning through relevance was expressed by a majority of participants as a strength of PBL and CCR in that it provides students with learning and feedback from experts and community members rather than only teacher(s). Students have the opportunity to apply what they are learning so they ascertain meaning and relevance of the topic and or subject, applying the learning to real-world topics.

Concerns of a majority of the teacher participants was the lack of time given to prepare, collaborate, implement, and sustain PBL and administration not understanding how much frontloading is required for successful PBL. Additionally, a majority of study participants were confused about why the district took planning time away before complete PBL implementation had taken place. Through multiple studies, research identified a call for additional training in order for teachers to become more effective as facilitators of PBL (Merlo, 2011; Pieratt, 2011; Short, 2011). Further, Merlo (2011) found that PBL is only as effective as the knowledge and training of the teacher and when this is lacking, it may negatively impact the students' PBL experience.

Some study participants described their lack of understanding of what PBL is and how to integrate it into their teaching and learning. Over half the participants shared their concerns about the challenges of PBL implementation and master schedule conflicts inhibiting the ability to create career pathways due to limited flexibility in a small, rural school setting. One-third of the study participants discussed lack of time, for both planning and implementation, as a significant challenge. PBL and CCR are very time consuming and require significant frontloading and preparation to implement and sustain. In addition, the time required to connect and collaborate with business and industry and other subject-matter teachers increases the overall planning time required to achieve successful PBL and CCR. Research shows that effective secondary curriculum integration is based on the need to have fewer sustainable pathways rather than multiple (Johnson et al., 2003). They concluded that the connection between academic and CTE teachers needs to be solid and the infrastructure of the school/district must be supportive and engaged with curriculum integration, providing ongoing professional development and resources for teachers to be successful (Johnson et al., 2003).

Most of the study participants shared, at times, confusion with understanding what PBL is and how it looks in a classroom environment. Participant confusion centered on how to create, implement, and sustain PBL; how to integrate core and CTE teacher(s); understanding the difference between an activity and a project; and classroom management. Strobel and van Barneveld (2009) found that PBL is effective for "long-term retention, skills development and satisfaction of teachers and students" with traditional demonstration of strengths in "short-term retention" that which is needed for the current state-testing expectations (p. 44). Further, they concluded that research

should focus on different support factors to understand "optimal scaffolding, coaching, and modeling strategies" for a teacher's successful use and understanding of PBL (p. 55).

All participants mentioned PBL grading as a challenge and that they need help to understand and implement, as PBL grading is different from conventional grading with its primary focus on student-to-student with some teacher-to-student grading. Some participants expressed concerns about how to grade when there is no longer a right or wrong answer. According to Short (2011), PBL will only be an effective teaching pedagogy if districts provide teachers with professional development and support to learn it and how to "effectively implement the practices" (p. 110).

Result Three: Identifiable factors contribute to preparing students to be college and career ready in a small, rural high school district.

All participants described contributing factors and the value of CCR for students to directly tie to one or more of the following: CTE and core integration, technology, HOMs, challenges of rural schools, and success in life. A majority of the participants shared that the CCR preparation process is happening, in baby steps, even though administration expects overnight change and results.

Boykin et al. (2010) identified that "Skilled careers include jobs that are sufficient to support a family of four and are projected to grow in the future and offer opportunities for career advancement" (p. 1). They found that academic skills in reading, communication, and mathematics required for college are the same as those required for skilled career job training. Participant teacher interview results indicate that reading, writing, critical thinking, information and technology, as well as honesty and integrity, are the most important CCR/HOM skills required for graduating 12th-grade students.

Seven of 13 believe that teaching CCR/HOM skills is equally as important as teaching core standards; four believe they are more important than teaching core; and two believe they are important, but not as important as teaching core. Over half of participants teach CCR/HOM skills that are relevant to their course(s), and the remaining participants teach all 15 CCR/HOM skills. Based on overall results, participants value CCR skills as important to students' success in life.

