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Measure twice, cut once: community college learning communities designed for career and technical education students

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MEASURE TWICE, CUT ONCE:

COMMUNITY COLLEGE LEARNING COMMUNITIES DESIGNED FOR CAREER AND TECHNICAL EDUCATION STUDENTS

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by

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DEDICATION

To my darling son Mas. Thank you for your encouragement, your understanding of long nights of studying and time away from you. Thank you for your love and your example of perseverance.

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VITA

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ABSTRACT

The purpose of this sequential, explanatory, mixed methods study was (a) to investigate the degree to which Career Technical Education (CTE) students in selected California Community College (CCC) believe that the core components of learning communities (LCs) designed for traditional, academic track students exist in LCs designed for CTE students; (b) to determine which of the core components, if any, are perceived by students as most beneficial, for CTE LCs; and (c) to explore any additional components that students might believe to be essential for LCs designed for CTE students.

In the first phase of this study, the *Online Survey of Students' Experiences of Learning in a LC*, developed and implemented by the National Resource Center for Learning Communities, was administered to a cross section of 75 current CTE LC students from three California Community Colleges to determine the perception of implementation of the core components of a LC. In phase two, survey respondents were able to opt-in to a focus group or interview designed to determine which of the core components, if any, were most beneficial and to explore their experience in the LC to emerge any critical components not included in the survey instrument. Thirty-five survey respondents participated in six focus groups on campus.

The findings of this study support the following conclusions. Study participants in this study found all four components of a successful learning community integrated curriculum, innovative instruction, engagement and supportive services, present in their learning community designed for Career and Technical Education. Students found supportive services to be the most important component in their learning community, followed by engagement. Supportive services are perceived by students to be key to successful participation, retention and success of survey participants. Specific personnel, peer mentors, teaching assistants, coordinators,

counselors and instructors, represent the greatest source of support and means for engagement connecting students to the larger campus community as well as to supportive services. A career focus in the learning community helps students persist and succeed in their learning community and serves as a point of engagement.

Chapter 1: Introduction to the Study

California and the United States have a "skills gap," a phenomenon where, despite large numbers of unemployed people, many positions go unfilled because they require a specific technical skill such as welding or machining (Accenture, 2014; McCarthy, 2014; Morrison et al., 2011). A 2014 industry study that interviewed CEOs of large manufacturing companies in the United States found that over 50% of interviewees reported plans to increase manufacturing in the United States, but 75% reported a moderate to severe skills gap hindering that growth (Accenture, 2014). This skills gap is predicted to grow. A report of recommendations to the California Community Colleges Board of Governors on the state of the workforce and the economy as it relates to community colleges estimates that by 2025, 30% of jobs in California will need some post-secondary education and that California's educational institutions are not matching this need (Board of Governors, 2015). It is predicted that the United States will need 22 million new jobs by 2018, but that we will have 3 million fewer graduates than needed (Carnevale, Smith, & Strohl, 2010).

Theoretically, California Community Colleges should be able to fill this skills gap. The primary mission and function of the California Community Colleges is codified in California Education Code to, "offer academic and vocational instruction at the lower division level" (Donahoe Higher Education Act, 1991, sec. 66010.4. [a][1]). If enough vocational students, or the more contemporary term Career and Technical Education (CTE) students, complete technical programs at the community colleges, the number of skilled graduates should meet the demand of employers. This goal, however, was complicated by the 2008 recession.

Massive budget cuts to the education system because of the 2008 recession have helped to fuel a debate on the mission of community college (Desai, 2012; Labov, 2012). As open access 2-year institutions, community colleges have evolved to have a very comprehensive

mission. Desai (2012) describes the broad and divergent mission of the community college as five-fold: "academic and transfer; vocational, occupational, and technical; remediation or developmental; … community service … and economic development" (p. 112). As the economic crisis unfolded, and access to resources tightened, many questioned which aspect of the community college mission was paramount and which should be abandoned (Desai, 2012). Should community colleges focus only on transfer? If so, should they cater to students more academically likely to succeed at a university and therefore abandon their mission of accessibility and open access? Do they ration courses? In 2012, Santa Monica Community College approved a two-tiered pricing system to offer additional sections of high demand academic classes at $200 per unit, instead of the state set fee of $46 per unit, a plan that critics claimed was a move against open access (Rivera, 2012). In the debate over the mission of community colleges, what happens to Career and Technical Education (CTE) students, and who trains the skilled workers upon whom society heavily relies?

With shrinking resources and a widening skills gap, the California Community Colleges Chancellor's Office (CCCCO) looked towards learning communities (LC) as one strategy to support student's basic skills and to train skilled workers for industry. Utilizing a cohort model, LCs link two or more classes. They range in integration from having a common theme to being so heavily integrated that they have common assignments or projects or are even co-taught. The philosophy behind this model is to build a community of support and shared experience. There are multiple models for various LCs with a varying success depending on implementation (Minkler, 2002; Tinto, 2003). While the literature is inconclusive on the academic success of LCs, there is consensus on the success of social integration for LCs (Minkler, 2002; Schnee, 2014; Tinto, 2003; M. G. Visher, Wathington, Richburg-Hayes, & Schneider, 2008).

A LC designed for CTE students, called the Career Advancement Academy (CAA), was funded through grants from the CCCCO beginning in 2007. The CAAs specifically recruit students who may not otherwise go to college. These students often lack basic skills and have a desire to learn a trade. While each CAA site is unique, the model consists of cohorts, Contextualized Teaching and Learning (CTL), an industry focus, and integrated support services embedded into the program design (Cooper et al., 2014; OMG Center on Collaborative Learning, 2013). These design elements make the CAAs a LC specifically designed for CTE students. There are also other LCs designed for CTE students in California Community Colleges, many of these had CAAs as their genesis (Equal Measure, 2015). While the CAAs are a strong example of LCs designed for CTE students, there are other LCs for CTE students, many of which began as CAAs.

Statement of Problem

Learning communities (LCs) are an intentionally created structure for students and faculty that provides, at the least, a common learning experience, such as a seminar, but also may be two or more linked classes in a cohort, with an emphasis on deep learning through cross-curricular inquiry and innovative instructional strategies (Engstrom & Tinto, 2008; Minkler, 2002). LCs are an intervention for support for post-secondary student retention, in particular for groups who had not traditionally gone to college (Jehangir, 2009; Tinto, 1993; Valentine et al., 2011). The wide spread use of LCs by community colleges has primarily focused on traditional, academic track students with few LCs designed for Career and Technical Education (CTE) students. The academic literature has identified five core components of successful learning communities (LCs) at the post-secondary level: a cohort structure of an LC, curricular integration, innovative instructional strategies, engagement, and supplemental student support services (M. G. Visher et al., 2008; M. G. Visher, Wathington, Schneider, & Collado, 2010; M.

G. Visher et al., 2012)[1]. Of these five components, one is structural, the cohort structure of an LC. The remaining four are programmatic and identified as having the widest variability in implementation: curricular integration, innovative instruction, engagement, and supplemental support services (M. G. Visher et al., 2008). It is the four programmatic core components this study investigates.

The LCs studied and represented in the scholarly literature are designed for traditional, academic track students (Crisp & Taggart, 2013; Mapeso, 2012; Matthews, Smith, & MacGregor, 2012; Powell, 2009; Tinto, 2003; M. G. Visher et al., 2012; Weiss et al., 2015). It is unknown if the core components apply to LCs designed for California community college CTE students, or if there are other core components that identify successful LCs for these students. Therefore, a need exists to study the core components of a LC designed for CTE students at the community college level.

Purpose and Nature of Research

The purpose of this sequential, explanatory, mixed methods study was (a) to investigate the degree to which Career Technical Education (CTE) students in selected California Community College (CCC) believe that the core components of learning communities (LCs) designed for traditional, academic track students exist in LCs designed for CTE students; (b) to determine which of the core components, if any, are perceived by students as most beneficial for CTE LCs; and (c) to explore any additional components that students might believe to be essential for LCs designed for CTE students.

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[1] These core components of a successful LC, are based primarily on the most comprehensive study of LCs to date, the Learning Communities Demonstration project, and are not meant as a prescription but rather a framework for that study (M. G. Visher et al., 2008; M. G. Visher et al., 2012).

The study was explanatory, mixed method, sequential, measuring the degree of attitudes or beliefs and collecting data cross-sectionally. The study collected data from current and recent CTE LC students from three California Community Colleges who took the *Online Survey of Students' Experiences of Learning in a LC*, developed and implemented by the National Resource Center for Learning Communities (NRCLC) to determine the perception of implementation of the core components of a LC. Respondents were able to opt-in to a focus group or interview designed to determine which of the core components, if any, were most beneficial and to explore their experience in the LC to emerge any critical components not included in the survey instrument.

Research Questions

The study sought to address the following questions:

1. To what degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program?
2. Which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students?
3. What core components or factors for successful learning communities (LCs) in addition to those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students?

Importance of Study

California Community Colleges are in the midst of redesigning in light of legislation that has changed the focus of CCC funding from counting students in courses to providing student support services (Seymour-Campbell Student Success Act, 2012). There is a nation-wide trend in 2-year colleges to move from a cafeteria-style menu of options, which leaves many students floundering, for "guided pathways" (Bailey, Smith Jaggars, & Jenkins, 2015). There is a similar effort across California's K-12 and CCC systems on career pathways, carefully structured sequences of courses coupled with support services from high school to college that end in careers. These investments have been substantial, including $500,000,000 for Career Pathways Trust Grants, $900,000,000 for CTE Incentive Grants both from the California Department of Education, and over $100,000,000 from the James Irvine Foundation since 2006, all targeted to development and support of specific pathways programs (California Career Pathway Trust, 2013; Career and Technical Education Incentive Grant, 2015; Warner et al., 2015). Given both state and private investments in these redesign efforts; it is timely to flush out best practices that support CTE students in community college.

CCC administrators and CTE deans may be interested in designing LCs for CTE students. Industry partners of CCCs with middle skills employment needs may be interested in CTE LCs as potential employment recruitment pipelines. Policy makers wishing to incentivize best practices for CTE student success may find this study useful.

This study may contribute to literature by looking more deeply at what makes a successful LC designed for CTE students. There is a gap in the literature on LCs for CTE students as they are a fairly new phenomenon. Applying the lessons from the extensive literature on LCs with an understanding the unique needs of CTE students can help CCC practitioners to better serve their students.

A potential outcome of this study may serve to inform more well designed LCs for CTE students. Well-designed LCs for CTE students could address the needs of CTE students for basic skills and college-knowledge support, and employers' need for middle skills workers. A potential result of this study could be that more CTE students may succeed in these programs, therefore reducing the skills gap and unemployment rate, specifically for marginalized populations.

Theoretical Framework

LCs are rooted in constructivism and social constructivism. They have a strong influence from both critical pedagogy and the interactive model of student departure. Together these schools of thought inform education that is collective, empowered, and engaged in the both the academic community and the wider world.

Constructivism promotes the notion that people create knowledge through interaction between our experiences and knowledge, which lends itself to contextualized teaching and learning (CTL), an important component of CTE (Baker, Hope, & Karandjeff, 2009; Cross & League for Innovation in the Community, 1998; Piaget, 1967). Social constructivism adds that meaning and knowledge are created by the interaction with our peers within a social context. Knowledge is created, according to social constructivism, not just by working together, but working in an interdependent way which supports cohort learning that is foundational to LCs (Cross & League for Innovation in the Community, 1998).

Critical pedagogy teaches students to critically "read" the world through discovering the root causes of oppression, and empowers marginalized communities to take action, via praxis, to transform their communities into more democratic ones (Freire & Ramos, 1970; Simon & Schifter, 1991). Because LCs provide students with both a social net and a structure that first generation college students often lack, they have at their core a principle of empowerment.

Becoming socially and politically conscious, aware of one's own situation, and understanding our collective reality within a larger political context is at the heart of critical pedagogy. In this way critical pedagogy provides a larger context into which LCs are situated.

The *interactive model of student departure* proposes that social and academic engagement through LCs has a positive impact on the retention and success of non-traditional, marginalized students who often lack social capital. At the core of Tinto's (2003) model is that the level of academic and social integration of a student are the strongest influences on a student's decision to drop out or persist in school, and attributes such as academic readiness, prior knowledge, and disposition (Tinto, 1993). LCs are a way to create stronger academic and social integration for students.

Operational Definitions

Career and technical education (CTE). Courses that teach a particular trade for which a certificate or associates degree is required, but not a bachelor's degree, such as welding or bookkeeping (Baker et al., 2009).

Learning community (LC). A cohort of students who have a common learning experience, such as a theme, a seminar, or linked courses (Crisp & Taggart, 2013; Tinto, 2003). Core components of LCs examined in this study are as follows:

- Curricular integration: Two or more courses, or a course and a seminar, are integrated in some way such as shared themes, syllabi, and projects (M. G. Visher et al., 2008).
- Innovative instructional strategies: Strategies that are both engaging and foster higher order-thinking skills, beyond basic lecture (M. G. Visher et al., 2008).
- Engagement: Extent to which activities of the LC foster a sense of community and belonging among the students in the both the LC and in the wider college community (M. G. Visher et al., 2008).

- Support services: Additional services for students in the LC including college services such as access to a counselor, assistance with financial aid, and help with registration and services outside of college. These could include child care, housing, job fairs, and field trips (M. G. Visher et al., 2008).

Contextualized teaching and learning (CTL). Placing learning in the context of a specific trade or career (Baker et al., 2009).

Delimitations

This study was delimited to better focus the results. The study defined the population as current and recent, within three semesters, adult students in CTE LCs from community colleges in California where a CTE LC uses a cohort model; has a focus on manual trades; includes a basic skills component; and has been operating for at least 4 years. Other CTE LCs, such as those within the medical field, are not being considered. CTE LC directors, coordinators, or deans at the sites will determine if their program fits within the delimitations.

Limitations

The study had several limitations. A major limitation was the willingness of students to participate. All students in LCs for CTE in the identified participating colleges were invited to participate in the online survey and a focus group or interview, but the researcher had no means of ensuring participation.

Another limitation was the interpretation of the data. The questions in the online survey instrument only addressed three of the four core components of successful elements of LCs. Questions for the fourth component, student success, were written with input from an expert panel and piloted to ensure validity. The findings are specific to the students involved and may not be generalizable to the entire population. Regarding the focus groups or interviews, the selected CTE LC student beliefs may not represent beliefs of all CTE LC students.

Assumptions

This study was based on four assumptions. The first is that LCs have a positive impact on students and faculty members who participate in them. It was assumed that students have made a conscious choice to be in an LC designed for CTE and they understand that an LC differs from regular classes. It was similarly assumed that students in the LCs designed for CTE made a choice to pursue a career in manual trades.

It was assumed that student participants in this study were candid in their responses to survey and focus group questions. The researcher assumed students answered online survey questions and focus group or interview questions honestly. There were several potential social threats to construct validity including participants may have guessed at the hypothesis and attempted to meet it. They may have provided biased answers if they tried to make a good impression on the researcher. They may have had apprehension about the survey instrument, which could have affected their answers (Trochim & Donnelly, 2006).

Organization of Study

This study is organized into five chapters. The first chapter generally summarizes the skills gap and how California Community Colleges may meet this need with learning communities (LCs) designed for Career and Technical Education (CTE). Chapter 1 also introduces LCs, including their purpose and theoretical foundation, and explains the purpose of the study and the research questions. Chapter 2 reviews the literature with a focus on the following: the theoretical framework for LCs including the theory of change; the history of vocational education, community colleges, community colleges in California, and of LCs; an overview of the research on LCs; and an overview of the core components. Chapter 3 outlines the methodology, research design and rationale, the instruments for data collection, and data analysis procedures. Chapter 4 details the analysis of the data and the associated findings.

Finally, Chapter 5 presents a discussion of the key findings, the conclusions and implications of the findings and recommendations for policy and practice and recommendations for future study.

Chapter 2: Literature Review

This chapter presents a rationale for conducting research on LCs designed for CTE students at the community college level. Specifically, to what degree do current and recent CTE LC students in the California Community College system perceive that the four programmatic core components of LCs designed for traditional students are being implemented in their program? Which of these four core components, if any, are perceived by CTE students in selected LCs as most beneficial? What core components or factors for successful LCs in addition to those identified for traditional students, are critical in a LC designed specifically for CTE students?

The independent variables in this study are the students' experiences related to the four core components of a successful LC: curricular integration, innovative instructional strategies, social integration, and support services. The first dependent variable is the students' perceptions of the extent to which core components of LC are present in their experience. The second dependent variable is the students' perceptions of the importance of the core components in their LC experience. The final dependent variable is the students' perceptions of any additional components that are, as yet, unknown.

The review of literature represents academic work insightful to the subject of LCs for CTE students in California Community Colleges. Specifically, the chapter is divided into these four sections: historical literature, theoretical literature, effectiveness of LCs, and components of successful LCs.

Historical Literature

History and context of CTE. Vocational education has existed as long as trades have. The industrial revolution shifted education for the trades from being primarily apprenticeship based, to what we may recognize as more contemporary form of industrial education (Brewer,

2011). But where would education for the trades live in the new education system forming? The Morrill Act of 1862 gave land grant universities both a practical and vocational mandate (Labaree, 1990). These colleges would, however, eventually transition into universities and abandon much of their vocational mission (Labaree, 1990). Vocational education would not end up there.

The practical arts movement and the trade school movement began in the late 18th century and accounted for much of the shift away from the apprenticeship model (Barlow, 1974). The practical arts movement stressed skills-based education with a specialized curriculum such as agriculture or domestic science and general education (Barlow, 1974; Brewer, 2011). Trades schools sought to teach trades in a more systemic and formal way than apprenticeships had, and did not emphasize basic skills in the way that the Practical Arts Movement had (Barlow, 1974). Brewer explains that changes in vocational education were shaped by workforce needs (Brewer, 2011). The extent to which vocational education also focused on general education was influenced by forces such as the wars of the 20th century, which demanded industrial jobs be filled quickly and therefore, general education was seen as less important. Also, since the space race, new technologies have required a stronger understanding of math and science and have resulted in later emphasis on academics (Brewer, 2011).

There is a century old history of legislation in the United States funding vocational education (Foster, 1997). The Smith-Hughes Act in 1917, which provided funding for vocational education, set in legislation a separate form of public education (Foster, 1997; Lanford & Tierney, 2015). This separate form was a vocational track. Federal laws were passed during the first half of the 20th century that provided vocational education support for specific populations, such as those disabled in industrial accidents and veteran, and specific careers from home economics and agriculture to trade and industry specific programs (Brewer, 2011).

The second half of the 20th century saw the United States embroiled in multiple overseas wars and a global cold war. These wars pressured the federal government to again focus on vocational education to provide skilled trades-workers and technicians (Brewer, 2011). During the space race of the 1960s vocational education found more federal support, along with support for math, science and foreign languages, in the National Defense Act of 1966 (Foster, 1997).

Also in the 1960s, the movement for "career education" coalesced (Foster, 1997). On how much career education and vocational education do or should overlap, there was and continues to be disagreement (Foster, 1997). The conflict over how much vocational education should include general education had morphed by the 1960s. The more nuanced conflict that emerged was, at heart, should vocational education provide preparation for work in general, and therefore benefit all students, or should it prepare students for specific trades and therefore not apply to the general population (Foster, 1997).

The back to basics movement in education of the 1980s resulted from several national studies criticizing the state of education, the most famous of which being *A Nation at Risk* (Foster, 1997). Renewed focus on public education included a focus on vocational education and 1984 saw the first of many pieces of legislation, all dubbed "Perkins" for Carl D. Perkins, the legislator who sponsored the act (Brewer, 2011). Perkins legislation provided for the modernization and support of vocational education to address the needs of students previously denied vocational training (Brewer, 2011). By supporting and elevating the often stigmatized vocational education Perkins tried to address two common critiques: the first that students must decide on a career too soon in their education; and second that CTE students face additional barriers as the go to college such as their CTE courses not meeting admission standards (Lanford & Tierney, 2015).

The most recent of the Perkins IV legislation used the term Career and Technical Education (CTE) in place of the more antiquated vocational education (Threeton, 2007). The term CTE had been in use before 2006, but this name change in legislation was significant (Threeton, 2007). Perkins IV included a definition of CTE that described it, in part, as "coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skill" (as cited in Threeton, 2007, p. 70). This definition, at least for legislative purposes, married technical and academic education. Simultaneously the Common Core standards in the K12 system were being adopted by states, with a strong emphasis on both college and career readiness (LaVenia, Cohen-Vogel, & Lang, 2015). Most recently the movement towards career pathways in education seeks to erase the distinction between academic and CTE (Lanford & Tierney, 2015). Initiatives such as career academies, career pathways, Linked Learning, and Project Lead The Way all provide models for integrating rigorous academics, career education and exploration, and specific technical skills (Cech, 2008; Lanford & Tierney, 2015).

Evolution of community colleges. When the United States gained independence there were nine colleges, which were privately operated but with public subsidy (Beach, 2011). These colleges were based on the European tradition of both liberal arts colleges and Catholic seminaries (Beach, 2011). Colleges in the U.S. remained local and primarily religious with 113 small colleges operating by 1848, with 16 of those being public institutions funded by the state (Beach, 2011). By 1890 there was some security of funding for public universities with the Morrill Act (Beach, 2011). Universities broaden their reach for students to include women and a slow, but steadily, growing middle class (Beach, 2011).

In the 1830s, the first of the U.S. *normal schools* (teacher-training schools) began on the east coast (Ogren, 2003). These schools had the explicit purpose of training teachers and

provided another route in the evolution of colleges, including many state schools such as the University of California, Los Angeles (Beach, 2011; Ogren, 2003). The rise of the common school, and the move to standardize public education, created a need for trained teachers and for more schools providing teacher training (Labaree, 2008). After their founding in 1839, they grew to about 111,000 by 1909-1910 (Labaree, 2008).

For the students, teacher-training schools provided a low-cost alternative to private universities (Labaree, 2008). Teacher-training schools, however, were still more similar to high schools than colleges, and eventually students demanded a broader range of classes beyond teacher preparation (Labaree, 2008). Between 1911 and 1930, 88 teacher-training schools were converted by the state legislatures into teachers colleges, allowing them to confer bachelor's degrees (Labaree, 2008).

The same reform movement that sought to standardize, and professionalize, teacher education through teacher-training schools also brought about the 2-year college (Beach, 2011). Echoing the model of teacher-training schools looking more like secondary school than college, the junior college began as 2 years of college preparation housed at a high school (Beach, 2011). The first 2-year program using the name "junior college" began in 1901, although there were a few earlier 2-year programs (Beach, 2011). Joliet Junior College was an annex to Joliet High School in Illinois, begun by the president of the University of Chicago and the principal of Joliet High School (Beach, 2011). Students would attend an extra 2 years of high school that would be comparable to the freshman and sophomore years of college, and earn a junior certificate, an early version of the associate's degree (Beach, 2011).

The 1800s saw high schools transform from private preparation for college into more systematized, public institutions (Beach, 2011; Labaree, 1990). This move was then echoed in the rise of junior colleges, and in later years the rise of junior high schools on the other side of

the education pipeline (Beach, 2011). Only 11% of 14-17 year olds were enrolled in high school in 1900, but by 1930 over 51% of this age group was in high school (Beach, 2011). Junior colleges saw a similar dramatic growth with 25 junior colleges in the country in 1910 growing to 325 junior colleges by 1927 (Beach, 2011). With the rise of junior colleges and the emphasis on standardization and professionalism in education, the North Central Association of Colleges and Schools was formed in 1917 and established accreditation standards for admissions, qualifications of faculty and funding (Beach, 2011). The new professionalized class of junior college faculty and administrators formed the American Association of Junior Colleges in 1920 whose primary mission of "colligate grade instruction" soon expanded to include vocational, and other, needs of the community (Beach, 2011).

Beach (2011) uses the example of California's education system at the beginning of the 20th century to illustrate the progressive notion of a scientifically run system based on merit and progressive ideas that sought to eliminate extremes of poverty while maintaining a system based on racial and economic stratification. Elementary school was open to all, compulsive, while at the other end universities were only available to a select elite, and junior colleges provided post-secondary access as a screening mechanism for the elite colleges and for terminal-vocational offerings (Beach, 2011). According to Beach, junior college leaders advocated a dual track system, vocational for easy access to the middle class, and academic for preparation for university. This dual track set up a conflict over the mission of the 2-year college we still see today (Desai, 2012).

The first scholarly work on junior colleges, *the Junior-College Movement*, Leaonard v. Koos (1925) saw junior colleges connecting primary and secondary institutions with higher education and professional training. As much as it was a preparation for university, it was also a stopping point for those whom, he believed, should not advance (Beach, 2011; Koos, 1925). In

the 1920s, junior colleges, like many educational institutions, wrestled with their contradictory mission: college preparation or advanced vocational training (Beach, 2011). By the 1930s, the case for the two tracks at the 2 year level had been made and was generally accepted, with a focus on creating semiprofessionals, especially in the light of the mass of unemployed men during the great depression (Beach, 2011). Beach explains as follows:

> the junior college was praised not so much as democracy's college, but as capitalism's college: Transfer the brightest junior college students to the university and keep the untalented majority in school and out of the labor market long enough to adequately 'adjust' the individual to a tightly constrained and inequitable economic order. (Beach, 2011, pp. 15-16)

Towards the end of the 1940s we see the beginning of the transformation of the junior college into the community college. The Truman Commission issued a report on higher education and democracy which seemed to marry the competing missions of academic and workforce preparation, and added to that adult education and responsiveness to the local community, yet conflict over the mission continued (Beach, 2011). The junior college now adopted four missions, academic preparation for transfer, vocational training that was terminal, a broad general education, and adult or community education (Labaree, 1990). As conversations emerged about 2-year colleges meeting community needs, the argument for community colleges became prominent (Beach, 2011). California led the way with its blend of both state government and public university support (Beach, 2011). This community focused emphasis, which shifted 2-year colleges away from an academic preparation mission, saw a rise in enrollment from 3% of those enrolled in postsecondary institutions in 1900 to 32% by 1955 (Beach, 2011).

Yet the rhetoric around meeting a community need was betrayed by the intentions of students whose intention was to continue on (Beach, 2011). These community colleges, as junior colleges before them, still served the role of "structuring the failure of unprepared students" (Beach, 2011, p. 19) as a central mission. In a case study of San Jose College in 1960,

Burton R. Clark (1960) found a strong conflict at the college between transfer and vocational training as central missions. Clark found that the college merely structured the failure of overly ambitious students, encouraged by open access, all under the guise of equal access (Clark, 1960). As Labaree explained, the 2-year college sought to "promote inclusiveness and protect exclusiveness" (Labaree, 1990, p. 209).

The next 2 decades saw both the institutionalization and solidification of community college bureaucracies and increased financial pressure, all intensifying the conflict over mission (Beach, 2011). The 1980s saw a renewed focus on vocational training at community colleges (Beach, 2011). Between the 1960s and 1980s vocational enrollment was increasing, while transfer rates appeared to decrease (Beach, 2011). More economically, and academically, disadvantaged students were coming to community college yet there was no wide spread emphasis on supporting underprepared students (Beach, 2011). Students were being invited in and then set up to fail.

Beach explains that by the 1980s community colleges had irreconcilable conflicts in expectations:

> They had been asked, on the one hand, to meet the individual needs of educationally underserved and disadvantaged students. On the other hand, they had also been asked to train skilled workers for national economic development. Plus, they were asked to accomplish both of these missions while serving the larger community and on a shoestring budget with a mostly contingent workforce. This conflict in goals led to a mismatch between three competing interests: what was best for the community college as an educational institution, what was best for the national economy, and what was best for individual students. (Beach, 2011, p. 39)

Community colleges in California. California was quick to establish and grow junior colleges, which were often housed on high school campuses and controlled by school districts (Labaree, 1990). Alexis Lange, Dean of the School of Education at Berkley, is considered the father of California's junior college movement (Beach, 2011). At the turn of the 20th century, the University of California had been accrediting college preparatory curriculum taught in California

high schools (Beach, 2011). In 1907 Lange worked with Senator Anthony Caminetti to pass legislation allowing high schools to offer junior college curriculum, equal to the first and second year undergraduate curriculum at the University of California (Beach, 2011). By 1921, the first community college system was established in California that included 18 junior colleges, secure state funding based on attendance, and articulation agreements with universities (Beach, 2011). In 1910, officials awarded the precursor to the associate's degree, the junior college certificate (Beach, 2011). Legislation in 1917 and 1921 both secured state funding for junior colleges (Beach, 2011). This institutionalization of junior colleges was part of a larger movement to consolidate and regulate a system of higher education (Beach, 2011). California had consolidated the first multi-campus university system by 1919, including articulation agreements with normal schools and teacher colleges, all adding to the most comprehensive system of higher education in the country (Beach, 2011).

Lange made the case across California that junior colleges should provide terminal vocational training, and by the 1930s this was their focus (Beach, 2011). The majority of students entered junior college with an intent to transfer, yet their administration remained focused on vocational training, creating tension (Beach, 2011).

Junior colleges grew dramatically in California and by 1965 there were 77 junior colleges in 65 public college districts, enrolling over 500,000 students (Beach, 2011). With the GI Bill, enrollments jumped again, with California junior colleges enrolling over 70% of all public first and second year undergraduates in the state (Beach, 2011). Part of this increased enrollment was also due to junior colleges in California encroaching on adult education, largely in noncredit offering, which had been the purview of high schools, duplicating services (Beach, 2011). This confusion led to the differentiation of adult education to be based primarily on credit versus

noncredit, instead of by defining who constituted an adult student versus who constituted a traditional student (Beach, 2011). The area of adult education would continue to be contentious.

In 1933, the Carnegie Foundation, hired by the State of California, made recommendations for the organization of higher education across the state (Beach, 2011). It called for junior colleges to accept the largest number of students, with a focus on training students for semiprofessionals and vocational occupations, with the University of California remaining the selective institution (Beach, 2011). This became known nation-wide as the California model (Beach, 2011).

Following W.W. II the U.S. educational policy focused on economic development and security (Beach, 2011). The Strayer Report in 1947 called for coordination of the five sectors of post-secondary education: adult education, junior colleges, teacher colleges, state colleges and the University of California (Beach, 2011). This coordination was a means to control the competition of the other institutions by the University of California (Beach, 2011). The report was critical of junior colleges, especially of faculty, and warned that elevating them to senior college status would create an overwhelming financial burden (Beach, 2011). The report recommend that junior colleges enroll roughly one third of all post-secondary students in California, and they should receive the lowest amount of funding per student from the state (Beach, 2011). Two more state-wide reports in 1955 and 1957 had similar themes (Beach, 2011).

In 1959 various public and private education institutions were brought together to formulate a plan for higher education in the state (Beach, 2011). The 1960 Master Plan for Education in California institutionalized the three systems for public post-secondary education with the University of California as the most selective, the University of California system in the middle, and the Community College system as open access at the lowest rung (Beach, 2011).

The Master Plan both promoted equal access while maintaining the elite status of the universities (Beach, 2011).

Evolution of LCs. LCs of today are adaptations of educational reforms of 100 years ago (M. G. Visher et al., 2008). The philosophical foundations of LCs were laid by John Dewey, Alexander Meiklejohn, and Joseph Tussman (Gabelnick, 1990; Minkler, 2002; Shapiro & Laufgraben, 1999). Dewey's emphasis on educating students for participation in democracy, and the importance of experience and application in learning, are a cornerstone for today's LCs (Minkler, 2002). Meiklejohn (1932) took the Deweyan idea of democratic participation in education and added the emphasis of "continuity of context rather than through unity of content" (p. 46). Meiklejohn founded the first LC at the University of Wisconsin in 1927 (Minkler, 2002; M. G. Visher et al., 2008). Tussman, who studied with Meiklejohn, founded an LC at the University of California Berkley in 1969 and helped inspire interest in LCs that led to their expansion into the 1970s (Minkler, 2000, 2002). The 1960s and 1970s saw a resurgence of the influence of Dewey and an interest in innovative instruction, which provided room for educational experiments such as LCs (Minkler, 2000).

Merv Cadwallader founded an LC at San Jose State University and eventually brought the LC model to Evergreen State College (M. G. Visher et al., 2008). The National Resource Center for Learning Communities (NRCLC) at Evergreen State University was founded in 1985 to respond to the recommendations of the National Institute of Education, one of which was the expansion of LCs (M. G. Visher et al., 2008).

From the 1970s-1990s, LCs focused on the transitional freshmen year as a way to both increase retention of students and to weave a theme or coherence into these early experiences for deeper engagement (Matthews et al., 2012). In the seminal work *Leaving College: Rethinking the Causes and Cures of Student Attrition*, Vincent Tinto explained that the first 6 weeks of

college were a crucial time for student retention, especially for students statistically less likely to succeed (Tinto, 1993). Researchers identified two main obstacles to student success: the boredom and of lack of engagement in developmental courses and the lack of context or coherence of general education courses (Matthews et al., 2012). Both barriers could be addressed by LCs (Matthews et al., 2012).

National organizations played a strong role in developing, supporting and disseminating LC models (Matthews et al., 2012). The Fund for Improvement of Post-Secondary Education funded early LCs and also supported the work of the National Resource Center for Learning Communities (NRCLC) at Evergreen State University (Matthews et al., 2012). The NRCLC helped to revitalize and expand LCs when it was founded in 1985 (M. G. Visher et al., 2008). During the 1980s and 1990s, support from national educational organizations helped to strengthen LCs as an accepted model in post-secondary education, including the American Association of Higher Education and the Association of American Colleges and Universities (Matthews et al., 2012). Research on LCs was supported by the National Science Foundation, the National Center for Post-Secondary Education, the Pew Charitable Trust and Federal Grants (Matthews et al., 2012).

More recent developments of LCs have seen a focus on more specific challenge areas for students, such as courses that are both requirements but have a low pass rate, often because of poorly prepared students (Matthews et al., 2012). A focus on challenging courses, combined with more intentional student supports, points to LCs being used strategically (Matthews et al., 2012). Similarly more colleges are using virtual LCs as more students rely on on-line courses (Matthews et al., 2012).

Theoretical Literature

Interactive model of student departure. In researching why students left college, Tinto (1993) concluded that student readiness, in academic skill, prior knowledge and disposition, and integration into the institution, both academically and socially, were the primary reasons. As students interact with the educational institution these qualities and the resulting positive or negative experiences lead students to persist or leave (Tinto, 1993). Tinto's work on student departure led him to LCs as an answer to the problem of student retention (Parsley, Tinto, Goodsell-Love, & Russo, 1994). Within the LC model; however, he found that students formed their own academic and social support networks (Parsley et al., 1994).

Constructivism. LCs are based in constructivism (Cross & League for Innovation in the Community, 1998). Constructivism is the idea that knowledge is constructed through our experiences and ideas (Piaget, 1967). Students are not empty vessels to be filled with knowledge by their teacher, but rather construct or create knowledge by fitting in new information with information they already have and creating new meaning (Cross & League for Innovation in the Community, 1998). LCs "operationalize constructivism" through a process of collective learning, and collective learning is based in social constructivism (Cross & League for Innovation in the Community, 1998). Social constructivism brings together ideas from Piaget and Vygotsky where knowledge is constructed, but socially with peers (Leask & Younie, 2001; Wood & Bennett, 1998). It is not concerned with learning to discover an objective truth but contends that learning is about understanding the very large amount of information around us (Cross & League for Innovation in the Community, 1998). Understanding ambiguity, questioning given answers and methods, in short critical thinking, is best suited to be taught in a setting in which peers question each other and their instructors, in an atmosphere of collaborative construction (Bruffee, 1995). An interesting extension of social constructivism, specifically

within a LC environment for Information Communication Technology (ICT), is the theory of communal constructivism which posits that in a LC, students construct knowledge, construct it in a social context with their peers, and construct knowledge for their LC (Leask & Younie, 2001).

Critical pedagogy. Critical or transformative pedagogy is characterized by finding the roots of meaning, critically "reading" the world around us and praxis (Freire & Macedo, 1987). Critical pedagogy is a means to empower people to change their own political situation and transform their communities and lives in a more democratic way (Freire & Ramos, 1970; Giroux, 1997). Jehangir describes a specific LC, the Multicultural Voices LC (MVLC), as taking its three themes—identity, community, and agency—from a critical pedagogy framework (Jehangir, 2009). A case study of the Ujima Project, an LC designed for African American students, and the state-wide Umoja Community, specifically encourage practices founded in critical pedagogy including the idea that students and teachers are co-participants, curriculum should be relevant, construction of knowledge, metacognition, student responsibility in their own learning, and an emphasis in connections across disciplines, among others (Powell, 2009). Beyond these specific LCs; however, critical pedagogy may be applied to LCs in general. Critical pedagogy encourages interdisciplinary-disciplinary knowledge and challenges the idea that education is neutral, according to Giroux (as cited in Jehangir, 2009). Critical pedagogy seeks to break down the divide between student and teacher as a step in empowering people to take agency in their own learning and life (Freire & Ramos, 1970).

Theory of change. LCs are assumed, through the core components, to foster a social integration, deeper learning, and a more coherent curriculum, which leads to greater persistence and success (M. G. Visher et al., 2008; Zhao & Kuh, 2004). The intervention of an LC addresses what Tinto (1993) identified as the strongest influence on a students' decision to drop out: the level of academic and social integration. Tinto's (1993, 1997) work showed a strong correlation

between students relationships with both other students and faculty, and their persistence and success in college.

Cross curricular connections via linked courses are theorized to create both higher order thinking skills and deeper learning (M. G. Visher et al., 2008). Tinto explains that not all LCs change how learning happens, and conversely many courses are not a part of LCs that encourage collaborative learning. However the structure of the cohort in an LC facilitates this deeper, collaborative learning (Tinto, 2003). It is further theorized that the thinking skills learned in the LC extend beyond the actual LC courses, having a broader impact on student success (M. G. Visher et al., 2012).

The student networks created via the LC, including peer support and stronger relationships with faculty and an overall stronger sense of belonging are theorized to have a positive effect on persistence (M. G. Visher et al., 2012). This theory of change assumes the core components of successful LCs are present for students to realize the benefits (M. G. Visher et al., 2008).

Effectiveness of Learning Communities

Studies that attempt to measure the success of LCs have focused on student retention and persistence, course grades, grade point average (Crisp & Taggart, 2013). Other studies have focused on integration, both academic and social, and perceptions of students and faculty (Crisp & Taggart, 2013). Except for the Learning Communities Demonstration project and the Opening Doors Project, there has been a lack of both experimental research and longitudinal data collection, which has made proving the case empirically for LCs challenging.

Crisp's synthesis of community college student success programs found only 16 empirical investigation or evaluation studies of LCs at the community college level through October 2008 (Crisp & Taggart, 2013). While the majority of studies found a positive

correlation of the LC on the elements measured, four studies failed to find a positive impact on two of the factors: grade point average and/or retention (Crisp & Taggart, 2013). Crisp hypothesized that institutional differences, including how LCs were measured, implementation, and the way the LCs were conceived may account for these differences (Crisp & Taggart, 2013). While Crisp and Taggart (2013) found solid research, especially in experimental studies, in the literature they found many challenges. Overall methodologies varied widely and contradicted accepted practice, many articles were not peer-reviewed but appeared in publications such as ERIC digest, there was a particular prevalence with selection bias, and there was a lack of fidelity in implementation (Crisp & Taggart, 2013).

The trends of pre-2008 research continue, namely participation in an LC having an overall, if small, positive effect on student retention, persistence, grade point average, and integration. Where findings point to no positive effect, this may be attributed to institutional differences and fidelity to the LC model (Crisp & Taggart, 2013; M. G. Visher et al., 2012). Hill and Woodward (2013) found students in an LC had higher retention regardless of high school grade point average or ethnicity. To support Tinto's ideas of the importance of student engagement, Rocconi (2011) found students in an LC had indirect educational improvements through high engagement. In comparison of a LC and a 1st-year seminar as two interventions, Tampke and Durodoye (2013) found LC students had higher retention, while the seminar students had a higher grade point average. Zhao and Kuh (2004) found that participation in an LC has a positive relationship with self-reported academic performance and overall satisfaction. Contrary to prior research findings; however, Jaffee (2007) found in a Freshman LC unintended social consequences that hindered learning by creating a high school-like atmosphere with associated cliques, an importance of social over academics and the associated conflicts.