Boykin et al. (2010) concluded that "high school graduates need to be educated to a comparable level of readiness in reading and mathematics if they are to succeed in college-level courses without remediation and to enter career training programs to learn job-specific skills" (p. 8). Hagen (2010) research study results indicated that participation in at least one CTE class, in a small, rural Indiana high school, provided relevance to what students were learning in core classes, developed their competence, and gave them "a sense of confidence" as they pursued post-secondary opportunities. Many SUHSD participants also discussed relevance as a vital component in preparing students for CCR success, to give students not only the tools but the knowledge and skills to apply those tools to be CCR. These same participants expressed concerns about the lack of student success in core courses due to a lack of relevance that was evident in the classroom.

Some of the participants appreciated administration bringing Say-Mean-Matter as a strategy to use for preparing students for CCR; however, participant concerns were expressed that lower ability students are not ready (or able) to learn with respect to a lack of basic reading skills and cognitive ability. Darr's (2010) study sought to determine if reading skills could be enhanced through contextualized reading in career and technical

education. Darr studied CTE students participating in the Content Area Technical Education Reading program (CATER) at a single high school. CATER curriculum embedded an individual student's career aspirations into course readings, offering rigor and relevance. He concluded that programs like CATER provide a combination of rigor and relevance as a means to enhance reading skills for some CTE students. He recommended that CATER and similar programs be made available to all students as education reform focuses on preparing them for 21st-century college and career readiness.

Summary

This chapter discussed, in detail, the findings of the study, represented in three main themes that emerged from the research. Findings were presented through the voices of the individual research participants and include: (a) Formative Educational Experiences; (b) In The Classroom Experiences; and (c) Preparing Students to be College and Career Ready in Small, Rural Communities. In addition, four study results were identified and discussed in this chapter and were gleaned from themes and patterns that emerged from the research. These results were: (a) Education/training and professional development influence the implementation of PBL and CCR; (b) Teacher experience brings relevance and excitement, and concerns bring challenges in the classroom; and (c) Identifiable factors contribute to preparing students to be college and career ready in a small, rural high school district. Each result was presented individually within this chapter and correlated to the relevant literature. The findings, results, and interpretations discussed throughout the chapter provide the foundation for the recommendations offered in the following chapter.

Chapter 5: Conclusions and Recommendations

Introduction

The purpose of this qualitative research study was to describe the lived experiences of Siskiyou Union High School District (SUHSD) teachers as they attempt to prepare students in a small, rural high school district for CCR through PBL. This was accomplished through an analysis of the literature in combination with fieldwork, which included semi-structured individual and focus group interviews with each of the participants, field notes, observations, and careful review of artifacts collected. Through the data analysis, the researcher sought to understand the participants' perceptions of their journey, through the lens of their experiences, utilizing PBL to prepare students to be college and career ready. The researcher's axiological stance is the medium through which she gathered and filtered data. Three themes emerged from the findings and included: (a) Formative Experiences, (b) In The Classroom, and (c) Preparing Students for College and Career Readiness in Small, Rural Communities.

Results were then drawn from the research findings and positioned within the relevant literature. The study's results indicated the role of education and professional development in participants' understanding (or lack thereof) of PBL and CCR; (b) relevancy as a catalyst for participants to integrate PBL and CCR; (c) PBL in the classroom; and (d) contributing factors for participants' successes and challenges in preparing students for CCR along with the value of CCR skills for students influenced participants' ability to understand and implement PBL and CCR in a small, rural high school district.

Conclusions from this study were drawn from the research questions and the findings detailed in Chapter 4 and were ultimately drawn from the experiences and perceptions of the participants. Following is a discussion of the conclusions drawn from this research, including answers to the research questions. Answers to the study's three research questions are integrated in a discussion of participants' formative experiences with education and professional development, their classroom experiences with PBL and CCR, and the successes and challenges in preparing students in a small, rural high school district for CCR. Recommendations for practice and research follow the discussion. The chapter concludes with summary and final reflections of the researcher.

Conclusions

The lived experiences of small, rural secondary teachers understanding and integrating CCR and PBL to prepare students for the 21st century were the essence of this study. The research questions focused on small, rural secondary teachers and how they perceived their experience of being introduced to PBL and CCR, how they are teaching and integrating PBL and CCR skills, and how that teaching is preparing students for CCR.

Research Question One: How do SUHSD teachers describe their knowledge about college and career readiness (CCR) and project-based learning (PBL)?