The MDRC's 2008 study of Kingsborough Community College LC marked a strong distinction in the research (M. G. Visher et al., 2010). The Kingsborough study used an experimental model and published in a peer-reviewed journal (Richburg-Hayes, M. G. Visher, & Bloom, 2008). This study showed that LC students in their first semester progressed through developmental English more quickly, took and successfully completed more courses, and earned more credits than other students (M. G. Visher et al., 2008).

A related study of Hillsborough Community College that utilized an experimental design found that the first two cohorts of students had no significant improvement in retention, enrollment, number of credits attempted, completion or persistence into (Weiss, M. G. Visher, Wathington, 2010). A third cohort saw very modest increases in credits attempted, and persistence, reflecting a maturation of the program (Weiss et al., 2010). Contrast this with the same experimental model conducted at Kingsborough College where students earned significantly more credits, with some limited evidence that participation in the LC increased students chances of earning an associate's degree for students who did not need English remediation (Weiss et al., 2015). These positive results were maintained 7 years later (Weiss et al., 2015). Both Hillsborough and Kingsborough were included in the larger Learning Communities Demonstration.

Overall the Learning Communities Demonstration found only modest results, a half credit impact on credit accumulation, and no impact on persistence up to three semesters later (M. G. Visher et al., 2012). The Kingsborough site had a larger impact on credit accumulation, and the impact was sustained much longer, and Kingsborough LC students were more likely to graduate (Sommo, Mayer, Rudd , & Cullinan, 2012; M. G. Visher et al., 2012). The Kingsborough LC had more enhancements than the other LCs studied, and students were more likely to be full-time students, and also more likely to be financially dependent than their peers at

the other sites (M. G. Visher et al., 2012). Implementation of the core components of an LC varied widely at the sites in the study, with the strongest positive impacts found at the college where the LC had operated longest and had more enhancements especially in student support services (M. G. Visher et al., 2012). These findings suggest fidelity to the core components as an area of further exploration.

While many LCs have been studied, the overwhelming majority study academic or transfer track programs (Butler & Christofili, 2014; Crisp & Taggart, 2013; Dunlap & Pettitt, 2008; Engstrom & Tinto, 2008; Hill & Woodward, 2013; Jackson, Stebleton, & Laanan, 2013; Jaffee, 2007; Killacky, Thomas, & Accomando, 2002; Laanan, Jackson, & Stebleton, 2013; Richburg-Hayes et al., 2008; Rocconi, 2011; Tampke & Durodoye, 2013; Tinto, 2003; M. G. Visher et al., 2012; Zhao & Kuh, 2004). In a review of the literature only one empirical study of an LC designed for CTE students in manual trades was found. Goldberg and Finkelstein (2002) created an experimental study for commuting CTE students, specifically Electronic Technician Certificate students. The LC students has a more positive experience, both academically and socially, had a higher level of both academic and social integration, and a stronger level of commitment to the college than their CTE peers (Goldberg & Finkelstein, 2002). These gains did not carry over to academic outcomes such as course grades, grade point average, or persistence (Goldberg & Finkelstein, 2002). Goldberg and Finkelstein (2002) speculate this may result from the relatively unstructured nature of this particular LC and a lack of integration and support from other college departments. The Goldberg and Finkelstein study point to an absence of research on LCs designed for CTE students. It is this gap that this study hoped, in part, to address.

Components of a Successful LC

In 2003, MDRC began the Opening Doors project which looked at innovative programs to increase student success at six community colleges, including the Kingsborough College LC (Sommo et al., 2012). Informed by positive results of the Kingsborough LC, MDRC launched the Learning Communities Demonstration project, which collected longitudinal data on the Kingsborough project and five other LCs (Sommo et al., 2012; M. G. Visher et al., 2012).

The research for the Learning Communities Demonstration project began in 2007 (M. G. Visher et al., 2008). Approximately 1,000 students at each of six colleges were randomly assigned to an LC or control group and then followed for four semesters (M. G. Visher et al., 2008). Technical assistance was provided to the colleges to ensure support for implementation (M. G. Visher et al., 2008). The resulting studies were the following: *The Learning Communities Demonstration: Rationale, Sites, and Research Design* (M. G. Visher et al., 2008), *Scaling Up Learning Communities: The Experience of Six Community Colleges* (M. G. Visher et al., 2010), *Breaking New Ground: An Impact Study of Career-Focused Learning Communities at Kingsborough Community College* (M. G. Visher, Teres, & Richman, 2011), and *The Effects of Learning Communities for Students in Developmental Education: A Synthesis of Findings from Six Community Colleges* (M. G. Visher et al., 2012).

This set of studies compromise the most comprehensive research of LCs based on an experimental model to date. Looking at these studies as a united body of research it is possible to examine an evolving endeavor to define the most important, or core, components of LCs. Table 1 *Integration of Components of Successful Learning Communities from the Learning Communities Demonstration Project multiple reports* categorizes these components as explained by the studies.

Table 1

Integration of Components of Successful Learning Communities From the Learning Communities Demonstration Project Multiple Reports[2]

Structure of LC	Curricular Integration	Instruction	Engagement	Supplemental Support Services
	Core Dimension of LC, programmatic or curricular link around a common thread, area of significant variation (M. G. Visher et al., 2008)	Core Dimension of LC, active learning pedagogy, instructional strategies is an area of significant variation (M. G. Visher et al., 2008).	Core Dimension of LC, both faculty and student engagement, social integration is an area of significant variation (M. G. Visher et al., 2008).	Core Dimension of LC, supplemental support services is an area of significant variation (M. G. Visher et al., 2008).
	Key element of LC (M. G. Visher et al., 2010).	Key element of LC, active and collaborative learning (M. G. Visher et al., 2010).	Key element of LC with student engagement arising from relationships among students and between students and faculty (M. G. Visher et al., 2010).	Key element of LC, with services integrated into LC (M. G. Visher et al., 2010).
Linked courses and cohorts as Component of a LC Model (M. G. Visher et al., 2012).	Instructional practices as Component of a LC Model (M. G. Visher et al., 2012)	Faculty collaboration in instruction as Component of a LC Model (M. G. Visher et al., 2012)	-	Supplemental student supports as Component of a LC Model (M. G. Visher et al., 2012)

Broadly these components are these: the cohort structure of the LC, curricular integration, instruction, engagement, and supplemental support services. These components represent a synthesis of components identified in the literature and observable components of the LCs

[2] The Kingsborough LC also included "institutional transformation" as a core component, however there is not consensus in the filed regarding this component (C. A. Visher, 2017).

studied at the six colleges (Crisp & Taggart, 2013; M. G. Visher et al., 2008; M. G. Visher et al., 2010; M. G. Visher et al., 2012). These components are a framework that represent the theory of change in the Learning Communities Demonstration project, not a prescription for LCs (C. A. Visher, Lattimore, Barrick, & Tueller, 2017).

Structure of the LC. The first core component is the structure of the LC, specifically a cohort model. The cohort model, where the same students are enrolled in two or more courses, is a common structure of LCs (Crisp & Taggart, 2013). The cohort, and the structure of linked classes, is at the heart of an LC (C. A. Visher et al., 2017). All the LCs in the Learning Communities Demonstration project studies have the same basic structure utilizing a cohort model, with variation in the number of courses linked and how many students in the sections are in the actual LC from *some* to *all* (M. G. Visher et al., 2008; M. G. Visher et al., 2012). The cohort model intentionally encourages, by its structure, two kinds of connections for students: across subject from two or more courses, and social connections made within the student cohort due to ongoing interaction with the same group of people (Gabelnick, 1990; Zhao & Kuh, 2004). This structure can be beneficial to students who need support academically, as in LCs designed for students at the developmental level (Weiss et al., 2010).

Curricular integration. Closely tied to the cohort model, integrating curriculum from multiple disciplines is another core component of LCs. The cohort structure of an LC facilitates a curricular theme or problem around which curricular integration is based, giving meaning to the structure (Tinto, 2003). Examples of curricular themes can be broad areas of investigation such as democracy and tyranny, the individual and society, or political ecology, particularly if the theme is related to the mission of the college (Smith, 2004). Other LCs are, characterized as student-type LCs, are focused on specific student populations such as historically disadvantaged students, under-prepared students, honors students and student interest groups such as STEM

(Zhao & Kuh, 2004). First generation students may fit into the student-type theme whereas culturally specific themes, such as Chicano history, may fit into a curricular theme.

Proponents of LCs posit that faculty must be able to work together for the curriculum to be integrated (M. G. Visher et al., 2010). Beyond a unifying theme, evidence of curricular integration can be contextualized courses, interdisciplinary courses, merged syllabi, and joint assignments and grading (M. G. Visher et al., 2008).

Instruction. Another core component of LCs is innovative instructional practices, with an emphasis on active and collaborative learning (Weiss et al., 2010). Matthews et al. (2012) asserts there is a strong link between the structure of the LC as a cohort and linking cross discipline courses, and innovative instructional practices. Implicit in the cohort model that includes multiple disciplines and a central curricular theme, is an expectation that the theme will be explored from the vantage of the different disciplines, so it requires more active student learning and pedagogy that facilitates this learning and connections. Active and collaborative pedagogies learning also help to foster community, explore connections between disciplines, and explore new ways of knowing (Matthews et al., 2012; Weiss et al., 2010). Evidence of active learning and collaborative pedagogy include project-based learning, interactive assignments, assignments that promote critical thinking, small group work and field trips (M. G. Visher et al., 2008).

Engagement. Engagement is another core component of the successful LC. Three types of engagement are discussed in the literature on LCs; faculty engagement with each other commonly called *collaboration*, faculty and student engagement with each other, and student engagement with fellow students, all of which is theorized to foster a feeling of integration with the broader campus (Weiss et al., 2010). Broadly, student engagement is measured as student participation in educationally purposeful activities (Zhao & Kuh, 2004). The operating theory is

that student engagement generally facilitates strong social networks that provide academic and social support for the students (M. G. Visher et al., 2012; Weiss et al., 2010). This engagement, it is theorized, leads to better persistence and success college completion (M. G. Visher et al., 2012; Weiss et al., 2010). Examples of faculty engagement with each other include co-teaching, regular and ongoing planning meeting, and integrated syllabi and assignments (M. G. Visher et al., 2008). An example of faculty and student engagement with each other is faculty promoting a sense of belonging with the LC as a community (M. G. Visher et al., 2008). Examples of student engagement with each other include peer mentors, study groups, co-curricular activities and informal student activities (M. G. Visher et al., 2008).

Supplemental support services. The final core component for LCs is supplemental student services. These services may enable students to continue college instead of stopping out (M. G. Visher et al., 2010). Delivering these services in an integrated way through an LC requires cross departmental coordination, which is relatively new for colleges (M. G. Visher et al., 2010). Examples of supplemental student support services include access to counseling, financial aid, tutoring, career development, access to resources such as the library and computers, regular classroom visits by support staff to share resources, and a sense of collaboration between support staff and instructors (M. G. Visher et al., 2008).

Core components in this study. To be included in this study, LCs had to have a cohort model, so that component is a given. The study does not, however, measure the implementation or degree of fidelity in the cohort. The *Online Survey of Students' Experiences of Learning in a LC* asks questions that evidence the following: curricular integration, innovative instructional methods, student engagement, and supplemental student support services. Faculty collaboration, which has been described under the larger category of "engagement" can be evidenced in "curricular integration." Additional items added to the online survey ask about support services

particular to CTE students. The focus group and interview protocol asks students for examples of their experience in an LC in these areas. The one core component of an LC beyond the scope of this study is institutional change.

Institutional transformation. Institutional transformation was considered a core component by the Kingsborough LC as a part of the Learning Communities Demonstration project (M. G. Visher et al., 2008). Institutional support, which may be a step towards transformation, such as a paid coordinator, support from college leadership, and faculty buy-in, is required for an LC to be successful (Weiss et al., 2010). Creating, building, and supporting LCs, however, can also transform the institution. Colleges have reported that they have changed practices, such as enrollment, because of LCs, and have enhanced interdepartmental communication (M. G. Visher et al., 2012). Increased communication and collaboration between faculty members is another reported change in colleges due to LCs (M. G. Visher et al., 2008). The Kingsborough project documented the development of stronger faculty collaboration through implementing the LC and professional development (Weiss et al., 2010). In chronicling the evolution of LCs, Matthews et al. (2012) concludes that the emphasis on both faculty and institutional development is key to developing long lasting LCs. Evidence of institutional support and transformation includes involvement from top administrators, financial support for sustainability, enrollment and outreach support, and an alignment of LC goal with the outcomes of the college (M. G. Visher et al., 2008). There is not consensus in the field, however, to include institutional transformation as a core component of an LC (C. A. Visher et al., 2017).

This study investigates four of the six core components: curricular integration, instruction, engagement, and supplemental support services. These four components are programmatic and, therefore, have a wider variation of level of implementation. The component

structure of an LC is required for inclusion in the study and therefore assumed to be present. The sixth component, institutional transformation, is beyond the scope of this study.

Chapter Summary

Students must learn how to learn, and we learn through our interactions with other people though shared experiences. Including more people in higher education, especially those who have been traditionally excluded, creates a more democratic society. Students who are first generation and academically underprepared for college often leave due to a low level of academic and social engagement.

Vocational education has, since the end of the 1800s, become a systematized as it has been integrated into secondary and post-secondary education. The conflict remains if vocational education's mission is to train workers in general, as with career readiness training, or in the skills of specific trades.

Community colleges have evolved with multiple missions including: preparing students for higher education, providing semi-professional and vocational training, and meeting community needs. These missions are often conflicting as they serve to both limit access to university and encourage post-secondary access for all.

In California, community colleges have evolved as a part of a three-tiered system of higher education codified in the California Master Plan. They have occupied a space between secondary school and university sometimes being a part of the secondary system.

LCs are a strategy for helping first generation, low income college students. Through a cohort structure LCs foster cross-disciplinary, deeper, and more active learning. The cohort and supportive student services help students become more academically and socially engaged. Many studies conclude academic success and retention is linked to LCs, others claim the relationship is inconclusive or non-existent.

There are five core components to successful LCs: a cohort structure, integrated curriculum, innovative instruction, engagement, and supplemental support services. Student success in LCs may be linked to quality of program implementation and fidelity to the core components.

Chapter 3: Methods

Study Purpose

The purpose of this sequential, explanatory, mixed methods study was as follows: (a) to investigate the degree to which Career Technical Education (CTE) students in California Community Colleges (CCC) believe that the core components of learning communities (LCs) designed for traditional, academic track students exist in LCs designed for CTE students; (b) to determine which of the core components, if any, are perceived by students as most beneficial, for CTE LCs; and (c) to explore any additional components that students might believe to be essential for LCs designed for CTE students.

Research Questions

The study sought to address the following questions:

1. To what degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program?
2. Which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students?
3. What core components or factors for successful learning communities (LCs) in addition to those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students?

Research Design and Rationale

The study was sequential explanatory mixed methods in design and measured the degree of attitudes or beliefs of CTE LC students regarding the presence and importance of LC core components. The study collected data cross sectionally from current and recent CTE LC students from three California Community Colleges. The first phase was quantitative and used an online survey instrument for current and recent CTE LC students to measure perception of implementation of the four core components of LCs. The second phase was qualitative using focus groups and interviews with of survey recipients to explain survey results and explore additional components.

Phase one. Student study participants took the *Online Survey of Students' Experiences of Learning in a LC*, developed and implemented by the National Resource Center for Learning Communities (NRCLC) to determine the perception of implementation of the core components of an LC.

Phase two. Survey respondents had the option of opting-in to a focus group or an interview designed to determine which of the core components, if any, are most beneficial and to explore their experience in the LC to allow to emerge any critical components not included in the survey instrument.

Mixed methods. As the name suggests, mixed methods involves multiple kinds of methods to collect data, in this case both a quantitative survey and a qualitative focus group and interview. The quantitative data collected allowed for closed-ended survey items, and qualitative allowed for open-ended questions in the form of focus group and interview discussion. Both methods of data collection were rigorous, including adequate sampling and steps for analysis (Creswell, 2013). Mixed methods is a relatively new approach to research, originating towards the end of the 1980s in many social science and health science fields (Creswell, 2013).

Sequential and explanatory. This design was sequential and explanatory. The survey, which asked students their perception of the presence of the four core components of a LC, was done first. Following the survey, students participated in a focus group or interview that sought to explain which of the four components is most beneficial to the students. Logically the open-ended discussion and possible explanation came after the initial closed ended answers of the survey. Finally, the focus groups explored if there were any additional components beyond the four. The steps of explaining which components are most beneficial, and if there are additional components, are both explanatory. A benefit to this design is that the qualitative data builds directly on the quantitative data. Both quantitative and qualitative data were analyzed separately (Creswell, 2013).

Survey. A survey design analyzes the responses of a sample of a population. These responses quantitatively measure opinions, perceptions, and trends (Creswell, 2013). Surveys can be questionnaires or interviews (Trochim & Donnelly, 2006). With this study, the survey used was the *Online Survey of Students' Experiences of Learning in Learning Communities*, developed by the National Resource Center for Learning Communities (NRCLC). This survey focused on the student experience in LCs, and at time of the 2014 validation study had collected approximately 20,000 student responses from 62 college institutions (Malnarich, Pettitt, & Mino, 2014). The survey covered the four core components of a successful LC as described by M. G. Visher et al. (2008), with an emphasis on curricular integration, innovative instructional strategies, and engagement. An additional four items were developed to solicit responses specific to student support services. These additional items were reviewed by a panel of experts before inclusion in the survey. The survey was administered to a LC as a group in a computer lab at each college towards the end of their term, cross-sectionally or at a single point in time.

Focus group and interviews. A focus group is in essence an interview. Instead of interviewing one participant, however, a small group of people were interviewed together. Students were given the choice to participate in either a focus group or an interview. While focus groups can range in size and duration, a general guideline is 6 to 10 participants for between 1 to 2 hours (Morgan, 1997). There are three basic uses for focus groups and interviews: a principal data source as a self-contained method in a study, a supplemental data source in a study to augment a different data source that is primary, or as a complimentary source of data where other data sources are used and no one source is primary (Morgan, 1988). Group interviews have been documented as a social studies methodology as far back as the 1920s and were used extensively in WWII (Morgan, 1988). Focus groups virtually disappeared in social studies research as other methods took precedence until the 1980s when they saw a resurgence (Morgan, 1988). A focus group is an interview in a small group setting. Unlike observations, data collected is verbal and self-reported (Morgan, 1988). Also unlike observations, the setting is not naturalistic but purposeful (Morgan, 1988). In contrast to individual interviews, focus groups provide group discussion, and by necessity provide less in-depth information per participant (Morgan, 1988). A combination of data collected from both focus groups and interviews could provide a balance between a broader range of perspectives and depth.

Both a focus groups and interviews are a strong match for this study because they serve as supplemental data to the quantitative data collected through the online survey. The focus groups and interviews had two purposes: to determine which of the four core components of LCs, if any, are perceived as most beneficial to the participants, and to explore if there are additional components or factors beyond the four identified that are critical in LCs designed for CTE students.

Strength of focus groups and interviews. A particular strength of focus groups and interviews are that the researcher can elicit a concentrated amount of information on the topic being studied (Morgan & Bottorff, 2010). Compared to other forms of qualitative data gathering a focus group can be more efficient (Morgan, 1988). Another strength is the nature of group interaction in a focus group, including comparisons and connections participants make themselves to other participants' contributions (Morgan, 1988). While the group interaction is missing in an interview, the interaction between interviewer and participant can be dynamic.

Weaknesses of focus groups and interviews. Some weaknesses in focus groups and interviews are the directed nature of the conversation, which can be seen as contrived, and may affect what the participants report (Morgan, 1988). However as Morgan points out, the influence of the researcher on the participant is not unique to focus groups or an interview. Similarly the nature of the interaction can produce a contrived consensus or polarization, both of which may be more extreme than in a natural setting (Morgan, 1988).

Setting

Data was collected from three colleges in California. Each college was chosen because they have an LC designed for CTE students that fits four criteria. The LCs are based on manual trades, they include a basic academic skills component, they have a cohort structure, and they have existed for at least 4 years. Within this framework, however, each college site is unique. For example, most of the CTE LCs are only one semester long; however, at least one site offers a year-long CTE LC.

Materials

The following list describes the forms and materials used in the study.

- Appendix A: MOU College Funds Survey
- Appendix B: MOU Principal Investigator Funds

- Appendix C: Survey Items
- Appendix D: Focus Group and Interview Protocol
- Appendix E: Focus Group and Interview Questions
- Appendix F: Email Communication to Potential Participants
- Appendix G: Script for Student Information Meeting
- Appendix H: Informed Consent for Participation in Research Activities Phase I - Online Survey
- Appendix I: Informed Consent for Participation in Research Activities Phase II - Focus Group
- Appendix J: Informed Consent for Participation in Research Activities Phase II Alternative - Interview
- Appendix K: Survey Responses All Colleges
- Appendix L: CITI Collaborative Institutional Training Completion Report
- Appendix M: IRB Approval Notice

Population, Sample, and Sampling Procedures

Population and sample. The population for this study consists of adult students (18 years of age or older) who are currently enrolled or were recently enrolled (beginning Fall 2015) in an LC designed for CTE students in California Community Colleges, specifically in LCs that focus on manual trades, have a basic skills component, and have existed for at least 4 years. Six colleges in California fit those criteria. LC cohorts are typically one term, with exception of one college in the target population whose LC spans an entire year. With approximately 20 to 25 students per cohort, and one cohort per college per semester, there are between 60 to 150 students in the identified population. The principal investigator (PI) invited participation from all six colleges identified. It was anticipated that between three to six colleges would participate,

resulting in at least 60 to 75 participants as a sample for the online survey. A subset of this sample would be the focus groups and interviews. It was anticipated that each college would have four to six student volunteers from those who have taken the online survey to participate in the focus group. This resulted in 12 to 18 focus group or interview participants overall. If a student opted-in to the focus group but could not participate, they had the option to choose to be interviewed via phone or video conference instead. All participants choose the focus group option.

Sampling procedures. After giving the PI permission to collect data at their site, each college signed a Memorandum of Understanding (MOU) with the survey administrator from the National Resource Center for Learning Communities (NRCLC). Colleges were presented with two MOUs to choose from, one in which the college would agree to pay a $300 fee for participation in the survey and another in which the fee paid would be paid by the PI (see Appendix A and B). The PI was prepared to pay for the participation of all sample participants; however, given the interest by some colleges to pay the fee for participation, the PI provided the two MOU options.

A representative designated by each college emailed current and recent students who fit the inclusion criteria (see Appendix F). Students were considered recent if they were in the CTE LC during the Fall 2015. The email invited the students to a short information session that took place immediately following a current LC course (see Appendix F). At the information session, the designee explained the study, reviewed the adult informed consent form, distributed a copy to each student, invited the students to take the survey in a computer lab, and gave them a link to complete the survey on their own within a week (see Appendix G and Appendix H). The PI trained the college representative in survey administration and informed consent.

Immediately following the designee's visit to the LC cohort, volunteer participants were invited to take the survey in a campus based computer lab and given a link to complete the survey on their own within the week. Before the survey, the college designee directed participants to the online adult consent form. The online survey asked identification no further than the name of the college. The college name was known only to the PI and the survey administrator from the NRCLC, and was not used in the manuscript nor will it be used in any future published material.

The last item of the online survey invited participants to an outside link to voluntarily sign up for a focus group, or if they were not able to participate in a focus group they could choose and interview via phone or video conference instead. The link also made it known that participants were offered a $20 gift card to Starbucks as incentive for participating in the focus group or interview. If they choose to participate in the focus group or interview, the link asked for their email address and phone number. Only the PI had access to this information. Students who participated in the focus group or interview were given pseudonyms. A master list matching real names to pseudonyms was kept electronically on a password protected external hard drive, in the locked office of the PI and was destroyed once the audio tapes had been transcribed.

Participants who elected to participate in the focus group were contacted and invited to a focus group held on their college campus, but away from the building where the primary LC courses are held. The focus groups were facilitated by the PI and were audio recorded with permission. Participants were be given an informed consent form to keep for their records. Students were given the option of participating in an interview instead of a focus group, but no student chose this option.

Human Subject Considerations

The PI conformed to all Pepperdine University Graduate Professional Schools Institutional Review Board (IRB) requirements for the study of human subjects. The PI completed Collaborative Institutional Training Initiative (CITI) training. Prior to collecting data, the PI obtained permission from Pepperdine University's IRB, and then obtained written permission from each of the college sites. Survey respondents remained unknown to the PI, as the survey did not ask for any personal identifier. The name of the college was asked in the survey; however, that would not identify the individual participant. The name of the college was known only to the PI and the survey administrator from the NRCLC. Each college was given a pseudonym for the study and any future publications. Focus group participants were assigned pseudonyms. A master list matching pseudonyms and real names was kept on a password secure external hard drive in the locked office of the PI.

The college designee informed participants of purpose of the study and the confidential nature of the online survey. The PI informed focus group participants of the purpose of the study, the protocol of data collection, and measures to ensure confidentiality of data collected prior to the focus groups. All participants in the focus groups received an adult informed consent form for their records. The focus groups were conducted on participants' campus in a room away from the building that houses the student cohort classes. For example, if they were in a welding cohort, they held the focus group in a building that houses humanities courses. Participants were given a $20 gift card as an incentive for their participation in the focus group.

Participation in the study was purely voluntary. Participants were not required to answer all of the items on the survey or in the focus group, and they were given the option to opt out of the study at any time. There were no direct benefits from participation in the study aside from the gift card. The potential risks related to participation in the online survey, focus group, and

interview were minimal and included: discomforts such as sitting and typing for an extended length of time, loss of personal time, recognition by another focus group member, and anxiety related to sharing in a group. Verbal instructions and the informed consent form for the online survey informed participants they were allowed to get up and stretch during the survey if they felt discomfort. Verbal instructions and the informed consent form for the focus group informed participants they could ask for a break, during which the audio recording would be turned off for a short break until the focus group resumed. Measures were taken to prevent or minimize risk including: holding the focus group in a room on campus in a different building from where the LC cohort is housed to reduce possible recognition, and pausing the focus group if needed at any point or if the PI observed it was necessary.

Potential indirect benefits to the participants may include a greater understanding of their own LCs and learning experience through the reflective nature of the survey or focus group questions. Potential benefits to the institution and the field may include a better understanding of best practices for learning communities designed for Career and Technical Education students. Potential benefits to society at large include a better learning experience for CTE students and, therefore, a better prepared workforce for manual trades.

Data was stored on the PI's password protected computer and paper copies in the PI's home office in a locked file cabinet. All data, electronic and paper, will be destroyed no less than 3 years after publication of this study.

Instrumentation

Two kinds of instruments were used in this study: an on-line survey and a focus group. The on-line survey was developed by the National Resource Center for Learning Communities (NRCLC) and has been used to assess perceptions of student learning in learning communities from both 2- and 4-year colleges since the Winter/Spring terms of 2010 (Malnarich et al., 2014).

The focus group questions and protocol were developed by the PI and reviewed by a panel of experts.

On-line survey. The first research question was: What degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program? To answer this question, this study utilized a instrument developed by the National Resource Center for Learning Communities (NRCLC) in collaboration with the Director of Institutional Research at Skagit Valley College (Malnarich et al., 2014). The *Online Survey of Students' Experiences of Learning in a LC* has its roots in the NRCLC's 2 year *National Project on Assessing Learning in Learning Communities* (Malnarich et al., 2014). One outcome of the National Project was the articulation of a need to understand, "if students were being invited to practice integrative learning as compared to engaged in parallel play," (Malnarich et al., 2014, p. 4) as may happen with cohorts. Together with the Collaborative Assessment Model developed during the National Project, the online survey provides quantitative data regarding student experience in LCs to assist in both program design and professional development for LCs (Malnarich et al., 2014). The survey clusters items in four areas: student engagement, instructor activities, student perceptions of gains, and student perception of activities in LCs as opposed to non-LCs (Malnarich et al., 2014). While these items do not match one-to-one with the four core components of a successful LC, as described by M. G. Visher et al. (2008), they ask extensively about curricular integration, innovative instructional strategies, social integration, and supplemental student support services (M. Pettitt, personal communication, April 30, 2015). To gain a more extensive measure of supplemental student support services, the PI developed four additional items to add to the online survey.

Validation of online survey. In 2014, a validation study of the *Online Survey of Students' Experiences of Learning in a LC* was published that looked at 3 years of survey data of 9,318 student responses from 2- and 4-year colleges (Malnarich et al., 2014). The study used quantitative data to look at both correlation and factor analysis to understand the relationship between survey items. The study used qualitative data to understand whether students thinking about the survey items in the way the authors anticipated (Malnarich et al., 2014). The validation study found a strong correlation among items in three areas: faculty behavior, student behavior, and critical thinking (Malnarich et al., 2014). Four primary factors were revealed through factor analysis: one, faculty behaviors that support quality learning for all students; two, student behaviors that foster responsibility for their own learning; three, student behaviors that support collaborative learning; and four, student and faculty behaviors that together create an academic LC (Malnarich et al., 2014).

The four additional items that focus more directly on student support services and customized specifically for this study have been reviewed by an expert panel. They were pilot-studied with a group of CTE students in an LC designed for CTE students.

Focus group and interview. Research question 2 asks which of the four core components of an LC are most beneficial to the study participants, and research question 3 asks are there additional core components important to the study participants beyond the four identified. To answer these questions, participants took part in a focus group. Focus groups took between 60 and 90 minutes.

The focus group protocol began with an introductory question that consisted of four content questions, one follow-up question, and an exploratory question (see Appendix E). The introductory question is, "Please tell me (us) your name and why did you choose this LC." This was to both introduce the participants and to start with a what Morgan (1997) calls a "discussion

starter" question. A discussion starter question sets the broad tone of the discussion, is easy to respond to, and can help to deter "groupthink."

The first of the content questions speaks to curricular integration in the LC. The question is, "Can you give some examples of the content of curricular integration in your LC, how the subject of one class was integrated into the other class?" Four of the original 43 content items of the *Online Survey of Students' Experiences of Learning in a LC* can be classified as asking about curricular integration (see Appendix C).

The second content question is, "What are some examples of your instructors using innovative strategies in your LC?" Twenty of the original 43 content questions of the *Online Survey of Students' Experiences of Learning in a LC* can be classified as asking about innovative instructional strategies including cooperative learning, collaborative peer-review of work, and reflection of work.

The third content question is, "Can you give me some examples of how your LC helped with social integration and engagement, making you feel connected to each other or to the campus?" Six of the original 43 content questions of the *Online Survey of Students' Experiences of Learning in a LC* can be classified as asking about the engagement of the students. These questions touch on working with classmates outside of class, making friends, and self-efficacy.

The final content question is, "What are some examples of support services your LC provided for you?" Two of the original 43 content questions of the *Online Survey of Students' Experiences of Learning in a LC* can be classified as asking about general support services such as seeking campus resources or seeking academic counseling. The four additional questions added to the original online survey include a general campus support service question, then a question each about academic support services, community support services, and career support services (see customized questions in Appendix C).

The next question is about the ranking of these different components of the LC. This question is, "Of all of these components—integrated curriculum, innovative instructional strategies, social integration, and support services—which were most important to your success as a student?"

The final content question in the focus group and interview is exploratory. It is, "Was there anything about the LC that was important to you that we have not discussed yet?" At the end of the focus group the PI summarized the main themes and key ideas. Participants were invited to contact the PI in the next 7 days if they had any additional ideas or comments they would like to share.

Focus group instrument content validity. The content validity of the focus group and interview instrument was addressed via two means, literature review and expert review. Table 2 presents the literature sources that support each of the focus group instrument questions. It depicts the alignment between the focus group and interview instrument questions and the study guiding research questions.

Expert review was the second means of addressing focus group content validity. The focus group protocol and questions were shared with two experts in the field, both deans at California Community Colleges. Both deans oversee CTE programs at community colleges, and one has overseen an LC for CTE students not included in this study.

They were asked to provide feedback on the content of the questions and the general protocol of the focus group. Specifically, they provided feedback on the language of the questions, the scope of the questions, and the overall cohesiveness of the protocol. This review took place via email, with an additional in person review.

Table 2

Relationship Between Research Questions, Focus Group and Interview Questions, and Literature

Research questions	Focus group/interview questions	Literature sources
RQ2: Which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students?	Can you give some examples of how the content of curricular integration in your LC, how the subject of one class was integrated into the other class?	(Butler & Christofili, 2014; Crisp & Taggart, 2013; Engstrom & Tinto, 2008; Equal Measure, 2015; Goldberg & Finkelstein, 2002; Hesse & Mason, 2005; Jackson et al., 2013; OMG Center on Collaborative Learning, 2013; Tinto, 2003; M. G. Visher et al., 2008; M. G. Visher et al., 2012; Weiss et al., 2015; Zhao & Kuh, 2004)
	What are some examples of your instructors using innovative strategies in your LC?	(Engstrom & Tinto, 2008; Hesse & Mason, 2005; Jackson et al., 2013; Tinto, 2003; M. G. Visher et al., 2008; M. G. Visher et al., 2012; Weiss et al., 2015; Zhao & Kuh, 2004)
	Can you give me some examples of how your LC helped with social integration – making you feel connected to each other or to the campus?	(Crisp & Taggart, 2013; Engstrom & Tinto, 2008; Tinto, 2003; M. G. Visher et al., 2008; M. G. Visher et al., 2012; Weisman, Flores, & Valenciana, 2007; Weiss et al., 2015; Zhao & Kuh, 2004)
	What are some examples of support services did you LC provide for you?	(Engstrom & Tinto, 2008; Equal Measure, 2015; OMG Center on Collaborative Learning, 2013; M. G. Visher et al., 2008; M. G. Visher et al., 2012; Weiss et al., 2015)
	Follow-up for ranking importance: Of all of these components, integrated curriculum, innovative instructional strategies, social integration, and support services – which were most important to your success as a student?	(Malnarich et al., 2014; M. G. Visher et al., 2008; M. G. Visher et al., 2012)

(Continued)

Research questions	Focus group/interview questions	Literature sources
RQ3: What core components or factors for successful learning communities (LCs) in addition to those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students?	Exploratory: Was there anything about the LC that was important to you that we have not discussed yet?	None

Data Collection and Management

This study required adult community college students currently or recently enrolled in an LC designed for CTE to participate in an online survey and focus group or interview. The participants were students in LCs in California Community Colleges that use a cohort model, have a focus on manual trades, include a basic skills component, and have been operating for at least 4 years. These students were recruited by a designee of their college through an email and a short information session immediately following the end of one of the LC courses.

Survey. Students in an LC for CTE at participating colleges were introduced to the online survey by the designee of the college at the end of one of the regular LC courses in a short information session. The information sessions described the study, gave a review of informed consent, and provide a hand out of the adult informed consent form to keep for their records. Students who agreed to participate were invited to either go to a computer lab to take the online survey at a time prearranged with the college designee or given a link to complete the survey on their own within a week.

In the computer lab the designee of the college summarized the study and reviewed informed consent once again. Students comfortable with the study and the informed consent participated in the survey. The survey proctor assisted students in logging onto the survey site

and participants took the survey. The online survey took on average 20 to 30 minutes. The final item took students to an external link where they were able to agree or decline to participate in a focus group or interview, including an offer of a $20 gift card to Starbucks.

The online survey results populated a spreadsheet. The spreadsheet was checked for accuracy, and exported to Excel for analysis. Aggregate and raw data was given to the PI by the NRCLC survey administrator. Data was kept on the PI's computer and an external hard drive, and is password protected. Three years after the publication of this study the electronic data will be erased. Paper copies will be kept in a secure place in the PI's home office and will be destroyed no less than 3 years after the publication of this study.

Focus group and interview. Students who participated in the on-line survey had the option to participate in a focus group or interview. Each college met the minimum requirement of at least five students to hold a focus group. Students who agreed to participate in the focus group were contacted by the PI with the time and date of the focus group. The location was in a building away from the regular LC courses. A detailed protocol was designed for the focus group (see Appendix D).

The PI conducted the focus group and began by welcoming the participants into the room. She reviewed the purpose of the study and explained the voluntary nature of the focus group. The PI gave each participant a copy of the Informed Consent for Participation in Research Activities Phase II - Focus Group and review the form (see Appendix I).

After starting the electronic audio recording equipment, the PI began the discussion by introducing herself and her positionality in relation to the study. The focus group questions (see Table 2) acted as the structure of the focus group. Follow-up questions and discussion also unfolded. Before the focus group was over, the PI reviewed group responses for representativeness and asked for clarification or additions.

The focus groups were audio recorded with permission from the participants. Electronic copies of audio recordings, and electronic transcripts, were kept on the PI's computer and an external hard drive, and are password protected. Audio recordings were erased once they had been transcripted. Five years after the publication of this study the electronic data will be erased. Paper copies of transcripts will be kept in a secure place in the PI's home office and will be destroyed no sooner than 3 years after the publication of this study.

Data Analysis

Quantitative analysis. Descriptive statistics were generated for general characteristics of the data, including the types of courses and required number of credit units for each, and length of the each CTE LC. Inferential statistics inferred the parameters of the population based on the sample. An averaging of positive scores for questions grouped by core component allowed a better understand the relationship of the survey items and address the first research question: To what degree, if at all, do current and recent Career and Technical Education (CTE) learning communities (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program?

Qualitative analysis. The recordings of the focus groups were transcribed. Transcripts of the focus groups were read through as a whole and bracketed, as described by Seidman (2013). Next, they were reread, with the PI looking for bracketed items that signify existing or emerging categories. Throughout this process, the PI coded the text for existing and emerging themes and categories.

The PI read the transcripts and developed an initial list of themes for coding. Next the PI enlisted two researchers as blind coders, and all three read the transcripts using the initial list of themes, as wells as look for emerging themes and direct quotations that provide examples of

themes. The three researchers then conferred and agreed on coding. Where passages were coded by two of the three researchers it was considered valid.

Positionality

My father is a blacksmith in rural Louisiana. He works with his hands and metal and he can make anything he can imagine. He dropped out of school in 10th grade and, despite his lack of a formal education; he is the smartest man I know. Had he grown up under different circumstances he might be working for Space X in their mission to put humans on Mars, or be in the TV show "Myth Busters" reveling in the joy and cleverness of the making of things. Because he went to a rural school in the 1950s and struggled with academics, he was lead to believe he was stupid. How many more people are there out there like my father? How many students have a talent for building and making but have not had the good fortune of an education that nurtured this aptitude while building up their basic academic skills? How many people are so very smart yet are made to feel dumb? I am not alone in seeing this combination of people with skilled hands, but neglected academic skills, as both an injustice and an untapped resource.

Chapter 4: Results

This chapter presents the results of the study. It begins with a review of the purpose of the study and the three research questions. This is followed by a summary of the study design. The results are presented as detailed key findings from the quantitative survey and the qualitative focus groups. The chapter concludes with a summary of key findings, which will then be discussed in Chapter 5.

Study Purpose

The purpose of this sequential, explanatory, mixed methods study was (a) to investigate the degree to which Career Technical Education (CTE) students in selected California Community College (CCC) campuses believe that the core components of learning communities (LCs) designed for traditional, academic track students exist in LCs designed for CTE students; (b) to determine which of the core components, if any, are perceived by students as most beneficial, for CTE LCs; and (c) to explore any additional components that students might believe to be essential for LCs designed for CTE students.

Research Question

The study addressed the following questions:

1. To what degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program?
2. Which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students?

3. What core components or factors for successful learning communities (LCs) in addition to those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students?

Research Design

The study utilized a sequential explanatory mixed methods design and measured the degree of attitudes or beliefs of CTE LC students regarding the presence and importance of LC core components. The first phase of the study was quantitative, in which the *Online Survey of Students' Experiences of Learning in a LC*, developed and implemented by the National Resource Center for Learning Communities (NRCLC), was administered to a cross section of 75 current CTE LC students from three California Community Colleges to determine the perception of implementation of the core components of a LC. In the second and qualitative phase of the study, survey respondents were able to opt-in to a focus group or interview designed to determine which of the core components, if any, were most beneficial and to explore their experience in the LC to allow to emerge any critical components not included in the survey instrument. Thirty-five of the survey respondents participated in a total of six focus groups. Quantitative and qualitative data were analyzed separately (Creswell, 2013).