When describing the experiences of this study's participants, SUHSD teachers in a small, rural district, it can be said that professional development provides the basic foundation for teachers to learn about and attempt to implement CCR and PBL. The newly graduated participants from teacher credentialing/master's degree programs revealed that the exposure they received in these programs, with regard to CCR and PBL,

was minimal. The lack of teaching and exposure to CCR and PBL in these credentialing programs resulted in perceived lack of preparation for the beginning teachers in understanding and implementing CCR and PBL.

SUHSD tenured teachers revealed their individual understanding of CCR and PBL to be somewhat confused and yet, each teacher perceived they "understood" PBL and CCR. The confusion seemed focused on a lack of a clear definition of what PBL and CCR are and how they can be implemented and are interrelated. Participants emphasized their feeling of continued administrative high expectations and yet, a lack of administrative support (coaching and follow-up) after initial professional development sessions as well as a lack of time to collaborate and successfully implement CCR and PBL.

Research Question Two: How do SUHSD teachers describe their efforts to integrate project-based learning (PBL) into their curriculum?

The foundation associated with SUHSD teachers' descriptions of their efforts to integrate PBL into their curriculum centered on relevance, relevance to learning for students. Participants described relevance as more authentic learning and preparing students for the real world. In addition, student engagement increases with relevance because students are asked to do the work and apply skills to their learning, along with understanding a purpose for what they (students) are being asked to do, all of which influence participants' ability to integrate PBL.

Teacher participants' perspectives included challenges associated with attempting to integrate PBL into their curriculum. Students' lack of basic skills; a lack of planning time; grading; misunderstanding about PBL; and difficulty recruiting community

members in small, rural communities were primary concerns expressed by participants. Not enough time is a huge challenge, as expressed by teacher participants. Time for frontloading, preparation, collaboration, and implementation is needed for teacher participants to sustain PBL. Participants expressed transitioning from teacher-centered teaching to student-centered teaching is time consuming and requires teacher understanding that PBL is bigger than a project in the classroom. In addition, community members are integral to PBL success and trying to meet their schedules to participate in PBL is essential for students to see the connection to the real world (relevance). A majority of participants shared their frustration about a lack of community resources due to the small, rural area in which they live. Again, participants perceived that there is a lack of time and support for the required community connection to take place within PBL.

Research Question Three: What perceived value do SUHSD teachers attribute to project-based learning (PBL) in preparing students for college and career readiness (CCR)?

Teacher participants described the perceived value of PBL in preparing students for college and career readiness to include CTE and core integration, technology, HOMs, challenges of rural schools, and success in life. Meanwhile, concerns were expressed about administrative expectations such as lack of planning time, lack of support, ongoing training, as well as a lack of a specific definition and an unclear understanding of CCR as it relates to teaching and learning.

Participant teacher interview results indicate that reading, writing, critical thinking, information and technology, as well as honesty and integrity are the most important CCR/HOM skills required for graduating 12th-grade students. Seven of 13

participants believe teaching CCR/HOM skills is equally as important as teaching core standards; four believe they are more important than teaching core; and two believe they are important, but not as important as teaching core. Over half of participants teach CCR/HOM skills that are relevant to their course(s), and the remaining participants teach all 15 CCR/HOM skills. Based on overall results, participants value CCR skills as important to students' success in life.

Relevance is a key term participants used to describe PBL in preparing students for CCR. Teacher participants expressed that students struggle in core courses but do not understand why. The struggle seems to stem from a lack of relevance and connection between why students are being asked to know and be able to do in the classroom and how it is important to a student's CCR success.

The perceived value of PBL in preparing students for CCR include challenges that hinder teacher participants' ability to attain ongoing relevance and full implementation of PBL and CCR in their classrooms. Teacher participants reported that administrative expectations were unattainable because administration expects teachers to learn, implement, and have students successful with PBL and CCR overnight, resulting in teacher frustration. A lack of support after training and through the implementation process results in, again, teacher frustration and the PBL concept being dropped by teachers. An additional challenge reported by a majority of teacher participants was that faced by rural schools with respect to community resources available to support PBL and CCR in the classroom. Teacher participants shared that minimal selection of teachers from which students could choose to take courses was a challenge, resulting in students having to take courses from teachers with whom they have personality conflicts.