Program Descriptions

College on the Hill. College on the Hill offers multiple LCs in Career and Technical Education. One of those, the automotive CAA, has a focus on manual trades. The PI conducted one focus group with the automotive CAA. This LC runs for one semester and is cohort based with approximately 20 to 24 students.

Students take a full load of courses that include automotive, English, a counseling course that focuses on college success skills, career exploration and career readiness skills, and math, for a total of 17 credit units. If students assessed at a higher English or math level, they may be

exempt from that class. The counseling course integrates skills and exploration specific to the automotive field. The counseling course also assists students with applications for college certificates and for the full-time automotive program. The English course focuses on reading, research, and writing related to automotive topics. For example, the process essay may focus on tire mounting and inspection, and the research paper may include an interview and job shadowing of an automotive professional. The math course focuses on practical application and is contextualized for the automotive industry.

General student support services available to all students include the regular campus supports such as the following: counseling, financial aid, a writing center, a math center, a special resources center for students with disabilities, a food pantry, a health center, EOP&S, CalWorks, and Veteran's Services. Special support services for students in the Automotive CAA include a coordinator to assist students with registration and general on-boarding, an orientation, assistance with financial aid, assistance with registration, free text books, special scholarships, general college navigation, and a dedicated counselor. Other student supports are career focused. Industry speakers from companies such as BMW and Tesla Motors come in to talk about their field, and the college sponsors an event called Hiring Day where students can apply directly with local automotive employers for paid internships. The counseling course may also be considered career focused student support, as it strongly emphasizes mock interviews and resume preparation for Hiring Day and the automotive industry in general. The counseling course offers intensive transition supports for students who either want to seek full time employment or enter the full time automotive program at the college.

College in the City. College in the City offers an integrated trades-based LC in Industrial Maintenance known locally as the CAA. The PI conducted one focus group with the Industrial Maintenance CAA. This LC is cohort based, two semesters long, and enrolls between

20 to 24 students. The courses offered are in machining, hydraulics, welding, blueprint reading, industrial safety, electronics, and math. At the end of two terms students will have earned a Cal OSHA safety certification and a 29.5 unit college certificate that qualifies them for entry level positions. This college certificate "stacks" or "nests" into the second year college credential.

Students have access to all the general student support services, similar to those of College on the Hill. Specialized career focused support services include a counselor familiar with the field, industry speakers, industry focused field trips, free text books, supplies for the trade classes, and internships.

Pathway College. Pathway College offers LCs known on campus as the CAA in Automotive Technology, Air Conditioning and Refrigeration, and Welding. The PI conducted four focus groups at Pathway College, one with each discipline and one with peer mentors in the program. These LCs are one semester introductions to their respective fields, comprising two consecutive accelerated 8-week sessions. They are cohort based and include one 4-unit course in their respective field and an optional, but highly suggested, Human Development course. Each cohort enrolls approximately 30 students. While the students are not required to take a math course, Pathway College offers many of their math courses in sections that are contextualized for the trades. These sections began with the most entry level of math course, and subsequent levels are offered each semester with the eventual goal being a section of each math class, contextualized for the trades, offered at every level of math.

The Human Development course focuses on career readiness, including resumes and interview skills specific for the trades. A math "boot camp" is offered in a workshop format to (a) help students prepare to both enter the math course sequence; and (b) focus on applied math for industry, including many concepts covered on math exams required for local union

apprenticeships. The math instructor and trades instructor co-teach math lessons in the trades class setting and in workshops outside of regular class.

General student supports that are available to all students include those listed for College on the Hill. Special career focused support services include the following: meeting with a specialized counselor three times per semester; peer mentors; tutors from the specific CTE disciplines; workshops that offer industry specific certifications including OSHA 10, OSHA Confined Spaces, Osha Hole Watch, OSHA Fire Watch, and Forklift Operation; field trips to local employers and trade shows; industry speakers in classrooms; and paid internships and services through the local Workforce Development Board.

Phase One Findings

Research question 1. Research question 1 asked: To what degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program? Phase one of the study addressed this question and entailed the administration of the *Online Survey of Students' Experiences of Learning in a LC*, an instrument developed and implemented by the NRCLC to determine student perception of implementation of the core components of an LC.

College on the Hill. Survey findings for College on the Hill in entirety and in order of the items on the instrument are included in Appendix K. Table 3 depicts the findings from the survey for College on the Hill organized by core component of a LC. Eighteen students participated in the survey. College on the Hill students tended overall to have higher responses to the rating *often*. An exception to this pattern is an item not related to the core components: "In my LC, I: work on reading, writing, and problem solving assignments during class." Students

generally responded in high numbers to *often* or *very often* for most items. Items corresponding to innovative instruction also had a high number of responses as *sometimes*.

The average responses for items related to curricular integration were 79% for both *very often* and *often* combined. For items that relate to innovative instruction, the average response where both *very often* and *often* combined is an option, is 66%. For items related to integrated instruction where the answers are *more, less,* or *about the same,* the results were on average 34% *more* and 37% *less,* indicating a close split between how innovative the instruction is perceived to be in LC classes compared to regular classes. For items that relate with engagement, responses to *very often* and *often* combined averaged 76%. Questions relating to supportive services had an average response of 65% for *very often* and *often* combined. Students at College on the Hill find all four components present in their LC, with highest positive results for curricular integration, (79%), engagement (76%), innovative instruction (66%), and supportive services (65%).

Table 3

Response to Survey Items by Core Component – College on the Hill

#	Core components	Very often	Often	Some times	Never
	Core Component – Curricular Integration				
I.8.	In my LC, I: Work on connecting or integrating ideas, strategies, or skills from classes (or disciplines) included in this LC	1	11	6	0
I.10	In my LC, I: Use what I'm learning to contribute to another class	3	8	7	0
II.9	Teachers in my LC: Demonstrate how to integrate concepts and skills from different classes in a meaningful way	2	10	5	1
II.10	Teachers in my LC: Assign work that asks me to connect concepts and skills from different classes to reach new understandings and/or applications	2	10	4	2
	Core Component – Innovative Instruction				

(Continued)

#	Core components	Very often	Often	Some times	Never
I.4.	In my LC, I: Work with other students to examine complex issues during class	8	6	4	0
I.5.	In my LC, I: Peer review my and other students' work during class	6	8	2	0
I.6.	In my LC, I: Work with other students on group projects during class	4	7	5	2
I.7.	In my LC, I: Present my work, or work done as part of a group, to the class	2	5	9	2
I.9.	In my LC, I: Reflect on how these connections lead to new insights or understandings	1	7	9	1
I.12	In my LC, I: Discuss ideas from this LC with family members, coworkers, other students etc.	3	7	4	4
II.6	Teachers in my LC: Talk to me about my ideas ** also listed in Engagement	4	8	6	0
II.7	Teachers in my LC: Encourage me to explore my ideas	3	9	5	1
II.8	Teachers in my LC: Help me use my background knowledge and life experiences to learn new things	5	8	5	0
II.11	Teachers in my LC: Show me how to evaluate the strengths and weaknesses in my work as a basis for improvement	3	8	7	0
III.3	My participation in this LC helps me to develop my ability to: My participation in this LC helps me to develop my ability to: Think critically and analytically **1 missing responses*	4	10	3	0
III.4	My participation in this LC helps me to develop my ability to: Analyze quantitative problems **1 missing responses*	3	11	2	1
III.6	My participation in this LC helps me to develop my ability to: Identify the learning strategies that are most effective for me **1 missing responses*	4	10	2	1
III.9	My participation in this LC helps me to develop my ability to: Connect my learning in school to problems and issues in my local community and the world **1 missing responses*	5	8	4	0
		More	Less	About the same amount	
IV.2	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Analyzing elements of an idea, experience, or theory **4 missing responses*	6	7	1	-

(Continued)

#	Core components	Very often	Often	Some times	Never
IV.3	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Thinking through my assumptions **4 missing responses*	6	7	1	-
IV.4	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Synthesizing ideas, experiences, or theories **4 missing responses*	6	7	1	-
IV.5	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Evaluating information, methods, and arguments **4 missing responses*	5	7	2	-
IV.6	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Integrating ideas, strategies, and skills from multiple sources **4 missing responses*	7	6	1	-
IV.7	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Applying theories or concepts to practical problems or new situations **4 missing responses*	7	6	1	-
	Core Component - Engagement	Very often	Often	Some times	Never
I.11	In my LC, I: Work with classmates outside of class on class assignments, homework or projects	4	7	3	4
I.13	In my LC, I: Develop friendships with classmates based on shared LC experiences	5	7	6	0
II.2	Teachers in my LC: Make all students feel comfortable about participating in class activities	5	10	3	0
II.6	Teachers in my LC: Talk to me about my ideas ** also listed in Innovative Instruction	4	8	6	0
II.12	Teachers in my LC: Encourage me to seek out other resources on campus (library, math center, writing center, learning center, student services, financial aid, etc.) **1 missing responses*	3	10	3	2
II.13	Teachers in my LC: Encourage me to plan the next steps in my education with a counselor or advisor **2 missing responses*	3	12	3	0
III.5	My participation in this LC helps me to develop my ability to: Work effectively with others to complete assignments/projects **1 missing responses*	5	10	2	0

(Continued)

#	Core components	Very often	Often	Some times	Never
III.8	My participation in this LC helps me to develop my ability to: Take responsibility for my own learning **1 missing responses*	8	9	0	0
	Core Component – Supportive Services				
V.1	My participation in my LC has given me access to: Student support services such as a counselor, financial aid, and assistance with registration. **2 missing responses*	2	10	3	1
V.2	My participation in my LC has given me access to: Academic support services such as math and English tutors, a writing center, and other assistance with my school work. **2 missing responses*	1	11	3	1
V.3	My participation in my LC has given me access to: Community support services such as child care, housing assistance, and transportation assistance. **2 missing responses*	1	10	2	3
V.4	My participation in my LC has given me access to: Career support services such as resume writing, job fairs, field trip to companies, and assistance with interviewing skills. **3 missing responses*	2	10	1	2
	Items not related to one of the four components				
I.1.	In my LC, I: Ask questions in class	3	8	5	2
I.2.	In my LC, I: Participate in class discussions or seminars	4	7	7	0
I.3.	In my LC, I: Work on reading, writing and/or problem solving assignments during class	10	4	2	0
II.1	Teachers in my LC: Make the goals and vocabulary of learning communities clear	3	11	3	1
II.3	Teachers in my LC: Encourage students to ask questions in class	3	13	2	0
II.4	Teachers in my LC: Encourage students to discuss assigned work in class **1 missing responses*	1	9	6	1
II.5	Teachers in my LC: Help students establish productive working groups **1 missing responses*	2	9	3	3
III.1	My participation in this LC helps me to develop my ability to: Write clearly and effectively **1 missing responses*	3	10	3	1

(Continued)

#	Core components	Very often	Often	Some times	Never
III.2	My participation in this LC helps me to develop my ability to: Speak clearly and effectively **1 missing responses*	2	11	4	0
III.7	My participation in this LC helps me to develop my ability to: Persist when faced with academically challenging work **1 missing responses*	4	8	5	0
III.10	My participation in this LC helps me to develop my ability to: Be successful in future courses and programs **1 missing responses*	6	10	1	0
		More	Less	About the same amount	
IV.1	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Memorizing facts and figures **4 missing responses*	7	5	2	

While research question 1 was addressed by the online survey, the focus group discussion also evidenced the presence of the core components in the LC. Focus group findings are detailed in the section on phase two, however it is worth noting a general discussion on each component for College on the Hill. For curricular integration they spoke about the counseling and English classes supporting their automotive class through work readiness, such as interview preparation and English assignments that explored careers in the automotive field. The component of innovative instruction was the least emphasized in the focus group. Discussions focused on the methods of their instructors, mock interviews, and hands-on learning. Students were eager to express the supportive nature of their cohort under the component of engagement. Supportive services were emphasized as core components in the focus group, both traditional college supports such as counselors as well as more recent supports such as a food pantry. Career focused support services, such as Hiring Days, were seen as significant and beneficial.

College in the City. Survey findings for College in the City in entirety, and in order of the items on the instrument, are included in Appendix K. Table 4 shows the findings from the instrument for College in the City organized by core component of a LC in descending order. College in the City had five students participate in the online survey.

The average responses for items related to curricular integration are 55% for both *very often* and *often* combined. For items that relate to innovative instruction, the average response of either *very often* and *often* was 65%. For items related to integrated instruction, where the answer options are *more, less,* or *about the same,* the results were on average 34% *more* and 40% *less*, indicating students perceive their LC classes to be less innovative than their regular classes. For items that relate with engagement, responses to *very often* and *often* combined averaged 67%. Items relating to supportive services had an average response of 70% for *very often* and *often* combined. Students at College in the City found all four components present in their LC, with highest positive results for supportive services (70%), followed by engagement (67%), innovative instruction (65%), and curricular integration (55%).

Table 4

Responses to Survey Items by Core Component – College in the City

#	Core components	Very often	Often	Some times	Never
	Core Component – Curricular Integration				
I.8.	In my LC, I: Work on connecting or integrating ideas, strategies, or skills from classes (or disciplines) included in this LC **1 response missing*	2	0	2	0
I.10	In my LC, I: Use what I'm learning to contribute to another class **1 response missing*	1	3	0	0
II.9	Teachers in my LC: Demonstrate how to integrate concepts and skills from different classes in a meaningful way **1 missing responses*	1	2	1	0

(Continued)

#	Core components	Very often	Often	Some times	Never
II.10	Teachers in my LC: Assign work that asks me to connect concepts and skills from different classes to reach new understandings and/or applications **1 missing responses*	0	2	2	0
	Core Component - Integrated Instruction				
I.4.	In my LC, I: Work with other students to examine complex issues during class **1 response missing*	3	1	0	0
I.5.	In my LC, I: Peer review my and other students' work during class **1 response missing*	1	2	2	0
I.6.	In my LC, I: Work with other students on group projects during class **1 response missing*	1	3	0	0
I.7.	In my LC, I: Present my work, or work done as part of a group, to the class **1 response missing*	2	0	1	1
I.9.	In my LC, I: Reflect on how these connections lead to new insights or understandings **1 response missing*	3	0	1	0
I.12	In my LC, I: Discuss ideas from this LC with family members, coworkers, other students etc. **1 response missing*	1	2	1	0
II.6	Teachers in my LC: Talk to me about my ideas **1 missing responses* ***Also listed under Engagement*	2	1	1	0
II.7	Teachers in my LC: Encourage me to explore my ideas **1 missing responses*	1	2	1	0
II.8	Teachers in my LC: Help me use my background knowledge and life experiences to learn new things **1 missing responses*	1	1	0	2
II.11	Teachers in my LC: Show me how to evaluate the strengths and weaknesses in my work as a basis for improvement **1 missing responses*	1	2	1	0
III.3	My participation in this LC helps me to develop my ability to: My participation in this LC helps me to develop my ability to: Think critically and analytically **1 missing responses*	2	2	0	0
III.4	My participation in this LC helps me to develop my ability to: Analyze quantitative problems **1 missing responses*	2	2	0	0

(Continued)

#	Core components	Very often	Often	Some times	Never
III.6	My participation in this LC helps me to develop my ability to: Identify the learning strategies that are most effective for me **1 missing responses*	1	3	0	0
		More	Less	About the same amount	
IV.2	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Analyzing elements of an idea, experience, or theory	2	2	1	-
IV.3	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Thinking through my assumptions	1	3	1	-
IV.4	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Synthesizing ideas, experiences, or theories	2	2	1	-
IV.5	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Evaluating information, methods, and arguments	2	2	1	-
IV.6	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Integrating ideas, strategies, and skills from multiple sources	2	2	1	-
IV.7	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Applying theories or concepts to practical problems or new situations	2	2	1	-
III.9	My participation in this LC helps me to develop my ability to: Connect my learning in school to problems and issues in my local community and the world **1 missing responses*	1	1	2	-
	Core Component - Engagement				
I.11	In my LC, I: Work with classmates outside of class on class assignments, homework or projects **1 response missing*	1	2	1	0
I.13	In my LC, I: Develop friendships with classmates based on shared LC experiences **1 response missing*	1	3	0	0
II.2	Teachers in my LC: Make all students feel comfortable about participating in class activities **1 missing responses*	2	1	1	0
II.6	Teachers in my LC: Talk to me about my ideas **1 missing responses* *Also listed under Integrated Instruction*	2	1	1	0

(Continued)

#	Core components	Very often	Often	Some times	Never
III.5	My participation in this LC helps me to develop my ability to: Work effectively with others to complete assignments/projects **1 missing responses*	3	1	0	0
III.8	My participation in this LC helps me to develop my ability to: Take responsibility for my own learning **1 missing responses*	2	1	1	0
	Core Component – Supportive Services				
II.13	Teachers in my LC: Encourage me to plan the next steps in my education with a counselor or advisor **1 missing responses*	2	0	1	1
II.12	Teachers in my LC: Encourage me to seek out other resources on campus (library, math center, writing center, learning center, student services, financial aid, etc.) **1 missing responses*	1	2	1	0
V.1	My participation in my LC has given me access to: Student support services such as a counselor, financial aid, and assistance with registration.	3	1	1	0
V.2	My participation in my LC has given me access to: Academic support services such as math and English tutors, a writing center, and other assistance with my school work.	3	2	0	0
V.3	My participation in my LC has given me access to: Community support services such as child care, housing assistance, and transportation assistance.	1	2	1	1
V.4	My participation in my LC has given me access to: Career support services such as resume writing, job fairs, field trip to companies, and assistance with interviewing skills.	3	1	1	0
	Not related to one of the four components				
I.1.	In my LC, I: Ask questions in class **1 response missing*	2	1	1	0
I.2.	In my LC, I: Participate in class discussions or seminars **1 response missing*	1	2	1	0
I.3.	In my LC, I: Work on reading, writing and/or problem solving assignments during class **1 response missing*	2	1	1	0
II.1	Teachers in my LC: Make the goals and vocabulary of learning communities clear **1 missing responses*	0	3	1	0

(Continued)

#	Core components	Very often	Often	Some times	Never
II.3	Teachers in my LC: Encourage students to ask questions in class **1 missing responses*	3	1	0	0
II.4	Teachers in my LC: Encourage students to discuss assigned work in class **1 missing responses*	2	1	1	0
II.5	Teachers in my LC: Help students establish productive working groups **1 missing responses*	1	1	2	0
III.1	My participation in this LC helps me to develop my ability to: Write clearly and effectively **1 missing responses*	1	1	2	0
III.2	My participation in this LC helps me to develop my ability to: Speak clearly and effectively **1 missing responses*	1	2	1	0
III.7	My participation in this LC helps me to develop my ability to: Persist when faced with academically challenging work **1 missing responses*	2	1	1	0
III.10	My participation in this LC helps me to develop my ability to: Be successful in future courses and programs **1 missing responses*	2	2	0	0
		More	Less	About the same amount	
IV.1	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Memorizing facts and figures	3	1	1	

In addition to the online survey, the focus group evidenced the presence of each component in the LC. Focus group findings are detailed in the section on phase two; however, general discussion of each component is presented here. College in the City students shared how their trades classes were integrated with each other as well as with a technical math class under the component *curricular integration*. When asked about innovative instruction, they spoke about hands-on instruction and the use of videos. They spoke about the cohort under the topic of engagement. For the component of supportive services, they discussed financial support, counseling, and support for the materials needed in class. They spoke at length about supportive

services, which is supported by their relatively high average positive score for supportive services in the survey.

Pathway College. Survey findings for Pathway College, in entirety and in order of the items on the instrument, are included in Appendix K. Table 5 shows the findings from the survey for Pathway College, organized by core component of a LC in descending order. Fifty-two students from Pathway College participated in the survey.

The average responses for items related to curricular integration are 79% for both *very often* and *often* combined. For items that relate to innovative instruction the average response, with both *very often* and *often* combined as an option, is 79%. For items related to integrated instruction, where the answers are *more, less,* or *about the same,* the results were on average 65% *more* and 22% *less*, indicating students perceive their LC classes to be more innovative than their regular classes. The responses for *about the same* averaged 8%. For items that relate with engagement, responses to *very often* and *often* combined averaged 80%. Items relating to supportive services had an average response of 88% for *very often* and *often* combined. Students at Pathway College find all four components present in their LC, with highest positive results for supportive services (88%), followed by engagement (80%), innovative instruction (79%), and curricular integration (79%). Students at Pathway College responded *very often* and *often* at a higher rate than the other colleges.