Recommendations

Based on the findings, results, and conclusions of this study, the researcher offers recommendations for improving practice in ways that address issues of supporting secondary teachers' quest to prepare students for CCR through PBL in a small, rural high school. With the ever-changing requirements and expectations from the state and federal education systems, a focus on bringing more relevance and understanding to what students need to know and be able to do in the classroom is crucial. Recommendations provided are intended to assist both the study sites and similar institutions in promoting policies and practices supporting secondary teachers' quest to prepare students for CCR through PBL in a small, rural high school.

The recommendations are offered primarily based on the specific sites and population, which were the focus of this study. Other institutions may benefit from implementing some or all of these recommendations. However, it should be noted that other school systems may have already implemented these, or similar, recommendations. Therefore, each recommendation should be considered for appropriateness within the various institutional contexts or populations that would be impacted.

Recommendations for Action

1. Support teachers with initial and continuous professional development to gain a clear understanding of PBL, college and career readiness, and how the two integrate to provide relevance for students. The confusion on the part of teachers as to how to define and address PBL and CCR needs to be addressed to avoid further confusion and frustration.

2. Develop district-wide best practices in supporting interdisciplinary PBL and CCR such as projects, technology integration, classroom management (HOMs), successes, and gaining and sustaining business and industry resources. Sharing teacher successes both through a repository and in person will assist all teachers and administrators to gain a better understanding of how to create, develop, implement, and evaluate PBL and CCR.
3. Provide ongoing, regularly scheduled planning time and PBL experts, within the teacher contract day, for teachers to collaborate and create, develop, implement, and re-visit PBL across the curriculum. Supporting teachers with the time needed can bring a direct awareness and understanding of the power and relevance of interdisciplinary PBL as teachers continue to prepare students for college and career readiness expectations.
4. Provide teachers with ongoing professional development focused on various grading strategies they can use with student-centered activities and PBL. The most widely used grading strategy for PBL is rubrics, which are very subjective and can be difficult for teachers to defend with students, parents, and administration. All stakeholders would greatly benefit from trainings that provide teachers how to create, integrate, and apply rubrics (and other valid grading tools) into their PBL teaching and learning.
5. Provide teachers with an ongoing, current community business and industry database or website that they can access to request guest speakers, mentors, paid/unpaid internships, and externships and job shadow experiences for students and teachers. Time is very valuable for teachers in this transition to a

different teaching methodology, and finding ways to provide teachers with easier access to PBL and CCR resources is crucial.

6. Implement district-wide short- and long-term action plans that outline how administration is going to provide teachers with ongoing PBL and CCR support from initial professional development and through implementation and evaluation for improvement. The action plan needs to be specific and include goals and outcomes for teachers and administration throughout the PBL and CCR processes to ensure the goals and outcomes are sustained and teachers feel they can learn, implement, and prepare students for PBL and CCR success in a reasonable time frame.

Recommendations for Future Research

1. Focus future research on the successes and challenges of PBL and CCR as they are experienced by K-14 teachers in small, rural schools and colleges throughout California.
2. Study K-14 teacher perceptions as to how they are integrating PBL and CCR to prepare students for the CCSS standards and assessments or the community college student learning outcomes.
3. Consider a study of K-14 administrators to gain their perceptions of PBL and CCR and how they can optimally support their teachers to implement and sustain PBL and prepare students for CCR.
4. Research how K-14 teachers collaborate to design, implement, and sustain linked, interdisciplinary K-14 projects.

5. Research K-14 beginning/new teachers to gain their perceptions as to how well they were prepared in their teacher credentialing program(s) to teach/facilitate learning with PBL and CCR.

Summary

This study provided the opportunity to review and analyze how secondary teachers in a small, rural high school district perceived their knowledge about PBL and CCR, their efforts to integrate PBL into their curriculum, and the value they attribute to PBL in preparing students for CCR. The results and findings characterize the perceptions of secondary high school teachers through their own personal experiences. The research provided data confirming the successes and challenges of each participant's experiences with PBL and CCR.

Tenured participants described that their basic foundational knowledge about PBL and CCR was gained from professional development and was confusing because there was not a clear definition of PBL and CCR. Beginning teachers shared that their introduction to PBL and CCR in their credential programs was minimal and that they were not prepared to teach using PBL and CCR once in the classroom. Many participants were frustrated because they perceived administration expected immediate results with PBL and CCR implementation, yet, there was a lack of administrative coaching and follow-up.