Table 5

Responses to Survey Items by Core Component – Pathway College

#	Core components	Very often	Often	Some times	Never
	Core Component – Curricular Integration				
I.8.	In my LC, I: Work on connecting or integrating ideas, strategies, or skills from classes (or disciplines) included in this LC	21	20	10	1

(Continued)

#	Core components	Very often	Often	Some times	Never
I.10	In my LC, I: Use what I'm learning to contribute to another class	22	18	9	3
II.9	Teachers in my LC: Demonstrate how to integrate concepts and skills from different classes in a meaningful way **2 missing responses*	26	16	8	0
II.10	Teachers in my LC: Assign work that asks me to connect concepts and skills from different classes to reach new understandings and/or applications **2 missing responses*	23	19	7	1
	Core Component - Integrated Instruction				
I.4.	In my LC, I: Work with other students to examine complex issues during class	34	11	7	0
I.5.	In my LC, I: Peer review my and other students' work during class	21	18	9	4
I.6.	In my LC, I: Work with other students on group projects during class **1 response missing*	33	9	9	0
I.7.	In my LC, I: Present my work, or work done as part of a group, to the class	17	14	14	7
I.9.	In my LC, I: Reflect on how these connections lead to new insights or understandings	20	24	7	1
I.12	In my LC, I: Discuss ideas from this LC with family members, coworkers, other students etc.	25	18	7	2
II.6	Teachers in my LC: Talk to me about my ideas **3 missing responses* ***also listed under Engagement*	21	19	8	1
II.7	Teachers in my LC: Encourage me to explore my ideas **4 missing responses*	27	11	8	2
II.8	Teachers in my LC: Help me use my background knowledge and life experiences to learn new things **2 missing responses*	19	18	11	2
II.11	Teachers in my LC: Show me how to evaluate the strengths and weaknesses in my work as a basis for improvement **2 missing responses*	24	20	4	2
III.3	My participation in this LC helps me to develop my ability to: Think critically and analytically **3 missing responses*	31	14	4	0
III.4	My participation in this LC helps me to develop my ability to: Analyze quantitative problems **2 missing responses*	27	18	5	0

(Continued)

#	Core components	Very often	Often	Some times	Never
III.6	My participation in this LC helps me to develop my ability to: Identify the learning strategies that are most effective for me **2 missing responses*	30	13	7	0
III.9	My participation in this LC helps me to develop my ability to: Connect my learning in school to problems and issues in my local community and the world **2 missing responses*	26	16	6	2
		More	Less	About the same amount	
IV.2	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Analyzing elements of an idea, experience, or theory **2 missing responses*	36	9	5	-
IV.3	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Thinking through my assumptions **3 missing responses*	33	9	7	-
IV.4	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Synthesizing ideas, experiences, or theories **2 missing responses*	32	13	5	-
IV.5	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Evaluating information, methods, and arguments **2 missing responses*	35	12	3	-
IV.6	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Integrating ideas, strategies, and skills from multiple sources **2 missing responses*	33	13	4	-
IV.7	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Applying theories or concepts to practical problems or new situations **2 missing responses*	35	14	1	-
	Core Component - Engagement				
I.13	In my LC, I: Develop friendships with classmates based on shared LC experiences	28	13	11	0
I.11	In my LC, I: Work with classmates outside of class on class assignments, homework or projects	14	8	22	8
II.2	Teachers in my LC: Make all students feel comfortable about participating in class activities **2 missing responses*	34	14	2	0

(Continued)

#	Core components	Very often	Often	Some times	Never
III.5	My participation in this LC helps me to develop my ability to: Work effectively with others to complete assignments/projects **2 missing responses*	35	13	2	0
II.6	Teachers in my LC: Talk to me about my ideas **3 missing responses* ***also listed under Innovative Instruction*	21	19	8	1
III.8	My participation in this LC helps me to develop my ability to: Take responsibility for my own learning **3 missing responses*	39	10	0	0
	Core Component - Support Services				
II.12	Teachers in my LC: Encourage me to seek out other resources on campus (library, math center, writing center, learning center, student services, financial aid, etc.) **2 missing responses*	32	14	4	0
II.13	Teachers in my LC: Encourage me to plan the next steps in my education with a counselor or advisor **2 missing responses*	36	10	4	0
V.1	My participation in my LC has given me access to: Student support services such as a counselor, financial aid, and assistance with registration. **2 missing responses*	36	13	1	0
V.2	My participation in my LC has given me access to: Academic support services such as math and English tutors, a writing center, and other assistance with my school work. **2 missing responses*	33	15	2	0
V.3	My participation in my LC has given me access to: Community support services such as child care, housing assistance, and transportation assistance. **2 missing responses*	28	12	5	5
V.4	My participation in my LC has given me access to: Career support services such as resume writing, job fairs, field trip to companies, and assistance with interviewing skills. **3 missing responses*	31	13	5	0
	Items not related to one of the four components				
I.1.	In my LC, I: Ask questions in class	19	20	12	1
I.2.	In my LC, I: Participate in class discussions or seminars	22	22	8	0
I.3.	In my LC, I: Work on reading, writing and/or problem solving assignments during class	27	19	6	0

(Continued)

#	Core components	Very often	Often	Some times	Never
II.1	Teachers in my LC: Make the goals and vocabulary of learning communities clear **2 missing responses*	31	16	3	0
II.3	Teachers in my LC: Encourage students to ask questions in class **2 missing responses*	33	14	3	0
II.4	Teachers in my LC: Encourage students to discuss assigned work in class **2 missing responses*	32	12	5	1
II.5	Teachers in my LC: Help students establish productive working groups **2 missing responses*	31	13	6	0
III.1	My participation in this LC helps me to develop my ability to: Write clearly and effectively **2 missing responses*	21	19	10	0
III.2	My participation in this LC helps me to develop my ability to: Speak clearly and effectively **3 missing responses*	22	22	4	1
III.7	My participation in this LC helps me to develop my ability to: Persist when faced with academically challenging work **2 missing responses*	28	20	2	0
III.10	My participation in this LC helps me to develop my ability to: Be successful in future courses and programs **2 missing responses*	34	12	3	1
		More	Less	About the same amount	
IV.1	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Memorizing facts and figures **2 missing responses*	29	12	9	

As with the other colleges, Pathways College students also addressed the presence of the core components in their focus group discussions. When discussing supportive services in the focus groups, two main categories emerged: career focused supportive services, and staff and instructors as support. This relates to their high average positive scores in the survey for supportive services. The component of engagement also had a high average score in the survey from Pathway College. This was reflected in the focus groups as students spoke at length about

the supportive nature of the LC. Students also spoke about the methods of the instructors and creative use of technology under the umbrella of innovative instruction. They explained how the curriculum of their trades classes was integrated with the Human Development course and how the math instructor came to their trades class to teach applied mathematics.

Collective findings. The total number of survey respondents for all colleges was 75. Collectively the average responses for items related to curricular integration were 74% for both *very often* and *often* combined. For items that relate to innovative instruction the average response, where both *very often* and *often* combined is an option, was 74%. For items related to integrated instruction where the answer options were *more, less,* or *about the same,* the results were on average 56% *more* and 27% *less*, indicating that students perceive their LC classes to be more innovative than their regular classes. The responses for *about the same* averaged 8%. For items that relate with engagement, responses to *very often* and *often* had a combined average of 78%. Items relating to supportive services had an average response of 82% for *very often* and *often* combined. Collectively the survey participants at the colleges find all four components present in their LC, with highest positive results for supportive services (82%), followed by engagement (78%), innovative instruction (74%), and curricular integration (74%). The collective results are lower for the combined categories of *very often* and *often* than College on the Hill and College in the City, but lower than Pathway College.

Table 6

Responses to Survey Items by Core Component – Collective Findings

#	Core components	Very often	Often	Some times	Never
	Core Component – Curricular Integration				
I.8.	In my LC, I: Work on connecting or integrating ideas, strategies, or skills from classes (or disciplines) included in this LC	24	31	18	1

(Continued)

#	Core components	Very often	Often	Some times	Never
I.10	In my LC, I: Use what I'm learning to contribute to another class	26	29	16	3
II.9	Teachers in my LC: Demonstrate how to integrate concepts and skills from different classes in a meaningful way **2 missing responses*	29	28	14	1
II.10	Teachers in my LC: Assign work that asks me to connect concepts and skills from different classes to reach new understandings and/or applications **2 missing responses*	25	31	13	3
	Core Component – Innovative Instruction				
I.4.	In my LC, I: Work with other students to examine complex issues during class	45	18	11	0
I.5.	In my LC, I: Peer review my and other students' work during class	24	26	19	5
I.6.	In my LC, I: Work with other students on group projects during class **1 response missing*	38	19	14	2
I.7.	In my LC, I: Present my work, or work done as part of a group, to the class	21	19	24	10
I.9.	In my LC, I: Reflect on how these connections lead to new insights or understandings	24	31	17	2
I.12	In my LC, I: Discuss ideas from this LC with family members, coworkers, other students etc.	29	27	12	6
II.6	Teachers in my LC: Talk to me about my ideas **3 missing responses*	27	28	15	1
II.7	Teachers in my LC: Encourage me to explore my ideas **4 missing responses*	31	22	14	3
II.8	Teachers in my LC: Help me use my background knowledge and life experiences to learn new things **2 missing responses*	25	27	16	4
II.11	Teachers in my LC: Show me how to evaluate the strengths and weaknesses in my work as a basis for improvement **2 missing responses*	28	30	12	2
III.3	My participation in this LC helps me to develop my ability to: Think critically and analytically **4 missing responses*	37	26	7	0
III.4	My participation in this LC helps me to develop my ability to: Analyze quantitative problems **3 missing responses*	32	31	7	1

(Continued)

#	Core components	Very often	Often	Some times	Never
III.6	My participation in this LC helps me to develop my ability to: Identify the learning strategies that are most effective for me **3 missing responses*	35	26	9	1
		More	Less	About the same amount	
IV.2	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Analyzing elements of an idea, experience, or theory **5 missing responses*	44	18	7	-
IV.3	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Thinking through my assumptions **5 missing responses*	40	19	9	-
IV.4	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Synthesizing ideas, experiences, or theories **5 missing responses*	40	22	7	-
IV.5	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Evaluating information, methods, and arguments **5 missing responses*	42	21	6	-
IV.6	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Integrating ideas, strategies, and skills from multiple sources **5 missing responses*	42	21	6	-
IV.7	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Applying theories or concepts to practical problems or new situations **5 missing responses*	44	22	3	-
	Core Component – Engagement				
I.11	In my LC, I: Work with classmates outside of class on class assignments, homework or projects	19	17	26	12
I.13	In my LC, I: Develop friendships with classmates based on shared LC experiences	34	23	17	0
II.2	Teachers in my LC: Make all students feel comfortable about participating in class activities **2 missing responses*	41	25	6	0
II.6	Teachers in my LC: Talk to me about my ideas **3 missing responses*	27	28	15	1
III.5	My participation in this LC helps me to develop my ability to: Work effectively with others to complete assignments/projects **3 missing responses*	43	24	4	0

(Continued)

#	Core components	Very often	Often	Some times	Never
III.8	My participation in this LC helps me to develop my ability to: Take responsibility for my own learning **4 missing responses*	49	20	1	0
III.9	My participation in this LC helps me to develop my ability to: Connect my learning in school to problems and issues in my local community and the world **3 missing responses*	32	25	12	2
	Core Component – Supportive Services				
II.12	Teachers in my LC: Encourage me to seek out other resources on campus (library, math center, writing center, learning center, student services, financial aid, etc.) **2 missing responses*	36	26	8	2
II.13	Teachers in my LC: Encourage me to plan the next steps in my education with a counselor or advisor **2 missing responses*	41	22	8	1
V.1	My participation in my LC has given me access to: Student support services such as a counselor, financial aid, and assistance with registration. **3 missing responses*	41	24	5	1
V.2	My participation in my LC has given me access to: Academic support services such as math and English tutors, a writing center, and other assistance with my school work. **3 missing responses*	37	28	5	1
V.3	My participation in my LC has given me access to: Community support services such as child care, housing assistance, and transportation assistance. **3 missing responses*	30	24	8	9
V.4	My participation in my LC has given me access to: Career support services such as resume writing, job fairs, field trip to companies, and assistance with interviewing skills. **3 missing responses*	36	24	7	2
	Items not related to one of the four components				
I.1.	In my LC, I: Ask questions in class	24	29	18	3
I.2.	In my LC, I: Participate in class discussions or seminars	27	31	16	0
I.3.	In my LC, I: Work on reading, writing and/or problem solving assignments during class	31	30	11	1
II.1	Teachers in my LC: Make the goals and vocabulary of learning communities clear **2 missing responses*	34	30	7	1

(Continued)

#	Core components	Very often	Often	Some times	Never
II.3	Teachers in my LC: Encourage students to ask questions in class **2 missing responses*	39	28	5	0
II.4	Teachers in my LC: Encourage students to discuss assigned work in class **3 missing responses*	35	22	12	2
II.5	Teachers in my LC: Help students establish productive working groups **3 missing responses*	34	23	11	3
III.1	My participation in this LC helps me to develop my ability to: Write clearly and effectively **3 missing responses*	25	30	15	1
III.2	My participation in this LC helps me to develop my ability to: Speak clearly and effectively **4 missing responses*	25	35	9	1
III.7	My participation in this LC helps me to develop my ability to: Persist when faced with academically challenging work **3 missing responses*	34	29	8	0
III.10	My participation in this LC helps me to develop my ability to: Be successful in future courses and programs **3 missing responses*	42	24	4	1
		More	Less	About the same amount	
IV.1	In my LC, compared to other classes, I spend more, less, or about the same amount of time: Memorizing facts and figures **5 missing responses*	39	18	12	

Table 7 shows the highest positive responses for *very often,* all items with a 50% or higher response of *very often*. Overall averages show items relating with the component of *engagement* with the highest response of *very often*. This is followed by supportive services, and innovative instruction. No item relating to curricular integration scored on average over 50% by students of the three colleges.

Table 7

Responses With the Highest Positive Responses for Very Often

#	Item	% responding *very often*
III.8	My participation in this LC helps me to develop my ability to: Take responsibility for my own learning	66%
I.4	In my LC I: Work with other students to examine complex issues during class	61%
III.5	My participation in this LC helps me to develop my ability to: Work effectively with others to complete assignments/projects	58%
III.10	My participation in this LC helps me to develop my ability to: Be successful in future courses and programs	57%
II.2	Teachers in my LC: Make all students feel comfortable about participating in class activities	55%
II.13	Teachers in my LC: Encourage me to plan the next steps in my education with a counselor or advisor	55%
V.1	My participation in my LC has given me access to: Support Services such as a counselor, financial aid, and assistance with registration	55%
II.3	Teachers in my LC: Encourage students to ask questions in class	53%
I.6	In my LC I: Work with students on a group project during class	51%
III.3	My participation in this LC helps me to develop my ability to: Think critically and analytically	50%
V.2	My participation in my LC has given me access to: Academic support services such as math and English tutors, a writing center and other assistance with my school work	50%

When we broaden the range of positive responses to include both *very often* and *often* with an 85% or higher response in Table 8, we find that 8 of the 11 items are repeated from Table 7. Three items are original to Table 8. Of all the questions in Table 8, three relate to the core component of innovative instruction, two relate to the core component of engagement, and one correlates to the core component of supportive services. Overall the component of engagement scored the highest.

Table 8

Reponses With the Highest Positive Responses for Very often and Often Combined

#	Item	% responding *very often* and *often*	Core component
III.8	Take responsibility for my own learning	93%	Engagement Repeated from Table 7
II.3	Encourage students to ask questions in class	91%	NA repeated
III.5	Work effectively with others to complete assignments/projects	91%	Engagement Repeated from Table 7
II.2	Make all students feel comfortable about participating in class activities	89%	Engagement
III.10	Be successful in future courses and programs	89%	NA Repeated from Table 7
II.1	Make the goals and vocabulary of LC clear	86%	NA Not repeated from Table 7
I.4	Work with other students to examine complex issues during class	85%	Engagement repeated
II.13	Encourage me to plan the next steps in my education with a counselor or advisor	85%	Supportive Services Repeated from Table 7
III.3	Think critically and analytically	85%	Integrated Instruction Repeated from Table 7
III.4	Analyze quantitative problems	85%	Integrated Instruction Not repeated from Table 7
III.7	Persist when faced with academically challenging work	85%	Integrated Instruction Not repeated from Table 7

Section IV of the survey contained different possible responses. Respondents were given certain characteristics and asked if they were represented *more, less,* or *about the same* in their LC as compared to their regular classes. Table 9 shows section IV only from the online survey.

Six of the items were related with innovative instructional strategies, and the remaining item was not related with the core components identified in this study. All responses averaged more than 50% as a *more* response, but there were not the dramatic positive results found for *very often* and *often,* as shown in Table 8.

Table 9

Reponses With the Highest Positive Responses for "more than my other classes"– Includes Items With a 50% or Higher Response (Only Applies to Items in Section IV)

#	Item	% responding *more*	Core component
IV.2	Analyzing elements of an idea, experience or theory	60%	Innovative instruction
IV.7	Apply theories or concepts to practical problems or new situations	60%	Innovative instruction
IV	Evaluating information, methods and arguments	57%	Innovative instruction
IV	Integrating ideas, strategies, and skills from multiple sources	57%	Innovative instruction
IV.4	Thinking through my assumptions	54%	Innovative instruction
IV.5	Synthesizing ideas, experiences, or theories	54%	Innovative instruction
IV.1	Memorizing facts and figures	53%	NA

Phase Two Findings

Phase two of the study addressed research questions 2 and 3. Six focus groups were held at three California community colleges with LCs that met the criteria for inclusion in the study. The LC criteria were as follows: based on manual trades, include a basic academic skills component, have a cohort structure, and have existed for at least 4 years. These colleges were College on the Hill, College in City, and Pathway College. College on the Hill and College in the City hosted one focus group each with six and five students participating respectively. Pathway College hosted four focus groups with a total of 24 students participating.

Focus groups all followed the same protocol (see Appendix D) and used the same questions for a basis of the conversation (see Appendix E). All participants also completed the online survey. Focus group participants were given a $20 gift card before the focus group began. The focus group was recorded and transcribed. The PI and two blind coders then coded the transcripts looking for themes of the four core components and any emergent themes. They discussed results and came to an agreed upon final coded transcript coding for each focus group.

The four core components were all discussed and two emergent themes: an explicit connection to work and a strong connection to instructors. The next section discusses the frequency of themes, common focus within themes, and a synthesis of student voices through quotes.

Research question 2. Research question 2 asked: Which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students? While each focus group was asked specifically which component was the most important, this followed a discussion of the presence of each component. To ensure context is provided, this section presents the general findings from the focus groups for each of the four components and then present the findings that directly address research question 2, sorted by college.

College on the Hill: Curricular integration. Students at College on the Hill are cohorted into classes including automotive, English, math, and a counseling class that focuses on career exploration but also on navigating college. The non-automotive classes are contextualized for automotive-related topics. Student Rhonda explained the contextualization of the counseling class:

Rhonda: So, we have our counseling class, and then we have our auto class, and what our counseling class does, she really provides us with the paperwork necessary to

> ensure that we continue taking auto for the 3 or 4 years or whatever … And she lets us know how to be successful in automotive in interviews, how to ... what automotive industries are looking for .... The counseling class kind of shapes your personality and your mental ready for the automotive industry and automotive industry gets you ready for hands' on.

She goes on to explain how English class also supports the students' automotive focus:

> Rhonda: ... Our research papers was basically on any career you want, but since we're ... it's an auto and auto-English class kind of thing where everyone's really researching automotive and they're looking at how that ... what the job satisfaction is, job pay rate, they're learning what you're getting yourself into. That's what we're learning in English. So, I guess, to break it down, in English, we're learning what to get ourselves into. Counseling, we're learning how to prepare ourselves mentally and, you know, whatnot for auto. And then auto, we're preparing for auto.