Authentic learning and relevance were the primary successes described by participants when describing and explaining PBL. Student engagement increased because students could experience and understand why they were learning the lessons and topics in the curriculum. One of the greatest challenges associated with integrating

PBL into teacher curriculum was not enough time, time needed for frontloading, preparation, collaboration, and implementation if teachers are to sustain PBL. In addition, a lack of time and support to recruit business and industry from the community was a concern of many participants. Further challenges associated with integrating PBL into teacher curriculum included students' lack of basic skills, grading, and a misunderstanding about PBL among teacher participants.

As business and industry continue to communicate and collaborate with public education to determine what students need to know and should be able to do upon high school and college graduation, successful, integrated PBL and CCR are primary tools and resources for every K-14 teacher and administrator. Together, relevance, rigor, and relationships are key to the success of every student preparing for 21st-century careers. Educating and training K-14 teachers and administrators to understand and implement PBL and CCR across disciplines via pathways, LinkedLearning, and CPAs will prepare the majority of students for success in the future, highly competitive economy.

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Appendix A: Interview Questions

How do SUHSD teachers in a single, rural school district describe their knowledge about college and career readiness and project-based learning?

1. Describe how you were introduced to college and career readiness and project-based learning?

2. What excites you about using project-based learning in your teaching?

3. What concerns you about using project-based learning in your teaching?

4. From your understanding of college and career readiness, how are the core-academic and college and career readiness skills related (if at all)?

5. How do you define 21st Century college and career readiness Skills?

6. From your perspective, what value, if any, do 21st Century college and career readiness skills offer students?

How do SUHSD teachers describe their efforts to integrate project-based learning to prepare college and career readiness students?

1. What have you incorporated into your project-based learning assignments, activities and/or projects? (Please describe in detail.)

2. What learning modalities do you draw upon to teach project-based learning?

3. How has integrating core-academic and CTE through project-based learning changed (if at all) the way you teach?

4. Describe any specific barriers that limit you from teaching project-based learning.

What perceived value do SUHSD teachers identify project-based learning plays in preparing college and career readiness students?

1. What integrated project-based learning activities and/or projects have you experienced? How have these experiences influenced the preparation of your students for 21st Century College and Careers?

2. What specific stories do you have to share?

3. Finally, what haven't I asked about that is important for me to know?

Appendix B: Invitation to Participate, Interview

One-To-One Interview - Letter of Inquiry

(date)

Dear _____,

I am writing to invite you to participate in a research study. This study seeks to explore SUHSD teachers' experiences with college and career readiness and project-based learning. This study is being conducted as part of the dissertation requirement for my Doctoral Degree in Educational Leadership and Management at Drexel University under the supervision of Dr. Kathy Geller, my dissertation Supervising Professor.

If you choose to participate, you will participate in a confidential one-to-one, 60-90 minute interview and complete a short on-line survey. The semi-structured interview seeks to explore your experiences relative to college and career readiness and project-based learning. While there is a common set of questions that will be asked to all participants, participants may be asked to clarify to deepen understanding answers they have given.

With your permission, the focus personal interview will be audio-taped and I will take notes of the conversation. The audio-tape will be transcribed verbatim to caputure accurate record of the conversation. While your responses will inform the findings and conclusions of the study, you identity will be held in confidence. On transcripts and the survey, you will identified only by way of a pseudonym. In addition to the interview responses and the short survey, you may be asked to provide documents such as lesson plans, course syllabi and units of study that show your use of prject-based learning and college and career readiness skills.

Participation in this study is completely voluntary. You are free to decide not to participate or to withdraw at any time without consequence. There are no known risks and/or discomforts associated with this study.

The audio tapes, transcriptions and documents shared will be maintained confidentially at the researcher's home site in a locked safe during the study; and at its conclusion, documents will be returned to you, and the audio tape and transcription will be maintained in a locked file at Drexel University, Sacramento.

If you have any questions, I would be happy to talk to you about the research. You may also contact the Principal Investigator: Dr. Kathy Geller, Ph.D., Drexel University (Sacramento Campus), School of Education, (916) 213- 2790; kdg39@drexel.edu

Thank you for your time. I look forward to your response.