Part of the integration is instructors working together. This is apparent to the students and also blurs the distinction between the components curricular integration and supportive services.

> Rhonda: Yeah, they [instructors] all communicate … because you can hear your English teacher saying, "Hey, I heard you're not doing so well in counseling."

College on the Hill: Innovative instruction. Regarding innovative instruction, students emphasized both methods and styles of instructors. They spoke about the importance of hands-on work and in-class demonstrations. Lenny from College on the Hill explained, "Hands on learning is probably the best learning." Another method students spoke about was the simulation of a job interview.

> Lenny: ... We had a mock interview for if you wanted the job at the automotive ... not automotive industry, but any type of job, they give us a mock interview, and the whole panel, and they showed us what were good ...

The style of instructors was highlighted by the students emphasizing support and flexibility:

> Rhonda: She provides a little bit ... She provides a good amount of workshops to make sure we understand what we're writing about.
> Lenny: Yeah, and she makes herself very flexible in the class; she manages her time very well.
> Rhonda: Yeah, and she really caters to the way we learn.

Students from College on the Hill also expressed that their instructors intentionally made them struggle to learn:

Rhonda: It's not like she's going to tell you exactly how to do it. She's going to try-
Dedra: Yeah, make you work for it.
Rhonda: Yeah, make sure you figure it out.

College on the Hill: Engagement. The primary engagement mechanism College on the Hill students spoke about was the nature of a cohort. Being enrolled in cohorted classes helped them to engage with their classmates in a supportive way:

Dedra: Well, I'll say it for myself. I'm usually a pretty isolated person, and I don't really talk to many people. I just ... This is like I guess my third semester, so I just walk around campus, and I don't talk to anyone. I just listen to music all the time, just do my homework, and I don't really have a problem with it, but you know, it's just like you get forced to be put ... Everybody needs help and everybody gets the same, and it gets different from just going to one class from one person, you know, once every couple days, then to just being ... seeing everybody every day. You know? And everybody's just like ... It's all like one, giant extended family where everyone's just cool.

Rhonda: Yeah, it's definitely helpful to see your classmates throughout your other classes, especially with auto. Like, I see a majority of my class, I think all my class, in English and counseling. And I still have some of my classmates in my math class, so I have a chance to see them often, and that allows me to be able to catch up or remember stuff. If I don't remember stuff that's going on in English or auto or something, I can ask them and they'll help me.

Ricky: I felt exactly the same thing they felt where it's like, oh, like a little family.

College on the Hill: Supportive services. Students at College on the Hill named many of the traditional supportive services including financial aid and counseling. They also spoke about the ease of knowing about services because of a One Stop Center.

Manny: Well, I mean, you have the One Stop Center … where if you need help, they absolutely give it whenever you want. You know, basically, if you need help in anything, even financially. I mean, they give you free food. That's like-
Rhonda: Pantry.
Manny: If you're hungry, you might as well go there. If you ever need help in anything, they basically got you. They got your back.

Students also spoke about the staff as a means of support. Students from College on the Hill explained:

Lenny: They'll call you. They'll email you. They'll send you some stuff in the mail.
Rhonda: They'll pop up in your class.
Dedra: They're like 'What's going on?'

College on the Hill students described the moral support offered by support staff.

Lenny: People want to actually see you succeed, because the people were in the same shoes as you. I mean, they're trying to tell you, like, "I was doing this, but now, if you do this, like you can be just like me."

Another area that students focused on was career specific supports such as Hiring Day at College on the Hill. They spoke about their experience with employers they met there who are understanding of their student status and schedule. Included in the career specific support is the industry experience of their instructors. Instructors helped students network, relied on industry contacts to arrange speakers, and give them relevant inside information such as an accurate value of their worth. Lenny from College on the Hill explained, "Our teacher tells us just don't take the lowest [pay], because you guys are worth at least $18 [per hour]."

College on the Hill: Most important components. Students at College on the Hill discussed which component was the most important. At first they focused on the component of engagement:

Ricky: Maybe the social part of it.
Lenny: Yeah.
Ricky: Because once you're comfortable with those people you're willing to express yourself more, open yourself a bit more.
Lenny: Mm-hmm [affirmative].
Ricky: If you're really introverted or shy or anything, [inaudible 00:41:43] get comfortable with those people, you're like, "I got this. I can say whatever I want."

Two of the women in the group disagreed:

Rhonda: I don't know. I feel like [interruption].
Dedra: The career aspect, because afterwards you kind of don't know where to go.
Rhonda: You're in here to find a career, you know what I'm saying?

Dedra: Yeah. And if it weren't putting out people coming up to us [employers], I would honestly have nowhere to go. I wouldn't know ….

Rhonda: Feel like it's a really, really … even tie between everything because if I open myself up socially and everything, what am I going to do with that? Like, I need to find a way to apply it to a career, apply it to being more involved with the school. They all fall hand-in-hand and work with each other.

The students wondered if the difference in importance concerned gender, but then decided it was a difference in mindset:

Dedra: I think that's the difference between girls though, is that girls are kind of pushed to do and put themselves out there more than guys are. So, they just sit there.

PI: Would you agree?

Lenny: Yeah.

Ricky: Yeah. Yeah.

Dedra: Even though I don't necessarily feel like I'm the most outgoing person, I have the ability to do it. It doesn't necessarily mean that that's where I want to be comfortable doing it, but I can do it and that's…

Rhonda: I don't think I would compare our, probably, our genders or … No, no, I'd compare our mindsets, like what we're trying to do.

Dedra: That's true.

Rhonda: We're definitely ... Our mindsets are … focus, and maybe his mind or their ... I'm not going to speak for you guys, but I'm saying, that maybe your mindset was more on, like, the idea of getting comfortable in a classroom environment. Our mindsets are in different places, and just because we're saying, "Hey, career, career, career," it's because I'm probably thinking about money.

Students then agreed that for the shyer students in the group, engagement was most important. For all other students the supportive services, especially the career focused supports, were the most important. These findings contradict the findings of the online survey, which had the highest positive responses on average for curricular integration (79%) and the lowest for supportive services (65%). Interestingly "career focus" is not one of the core components, but in the context is related to supportive services.

College in the City: Curricular integration. Students at College in the City have a program that is based in multiple disciplines, so their curriculum is integrated across welding, electrical, machining, hydraulics, blueprint reading, and math. The instructors in these classes

understand the interdisciplinary aspects of their fields and refer to other disciplines regularly.

Hernan explained:

Hernan: Electricity and welding sometimes. Currents, voltage, and all that stuff goes into what we do in welding as well.

He also explained the relevancy of the math class to his study of the trades.

Hernan: Yeah, somewhere relates to it like some of the math [it] applies to the math that we have to ... it's like techniques used for machining. So, like geometry's a big part of it, and different math equations, volumes, and stuff like that.

College in the City: Innovative instruction. Hernan from College in the City explained, "I don't know about other colleges, but we get a lot of hands on, and a lot of the instructors worked in the field so it's good knowledge." His classmate Jessica added, "They let you make mistakes. They let you learn from your own mistakes." Students also talked about technology as a helpful innovation:

Hernan: And also they do videos, and they post it, so you can go home, and watch the video. You see it once, and then you might forget but he usually [inaudible 00:08:18] those videos, and then sends them to us so we could watch it at home, and go over it and then once you come back here you have a better understanding.

College in the City: Engagement. Students from College in the City spoke to the supportive nature of the cohort as a means of engagement:

Jessica: The fact that we have all the classes together and it brings everybody together. It helps a lot to form study groups and whatever we need help with somebody else knows, so I feel like it's really helpful.

Hernan: … what makes the program good is because the engagement that we get, so then it makes us aware of our surroundings and everything. And I mean, it just helps you get your communication skills better.

Hernan: Since like the program really sticks us together, so like yeah we ... everybody got to know each other. In the beginning nobody really talked, but then we all go used to each other, so now everybody's comfortable with each other. So, it's like, yeah, it's like everybody's together helping each with the work, and some people might know these questions, some people have stronger ... they have their own qualities, so they exchange knowledge, so and then it helps us out, and everything, yeah.

College in the City: Supportive services. College in the City students also named traditional supportive services, and named how these services were tailored to their LC.

Hernan: Yeah, we do. They have a counselor that specifies in the area. He knows more about the machine and the programs and stuff like that so they usually assign us to one. We've had times where he came over right here and then he talked to us about his office hours, so when we could go up there and specifically talk about this program. Yeah.

Students also focused on services that involved financial support.

Yemani: Free textbook …
Hernan: Yeah, textbooks. Yeah. Textbooks helps it a lot, yeah.
Alejandro: And then they help us out with materials we need with classes, for welding and electrical and machining and stuff like that.

College in the City: Most important components. Students at College in the City focused on supportive services, especially financial aid:

Hernan: I think for a lot of people it would be the financial aid and the help, because not a lot of people are able to pay out of their pocket and actually come to college. Because I know when I started off when I finished high school, I wasn't able to come to college, and stuff like that. So I had to basically delay that, until now that I've worked, and I earned my own keep and my money and stuff, was able to come back, but to me I think that's one of the things that mostly helped help a lot of people actually come and do something.

When pressed to decide if financial support was more important than other components of the LC, Hernan modified his position:

Hernan: I feel like this program, it's a little bit a mix of both, because the type of equipment that's used in the program throughout all the classes, it needs funding, and the students also need funding for that, but at the same time, what makes the program good is because the engagement that we get, so then it makes us aware of our surroundings and everything. And I mean, it just helps you get your communication skills better.

Another student disagreed that is was a mix of the components, and that supportive services in terms of financial support was clearly the most important:

Alejandro: Yeah, I mean to me, pretty much anything comes down to money. You could have people, be in class by yourself and if you don't have the money you won't be in the class.

When asked for more detail, Alejandro brought the focus back to finances. His response, however, moved from the core component of supportive services in financial aid to the career focus of the LC.

> Alejandro: I think it's better having always a program where you get certified and you could start working, than just going into a 4-year thing, and you're basically just going blank. I have my brother that went to college. He was trying to get classes but basically [inaudible 00:24:52] sort of made something that worked out for you, but he just going blanks. As he's going along he'd get classes or he'd take off classes. This one is more like okay these are the classes you need to take to actually get into this type of work and this is what it's going to need and this is what it takes. It's like it's better having a program where ... it's like a linear thing. You could get a job and come back and continue going to school, but you're already working into something. Otherwise you just go to college for 4 years and then go to a university. And it could take, people there are like go to the school for like 6 or 7 years and then actually get a job while they're doing something and then it's not for everybody. It takes longer.

At the end of the focus group there was no clear consensus of the most important component of the LC, but supportive services and a career focus were the focus of the discussion.

Pathway College: Curricular integration. Students in Pathway College have courses covering work readiness skills such as interview preparation and resume writing. They found this curricular integration both relative and immediately useful. Veronica gave an example, "I think it was very important because I've actually had job interviews … and I really needed a competitive resume, and … Dr. Chin was able to look at my resume, fix it up for me, and I didn't know that he put the skills first." Fellow student Angela added, "Dr. Chin was very helpful in getting me to understand what's needed on a resume."

Students were also eager to talk about the math instructor who comes to their trade classes to co-teach math lessons at Pathway College. College in the City students also focused on math. Hernan explained, "... it's like techniques used for machining. So, like geometry's a big part of it, and different math equations, volumes, and stuff like that."

Pathway College: Innovative instruction. Students spoke about hands-on work and demonstrations of procedures, but they also talked about instructional styles. Pathway College student Victor explained how their instructor paces instruction:

> I mean, the welding instructor, he makes everything like .... He breaks it down because everybody has a different pace. So he goes from people who know wordage in a big way to down to people who have to learn it in a small wordage as in break it down to its, as you would say, lowest term or lowest sentence, 'cause some people don't learn as fast as others, and he take time, and he sit back, and he watches and takes in questions and gives his time, so it's like he's really there for the students.

Pacing was mentioned by another student. Kelly explained

> He's patient enough to take the time to explain something in depth if you want that kind of detail, but he's also courteous to those who want a quick enough answer. He'll sort of explain it with the detail that's required to understand it to a degree.

Pathway College: Engagement. The peer mentor, Carter, at Pathway College, explains how the program creates an environment that allows for engagement, "Because of the support we have for these individuals, the social environment that we have created for each other, those students don't feel out of place. They feel right at home." Victor explained, "… like I said, the more time we get to spend with each other, the more time we gonna get to wanna learn." The family atmosphere resonated with Dante.

Dante: … I remember when I first started, my brother hadn't gone to school for like 10 years. I had to do school. Him and I took a class together, and he was kind of out of it, because you're not used to the social norm of going to classes, and so coming here seemed lucky, and everybody .... It really felt like a family because from one class, you have basic, I guess, curriculum you're supposed to follow, so from one class you go to the other, for the next class you need the prerequisite that you took before that. And so it's like you have the same group, or a variety of people change, but you still have that same group that keeps continuing through the courses, and you all help each other out. You meet new people, and then you get those new people that come in. I think I'm probably the new one in this group since they're all finishing up. But so far everybody's been friendly. Everybody helps each other out.

Kelly, a welding teaching assistant explained how she and the instructor create a welcoming environment for the students and how that contrasts with a traditional college class:

Kelly: Everything was very casual. We didn't want to have anyone feel nervous or intimidated around us. We just talk to them like equals. They all started out with each other. I've hung out with a few of them already, gotten dinner with them; it's great.

PI: Do they hang out outside of class?

Kelly: Yeah, they'll go do some stuff outside of class sometimes together. Some of them came in as friends or as relatively familiar with each other, but you know, people are hanging out more and more. They're always bouncing ideas off of each other too. They kind of go into pods when we get a group thing together. They'll just work it, and some of them have even started switching groups to get fresh feels. It's just really awesome. It's very casual in there. I really appreciate the familiarity, because I'm taking multi-variable calculus and stuff like that, and I never even knew the person next to me, but in here everyone knows everyone's name. Plus, they've been in here together for two sessions. They are so comfortable with each other, and they're very comfortable with me. They're comfortable with David. Everyone has a really good feel of each other.

Carter, a peer mentor, elaborates on the intentionally welcoming nature of the LC:

Carter: Because of the support we have for these individuals, the social environment that we have created for each other, those students don't feel out of place. They feel right at home. Even Mr. Miner worked with a student a couple of semesters ago in the program, very quiet individual. We didn't know if he was troubled or not, but his learning is just different. He welds, he knows the safety protocol, he has sturdy hands, but he takes his time, a little more than anybody else. He doesn't talk as much, but he sits in circles and he listens.

Kelly, the teaching assistant, was in the welding program without the support of the LC. She explained the difference in engagement, giving credit to Carter, the peer mentor, for changing the atmosphere:

Kelly: … when I first started here, I didn't know a single person. …I feel like especially on the welding side and on this building side, everyone was so isolated and then you [Carter] came in and you pushed and said, try this, try that. It's all open for you. You opened up this dark little corner that we have and just shouted out to the world like, 'Hey, we got it; we got you.' I try to do that too.

She elaborates on her role in engaging the students by creating a support system and by encouraging them to higher academic goals:

Kelly: I say, "If there's anything you ever need, we have this, we have that. You can call [welding instructor] David. You can email him. I'm here before and after. I'm here until 10:00 at night most of the time. I can get here early. If you have any questions or concerns, if something is going wrong, maybe I can lead you in the right direction." Just the other night I was talking to the regular 10A class. I was

> going through it, and I was like, "You know what, why don't you take some classes to get your associates?" They were like, "I'm just going to get my certificate." I'm like, "Think about it though. You're bettering yourself. You're not only getting an education, but you're showing to an employer that you can complete something. A certificate is great, but you also have an associates on top of that? Damn." They get slack with themselves, and I think they need that support to push them, to motivate them beyond what they believe they are capable of.

Some students used the term *engagement* specifically when talking about the LC as a whole:

> Enrique: I also like the CAA because it gives students opportunities to get involved in engagement to a career path towards alternatives other than what they're studying for. It gives you books, and it's like helping you fulfill your dreams. And it's like for children's dreams, you know, so it gives you that humble feeling, and it's just like cry.

Both the staff and the instructors were named by the students as a mechanism for the students in the LC to become more engaged with the college:

> Angela: I am a retired state employee, and I was sitting at home doing nothing, and I decided to try to get my associate's ... finish my associate's degree, so i took a summer, spring course in human development with Dr. Chin, and she brought me on a tour here, and when I met the air conditioning instructor, Phebe, Phebe was the speaker, and she said, "I encourage you guys just take one of my classes." And I took one of her classes in the summer, and when I sat in the class, I said, "I remember you telling me to take one of your classes, and I'm here." And she said, "Okay, what I want you to do, I want you to help me TA." And that's what I do. I TA here, and I love it. I love trades. I'm a blue collar worker by nature.

Pathway College: Supportive services. Pathway College students listed many of the traditional support services such as financial aid and EOP&S. They focused, however, on services specific to their LC such as counselors:

> Fernando: The counselors call you about which classes to take in the future. Like from Fall to the Spring or Winter. Like you don't even have to make an appointment, so they just call you. That's what I like about the program.

Other services, such as the Writing Center, seemed unknown to the students until an instructor introduced them to it. One trades instructor held an on-campus field trip to walk his students to

the writing center so they could work on essays for a scholarship. They also praised the in-class support offered by staff. Students at Pathway College explained:

Victor: Carter [peer mentor], he's here. He gives you information, anything needed that you don't know, anywhere that you need to go to find out information where the financial aid office is, where the EOP office is, where the counseling office is. He gives you any kind of information on where you can go to check out for financial aid where you can go to get your books if you don't know, so I can say that he's a real help. Then we have the teacher's assistant. Well, she sits back and she helps out people. She give … she gives you hands-on assistance. If it's anything that you feel like you blocked on, she'll come and help you with. Math, she'll sit down and help tutor. It's bunch of basic things that she help do, but she's great at it, and I gotta give it up for her, too.

The difference between student support services, in terms of staff, gets blurred with the component of engagement. The staff, whether peer mentors, tutors, or coordinators, offer specific supports for students but also provide an avenue for engaging with the wider campus community. At Pathway College this exchange illustrates:

Lee: Well, Carter [peer mentor] … he works for ... He's a ... I believe he's a counselor, but he's also a student here, so he does a little bit of both, so he's a student, but he's a counselor, as well… And he walks into the classes, and he goes based off students. If they need help like, "Oh, apply for financial aid and get this. Get your free chiropractic ..."
PI: What?
Lee: Yeah, you get, if you're a student here, you can get a free chiropractic ...

Carter, a peer mentor at Pathway College and alumni of the CAA illustrated the link between peer mentors as support and also a way to engage with the larger campus:

> It's vital that they have a peer mentor or have someone that gives great information that's directed especially towards them that can connect them with the rest of the campus, because we are isolated, which we needed because of the noise and things like that. But we also need that access road to information, that access road to the rest of the campus, and that access to say hey, because you're in the trades doesn't mean you're not a part of what's growing, you're not a part of the workforce. No. You are a part of the workforce.

The students agree. Arturo explained:

> Well I think a big help is Carter, because he's able to show you the campus, show you so many resources that you don't know. Like the Tab Card, I was using my own life in the Tab, and it turns out there was a fee waiver for the bus pass, and that helped tremendously being able to be transported to school.

The support offered by program staff was mentioned often by the students. An older student at Pathway College illustrated how the support staff is different from the past:

Ruby: I remember I came here in 1972 and there wasn't any tutoring or mentors or even assistants. So it's a really big change a lot today. I mean when I first came here 3 years ago, and I was frantic still but there was still tutor. There was mentor. You know, I didn't feel like, you know, I was gonna drop out.

Students also talked about the holistic help offered by the welding class teaching assistant:

Victor: Then we have the teacher's assistant. Well, she sits back and she helps out people. She gives … Kelly … she gives you hands-on assistance. If it's anything that you feel like you blocked on, she'll come and help you with. Math, she'll sit down and help tutor. It's bunch of basic things that she help do, but she's great at it, and I gotta give it up for her, too.

Other career specific supports students appreciated include free access to industry certifications, such as forklift operation or various OSHA certifications. Instructors also introduced students to professional societies. Pathway College student Victor explained:

Victor: Mr. Miner told us to get with the American Welding Society to put in for that. He gave us some information about where jobs like being sheet metal welder … pipe welder, it was a bunch of different ones.