Sincerely,

Bright M. Nichols-Stock
Co-investigator
Doctoral Candidate
Ed.D in Educational Leadership and Management
Drexel University, School of Education
530-276-7334

Appendix C: Informed Consent

Drexel University
Consent to Take Part In a Research Study

1. ***Title of research study:*** *Secondary Teachers Quest to Prepare College and Career-Ready Students in Small, Rural High Schools*

2. Researcher: *Kathy D. Geller, PhD., Principle Investigator; Bright M. Nichols-Stock, Co-investigator.*

3. Why you are being invited to take part in a research study?

We invite you to take part in a research study because you are a teacher in the Siskiyou Union High School District.

4. What you should know about a research study.

0* Someone will explain this research study to you.
1* Whether or not you take part is up to you.
2* You can choose not to take part.
3* You can agree to take part now and later change your mind.
4* Whatever you decide it will not be held against you.
5* Feel free to ask all the questions you want before you decide.

5. Who can I talk to?

If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team at Drexel University, Sacramento, (916) 213-2790.

This research has been reviewed and approved by an Institutional Review Board. You may talk to them at (215) 255-7857 or email HRPP@drexel.edu for any of the following:

6* Your questions, concerns, or complaints are not being answered by the research team.
7* You cannot reach the research team.
8* You want to talk to someone besides the research team.
9* You have questions about your rights as a research subject.
10* You want to get information or provide input about this research.

6. Why are we doing this research?

This research will hopefully contribute to understanding small, rural high school teacher's experience of learning, understanding, and teaching project-based learning and college and career readiness skills and how students benefit from this learning experience.

7. How long will the research last?

Your participation will consist of participating in a 60-90 minute interview and complete a short survey. Data will be collected from all participants over a 30-60 day time period.

8. How many people will be studied?

We hope to have about 10 teachers in the Siskiyou Union High School District participate in this research study out of 45 teachers in the entire school district.

9. What happens if I say yes, I want to be in this research?

Your participation in this study requires an interview during which you will be asked questions about your experiences relative to Project-Based Learning and College and Career Readiness preparation and skills. The duration of the interview will be approximately 60 minutes. With your permission, the interview will be audio-taped and transcribed, the purpose thereof being to capture and maintain an accurate record of the discussion. Your name will not be used at all. On all transcripts and data collected, you will be referred to only by way of a pseudonym.

10. What happens if I do not want to be in this research?

You may decide not to take part in the research and it will not be held against you.

11. What happens if I say yes, but I change my mind later?

You agree to take part in the research now and may stop at any time it will not be held against you.

12. Is there any way being in this study could be bad for me?

Participation in this study carries the same amount of risk that individuals encounter during a usual classroom activity.

13. Do I have to pay for anything while I am on this study?

There is no cost to you for participating in this study.

14. Will being in this study help me anyway?

The potential benefit of this study is improvement of secondary educational practice primarily for teachers in small, rural high schools. There also may be no personal benefit.

15. What happens to the information we collect?

The information collected from this study will be published as a dissertation. In addition, information may be used for educational purposes in professional presentation(s) and/or educational publication(s). Under no circumstances whatsoever will you be identified by name in the course of this research study, or in any publication thereof. Every effort will be made that all information provided by you will be treated as strictly confidential. All

data will be coded and securely stored, and will be used for professional purposes only. Any participant's identifiable information will be aggregated within themes to remove any possible chance of being linked to specific of this study.

16. Can I be removed from the research without my OK?

The researcher may withdraw me from the research at her professional discretion.

17. What else do I need to know?

This research study is being done by Drexel University.

Signature Block for Capable Adult

Your signature documents your permission to take part in this research.

DO NOT SIGN THIS FORM AFTER THIS DATE →

Signature of subject	Date
Printed name of subject	
Signature of person obtaining consent	Date
Printed name of person obtaining consent	Form Date

My signature below documents that the information in the consent document and any other written information was accurately explained to, and apparently understood by, the subject, and that consent was freely given by the subject.

Signature of witness to consent process	Date
Printed name of person witnessing consent process	

Appendix D: Focus Group Questions

1. Describe how you were introduced to college and career readiness and project-based learning?

2. From your perspective, what value do 21st Century college and career readiness skills offer SUHSD students?

3. What integrated project-based learning activities and/or projects have your led or experienced?

4. What excites you about using project-based learning in your teaching?

5. What concerns you about using project-based learning in your teaching?

6. What have you incorporated into your project-based learning assignments, activities or projects? (Please describe in detail.)

7. What learning modalities do you draw upon to teach project-based learning?

8. How have these experiences influenced the preparation of your students for 21st Century College and Careers?

9. Describe any specific barriers that limit you from teaching project-based learning.

10. Do you have any other comments?

Appendix E: Invitation to Participate, Focus Group

(date)

Dear _____,

I am writing to invite you to participate in a research study. This study seeks to explore SUHSD teachers' experiences with college and career readiness and project-based learning and to explore how teachers' apply project-based learning. This study is being conducted as part of the dissertation requirement for my Doctoral Degree in Educational Leadership and Management at Drexel University under the supervision of Dr. Kathy Geller, my dissertation Supervising Professor.

If you agree to participate, you will take part in a 60-90 minute focus group interview and complete a short on-line survey. The focus group interview seeks to explore the group's experiences with college and career readiness and project-based learning. A common set of questions will be asked to all participants; additional questions may be asked to clarify and deepen understanding.

With your permission, the focus group interview will be audio-taped and I will take notes of the conversation. The audio tapes will be transcribed verbatim to capture an accurate record of the conversation. While your responses will inform the findings and conclusions of the study, your identity will be held in confidence. On transcripts and the survey, you will be identified only by way of a pseudonym.

In addition to the focus group dialogue and short survey, you may be asked to provide documents such as lesson plans, course syllabi and units of study that show your use of project-based learning and college and career readiness skills.

Participation in this study is completely voluntary. You are free to decide to participate or not to participate and may withdraw from the study at any time without consequence. There are no known risks and/or discomforts associated with this study.

The audio tapes, transcriptions and documents shared will be maintained confidentially at the researcher's home in a locked safe during the study; and at its conclusion, documents will be returned to you, and the audio tape and transcription will be maintained in a locked file at Drexel University, Sacramento.

If you have any questions, I would be happy to talk to you about the research. You may also contact the Principal Investigator: Dr. Kathy Geller, Ph.D., Drexel University (Sacramento Campus), School of Education, (916) 213- 2790; kdg39@drexel.edu

Thank you for your time. I look forward to your response.

Sincerely,

Bright M. Nichols-Stock
Co-investigator
Doctoral Candidate
Ed.D in Educational Leadership and Management
Drexel University, School of Education
530-276-7334

Appendix F: Profile of the Participants

Sean. Sean has 10 plus years of professional work experience outside of education and attained a Bachelor's degree. He has up to 5 years of teaching experience in the CORE.

Joe. Joe achieved 15 or more years of teaching experience in the CORE. In addition, he brings 6-9 years of professional work experience to education.

Brook. Brook has taught 11-15 years in the CORE and attained a Bachelor's degree. She has 10 or more years of professional work experience.

Karla. Karla has 6-9 years of professional work experience, attained a Bachelor's degree and has 15 plus years of teaching experience in the CORE and CTE.

Sara. Sara earned a Bachelor's degree and has taught in the CORE for 15 plus years. She has 6-9 years of professional work experience outside of education.

Vera. Vera brings 10 or more years of professional work experience outside of education. She has taught in the CORE for 15 plus years and completed a Bachelor's degree.

Brenda. Brenda has taught CTE for 11-15 years. She achieved a Bachelor's degree and has 0-2 years of professional work experience.

Marge. Marge completed a Bachelor's degree and has 15 plus years of teaching experience in the CORE. She brings 0-2 years of professional work experience to education.

Emma. Emma has been teaching in the CORE for 0-5 years. She earned a Master's degree and has 3-5 years of professional work experience outside of education.

Frank. Frank completed a Bachelor's degree. He has taught CTE for 6-10 years and accomplished 10 or more years of professional work experience.

Martha. Martha has taught 0-5 years in the CORE. She has 6-9 years of professional work experience along with successfully completing a Master's degree.

Paige. Paige has taught in the CORE for 11-15 years. She earned a Bachelor's degree and has 3-5 years of professional work experience outside of education.

Cody. Cody completed a Bachelor's degree. He has 6-9 years of professional work experience and has taught CTE for 6-9 years.