Pathway College: Most important components. There were four focus groups at Pathway College. When asked which component was the most important to the LC, two students indicated "people" right away, which relates to the supportive services:

Lee: I'm gonna go based off my instructor.
Victor: The instructors' and the assistants' help.
PI: Okay.
Victor: That's what I could say. It would be the same one, but I have to have the assistants in there, too, because the instructor, he's a great man. He does great work, but without the whole group of assistants, it wouldn't fit in.

When pressed for more details, Victor explained the people who provided support, that was the most important factor:

Victor: I'm taking about Kelly, Carter, Tina, the whole group.
PI: But you're talking about Carter and Tina? Okay the whole group.
Victor: Because, Carter, he come in even though he don't do no hands-on work 'cause he don't know how. He do give you information, and he helps you out with any topics you wanna talk about, math.
PI: Yeah.
Victor: English or any kind of skills that you need to go to help out with this class, he's definitely informative about it, and he'll definitely send you the right way.

Victor and Lee agreed that the people who provide the support, as a specific part of the supportive services, are the most important aspect of the LC.

PI: Okay, so is it fair to say then that the support of this team of people and the instructor together is what makes it just perfect?
Lee: Yeah … It's stable. That's what—
Victor: It makes it strong, makes a great foundation.
Lee: Yeah.
Victor: A support group is a foundation for—
Lee: The base of—
Victor: ... that that lays—
Lee: ... the students.
Victor: ... that lays our built our bricks to build on, you know, they help lay them. As we go on and learn how to get them to stick together and learn how to put them together. They help us lay the bricks … And find the right way to build our foundation or build on our foundation.

A different focus group at Pathway College identified the recruiters for local companies as the most important component, which would relate to career specific supportive services.

Jose: Most important one to me is the recruiters coming in to speak with us. The BMW guy. I think that's the most important. What you want to do with your education is find a job. Find some employment. And you know, I have experience in the automotive industry. Brief experience, and I think that's the best thing. The reason I even took a chance because I don't work right now. I stopped working to come back to school and I figured that maybe I'll have an opportunity to network through school to find some employment and lo and behold. BMW and Teslas like those are two of the top companies out there. So you know, it was well worth the risk of leaving my job to pursue full-time school again. You know, cause I hadn't finished a program, so I stopped working to come back to school. And I was wondering if I could somehow get another job working with a different company. BMW and Tesla.

PI: Would you guys all agree that having those folks come in and that kind of support is the most ... Is like, that's the thing that—
Wyatt: Very important.
Ruby: Well, they come in, but we need to be hired.

The Pathway College focus groups named people, staff, and instructors and career focused supports as supportive services. This is also reflected in the survey where the average positive score for questions relating to supportive services was 88%, the highest scored category for Pathway College.

When a teaching assistant and peer mentor at Pathway College were asked which component was most important, it was challenging to differentiate supportive services and engagement. Towards the end of their exchange, they decided that all of the components were necessary:

Carter: I would say support. Any individual, human being can enroll into a class, into a school campus and then start a class and begin to learn. But having a sense of knowing what you're doing, having a sense of direction, even having a sense of belonging is very important. Because you can come to a school campus and not really be comfortable and not open that door that has that sign. Whether it says, we help you or not, you'll be hesitant because you feel like you don't belong or you feel like it's not your place to do so. Being informed and supported not only covers the student but it is also good for the campus because we get to know who is around us … We can definitely get the students here, our numbers can show that, but how many students can we sustain without support?
PI: Thank you.
Kelly: I have to agree with you on that, because coming my from experience too, when I first started here, I didn't know a single person. I had my ex and then I met friends through him, and then I dumped him and I kept my friends. I feel like especially on the welding side and on this building side, everyone was so isolated, and then you came in and you pushed and said, try this, try that. It's all open for you….

Carter: I agree. Not only that but in addition, all this that we said is great help and it's really what makes it successful here. But the added cushioning is to see somebody in the class that's taking the classes step-by-step with you as well. That's hard to find. Like I said earlier about people we're losing, Kelly is taking the program step-by-step so when the students scratch their head about something, she might be scratching her head too or she's like, I already read up on this, let me show you. That comes from multiple angles and it runs hand in hand.
Kelly: You can't necessarily have one thing without the others. They're so closely knit. I almost feel even though you managed to break them up into four separate

> pieces, in actuality they're still that one whole. They're still that whole thing and everything supports itself. You can't have a table with just one leg. Sometimes that is a three but that's still not balanced.

Research question 2: Collective findings. All colleges named supportive services as a most important component, focusing on career specific support, staff members and instructors as support, and financial support. College on the Hill also included engagement as a most important component, but only for students who are shy.

Research question 3. Research question 3 asked: What core components or factors for successful learning communities (LCs) besides those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students? Focus group findings that address this question are presented by college.

College on the Hill: Additional components. Students at College on the Hill had two components emerge in the focus group, a focus on career and a strong connection with their instructors. A focus on a career in the automotive industry was a motivation for joining the LC. Dedra explained:

> Dedra: … I'm here because I'm, like, a little bit older than everybody here, and I'm just trying to figure out, at what point in my life, how do I survive the best, and I figure what I depend on most is my car. I just wanted to, from there, out of taking care of myself, try to find a job that I could relate to in that sense, rather than go, take someone's blood pressure and then go home and just cook dinner.

Rhonda agreed:

> Rhonda: … one of the reasons why I wanted to get into this is because it's an industry where you will always be making money. It's something that everyone will always rely on. Your teacher will rely on you. Your doctor will rely on you. Everyone relies on their car, you know? And it's something that is always going to be around. It's a world of cars. Then, on top of that, it's a really good experience. It's really different, you know? It's a really good leap out there.

Lali also joined because of her interest in a career:

> Lali: My dad asked me what's my career that I want to study for? And I didn't know. And then one time, when I was 14 years old, my mom told, "Oh, go and help your

dad with the car." So I started doing that, working and all that. I love it, and that time I find my career. So, I start getting into those programs.

Throughout the focus group students reiterated their focus was on a career. For example in speaking about the contextualization in their English class:

Rhonda: Yeah, because we're not all coming in here to be, like, scholars for libraries or whatever—
Dedra: Writing five pages.
Rhonda: Like, we're coming in for our trade, which is auto, and she recognizes that, but she doesn't want us to lack in the English department.

When discussing supportive services students spoke at length about Hiring Day and the internship opportunities.

The other component that College on the Hills students surfaced was a connection with their instructors. Specifically they believe that their instructors want them to do well:

Rhonda: Yeah, she still wants us to be successful.

Rhonda and Manny explain that the English instructor cares and offers individual attention:

Rhonda: Yeah, she cares about individual attention. At the same time, she can try to make it where everyone in the classroom can agree on something, you know?
Manny: I mean, really, like when you think about it, it's just the way she's, like ... She really tries to help everybody out. She would come up to you and ask you if you're doing okay and whatever. And then when ... When it comes to the essays, she allows us to send it to her so she can revise it to see if we need any extra help, and she always leaves comments. She's always flexible for extensions, as long as you ask her.

College in the City: Additional components. The College in the City students also surfaced a focus on career as a key component:

Cedro: I just came to get a better career path, because I used to work in a tortilla factory and I was like, supervisor. I was a production lead there, so I was supervising people. And I've always been a hands-on person, and I want to make more money and stuff. So, I heard about this program when I came. Talked to the counselor, so I decided to get in.

Alejandro explained how a certificate is better for working than a degree.

Alejandro: I think it's better having always a program where you get certified and you could start working, than just going into a 4-year thing …. This one is more like okay these are the classes you need to take to actually get into this type of work and this is what it's going to need and this is what it takes. It's like it's better having a program where ... it's like a linear thing. You could get a job and come back and continue going to school, but you're already working into something. Otherwise you just go to college for 4 years and then go to a university. And it could take, people there are like go to the school for like 6 or 7 years and then actually get a job while they're doing.

Pathway College: Additional components. Pathway College students also surfaced the components of career focus and a connection with instructors. Under the umbrella of supportive services students named career specific certifications such as OSHA 10, OSHA Fire Watch, and Forklift Operator. When asked about the most important component of the LC, Jose spoke about the supportive services that linked directly to work:

Jose: Most important one to me is the recruiters coming in to speak with us.… And you know, I have experience in the automotive industry. Brief experience, and I think that's the best thing. The reason I even took a chance because I don't work right now. I stopped working to come back to school, and I figured that maybe I'll have an opportunity to network through school to find some employment and lo and behold. BMW and Tesla like those are two of the top companies out there. So you know, it was well worth the risk of leaving my job to pursue full-time school again. You know, cause I hadn't finished a program, so I stopped working to come back to school. And I was wondering if I could somehow get another job working with a different company. BMW and Tesla.

A different focus group at Pathway College surfaced a career focus as an important motivation to join the LC:

Luis: I'm just trying to get a career started. It's as simple as that …
Dante: I wanted to get into the trade. They didn't know which one, but since I do the HVAC and that deals with electricity and … type work and whatnot, I thought it was the best option. I was already studying here, and I wasn't decided yet, so I found out they actually renewed the program.

Jose was more specific. Instead of a general career, or a career in a trade, he needed a certificate:

Jose: I got into the program with my cousin. He already works in the field. He works for Coca-Cola, so he told me he has a job waiting for me. I just need to get my certificate, so I'm just waiting to get my certificate and start working already.

Some students already had jobs:

Bachir: I needed to get a career and something along my way since I'm already 26, and I needed to start working full time, and so I got hooked up with there, got my first job, and it's been great ever since. So I'm working with a friend for like residential, commercial type building maintenance stuff.

Pathway College students also surfaced a strong connection with their instructor as an important component:

Victor: I mean, he [instructor] stays in your head, so he makes sure that you wanna learn. At the same time, he makes sure that he wanna teach you by keeping you inside the zone as they say, so, he is always there to have a hand on your back.

The connection made more often by students, however, was their instructors' connection to career:

Lee: When it comes to the workforce, you can say he's [automotive instructor] tough since he worked 20 years in the field, and then he decided to come back to school and then become a teacher.

When asked about their air conditioning instructor's classroom methods, students also commented on her experience and relatability:

Luis: I would say her experience, because she relates her experience to the school, and it's so easy to take it for granted when you're in a classroom, but in the field, it's a totally different situation. Since she's the only female in this field, pretty much, she has a really unique perspective that adds quite a bit.

Angela: She's very relatable.

Another student made the connection explicit:

Angela: What was supported was Phebe being in the trade, and she had all her trade friends come and lecture us. We can intern. We have an opportunity to intern … By Phebe knowing the industry, it is based on your skill, so if you have high quality skills, she'll refer you to get a job … It's great to have Phebe here, because she's a great networker. She has great experience and years, so she knows the business. She knows everything about the business and the industry.

Research question 3: Collective findings. All three colleges had a focus on career emerge as a core component. This career focus served as a motivation for joining the LC, a drive for success in the LC and supportive services that focused on career were seen as especially

valuable. Two colleges, College on the Hill and Pathway College, also had connection with instructors emerge as an additional component.

Chapter Summary

Key findings for research question 1. Research question 1 asked: To what degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program? Students at all of the colleges perceived that all four components were present in their LCs. The highest number of responses (48) for *very often* in the collective findings for a single item was for an item related to the component of engagement, "My participation in this LC helps me to develop my ability to: Take responsibility for my own learning." This was followed by 45 responses (60%) for *very often* on a single item related to the component of innovative instruction, "In my LC, I: Work with other students to examine complex issues during class." When we look at groupings of items by core component the highest positive results were for supportive services (82%), followed by engagement (78%), innovative instruction (74%), and curricular integration (74%).

Key findings for research question 2. Research question 2 asked: Which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students? Students at College on the Hill concluded that for shy students, engagement was the most important component, while for other students, career focused supportive services were most important. At College in the City students said the supportive services, specifically financial supports like free books and supplies, were most important. Pathway College students also said supportive services were most important, with the people who provided the support and career specific supports being the two

subdivisions of supportive services. The teaching assistant and peer mentor at Pathway College discussed both engagement and supportive services as important before ultimately deciding all of the components together are what makes the LC successful.

While engagement was named as one of the most important components for students at College on the Hill, with caveats, supportive services was named as most important by students at all three colleges. Supportive services were further subdivided into career specific supports, financial supports, and people.

Key findings for research question 3. Research question 3 asked: What core components or factors for successful learning communities (LCs) besides those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students? College on the Hill students surfaced two additional components important to the success of their LC: a focus on career and a connection with instructors. They spoke about the connection to career in motivating them to join the LC, in helping them be able to access the non-trades courses such as English and counseling, and the services that directly helped them finding work such as resume writing and Hiring Days. In terms of a strong connection with instructors they spoke about the style of their instructors and how the instructors cared. In College in the City students surfaced a focus on careers as an important component, especially in their motivation to join and the goal of a certificate instead of a degree. Pathway College also surfaced a focus on careers and connection with instructors as important components to the success of their LC. The focus on careers was discussed as motivation to join the LC and as particularly helpful as a subcategory under supportive services, specifically workshops in which they could earn industry certifications and industry speakers in class. The way they spoke about a connection with their instructors focused on two areas. They spoke about all the people involved in supporting the program including instructors, teaching assistants, peer mentors, and

coordinators as an important subcategory of supportive services. They also focused on the instructors' connection with the careers in terms of their experience and connections.

Chapter 5: Discussion, Conclusions, and Implications

This chapter presents a summary of the study, a discussion of the findings, conclusions, and implications for the field. It also contains recommendations for future study and policy.

Purpose

The purpose of this sequential, explanatory, mixed methods study was (a) to investigate the degree to which Career Technical Education (CTE) students in a selected California Community College (CCC) believe that the core components of learning communities (LCs) designed for traditional, academic track students exist in LCs designed for CTE students; (b) to determine which of the core components, if any, are perceived by students as most beneficial for CTE LCs; and (c) to explore any additional components that students might believe to be essential for LCs designed for CTE students.

Research Questions

The study sought to address the following questions:

1. To what degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program?
2. Which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students?
3. What core components or factors for successful learning communities (LCs), in addition to those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students?

Design

This study utilized a sequential explanatory mixed methods research design. In the first and quantitative phase of this study, the *Online Survey of Students' Experiences of Learning in a LC*, developed and implemented by the National Resource Center for Learning Communities was administered to a cross section of 75 current CTE LC students from three California Community Colleges to determine the perception of implementation of the core components of a LC.

In phase two, the qualitative phase, survey respondents were able to opt-in to a focus group or interview designed to determine which of the core components, if any, were most beneficial and to explore their experience in the LC to allow an understanding to emerge of any critical components not included in the survey instrument. College on the Hill and College in the City each hosted a focus group, with six and five students participating respectively. Pathway College hosted four focus groups with 24 students participating.

Results from the online survey were analyzed, and findings were reported for each college individually and collectively. Focus groups were coded by the primary investigator, and two "blind" coders detected themes from the research questions and for emergent themes.

Discussion of Key Findings

A discussion of the findings is presented and organized by research question.

Research question 1. Research question 1 asked to what degree, if at all, do current and recent Career and Technical Education (CTE) learning community (LC) California Community College (CCC) students perceive that the four core components of LCs designed for traditional students are being implemented in their program? College on the Hill found all four components present in their LC, with highest positive results for curricular integration (79%), engagement (76%), innovative instruction (66%), and supportive services (65%). College in the City found

all four components present in their LC, with highest positive results for supportive services (70%), followed by engagement (67%), innovative instruction (65%), and curricular integration (55%). Pathway College found all four components present in their LC, with highest positive results for supportive services (88%), followed by engagement (80%), innovative instruction (79%), and curricular integration (79%). Students at Pathway College responded *very often* and *often* at a higher rate than the other colleges.

Collectively the survey participants at the colleges found all four components present in their LC, with highest positive results for supportive services (82%), followed by engagement (78%), innovative instruction (74%), and curricular integration (74%). Student engagement and social integration has been positively related with engagement and social integration (Tinto, 1997; M. G. Visher et al., 2008).

For all questions that had *very often* and *often* as options, students at College on the Hill and College in the City both gave lower scores for the combined categories of *very often* and *often*, in comparison to Pathway College. College on the Hill scored supportive services as the lowest, with an average positive score for items aligned with that component at 65%. In comparison, students at both College in the City and Pathways College scored supportive services the highest at 70% and 88% respectively. The range of average positive scores among colleges varied for items related to core components, although all the average scores—for all questions that had *very often* or *often* as a possible answer—was 55% or higher.

Range of results. The range of average positive scores among colleges varied for items related to core components, although all were 55% or higher. The college that had the lowest average positive responses on the online survey ($n = 5$), and who also had the lowest participation number in the focus group ($n = 5$), was College in the City. College in the City is also the longest standing LC, over two terms, and has the highest number of credit units (29.5).

The college with the highest average positive responses on the online survey (24) also had the highest number of participants in the focus groups (24 participants in four focus groups) and had the shortest LC at half a term (8 weeks) as well as the lowest number of units (4-5). Students in the Pathways College LC expressed a strong sense of community in the focus group and named the most support services in the focus groups. They also spoke enthusiastically and at length about the peer mentors, teaching assistants, coordinators, counselors, and instructors in the category of supportive services. The faculty and staff were clearly seen by the students as support, but also acted as a mechanism for engagement.

The sense of community, the social engagement, and the connection with peer mentors, faculty, and staff are all ideas strongly supported in the LC literature. Tinto (1993) argues that the social and academic engagement offered by LCs has a positive impact on the retention and success of non-traditional, marginalized students who often lack social capital. Involving students collaboratively in the learning process, involving upperclassmen as peers and mentors, and creating a supportive environment with accompanying services in a LC context are strategies for student retention (Tinto, 1993). M. G. Visher et al. (2008) summarizes the basic theory of change behind LCs: the relationships students form with instructors and with each other within the LC context enable and support academic persistence and success. Learning together and other collective experiences help students engage academically and socially (M. G. Visher et al., 2008).

Research question 2. Research question 2 asked which of the four core components of California Community College (CCC) learning communities (LC) designed for traditional students, if any, are perceived by Career and Technology Education (CTE) students in selected LCs as most beneficial for CTE students? Students at College on the Hill in focus groups concluded that for shy students, engagement was the most important component, while for other

students, career focused supportive services were most important. These findings contradict the findings of the online survey for College on the Hill, which had the highest positive responses on average for curricular integration (79%) and the lowest for supportive services (65%). Interestingly "career focus" is not one of the core components, but in this context it is related to supportive services.

At College in the City, students said the supportive services, specifically financial supports such as free books and supplies, were most important. At the end of the focus group, there was no clear consensus of the single most important component of the LC, but supportive services and a career focus were the focus of the discussion.

The Pathway College focus groups named people (staff and instructors) and career-focused supports as supportive services. This is also reflected in the survey where the average positive score for items relating to supportive services was 88%, the highest scored category for Pathway College.

Collectively, students from all colleges named supportive services as one of the most important components, focusing on career specific support, staff members and instructors, and financial support. The emphasis on supportive services, specifically financial and career specific support, indicate that CTE LC students have financial need and a specific career goal. For Pathway College in particular, students reported that supportive services include the support offered by the staff and instructors, but this sentiment was also represented at the other colleges somewhat. In the largest, to date, study of LCs at community colleges, M. G. Visher et al. (2012) found that gains in credit unit accumulation were higher overall at Kingsborough College, as compared to five other colleges. One significant difference in Kingsborough was enhanced supportive services, including book vouchers, a tutor who attended class (similar to the peer mentors at Pathways College), a counselor who taught a class and served as a case manager, and

a special office set up for advising for the LC (Sommo et al., 2012; M. G. Visher et al., 2012). Shapiro and Laufgraben (1999) wrote about the effectiveness of using peer leadership in the design of LCs, particularly as mentors for newer students. Another LC designed for undecided freshmen at the University of North Texas included cohorted classes, a freshman seminar, and peer mentors (Tampke & Durodoye, 2013). The use of peer mentors is a strategy recognized as valuable by Pathways College students.

Research question 3. Research question 3 asked what core components or factors for successful learning communities (LCs), in addition to those identified for traditional students, are critical in a LC designed specifically for Career and Technical Education (CTE) students? One item in the online survey asked about career focused supportive services. Survey item V.4 stated, "My participation in my LC has given me access to: Career support services such as resume writing, job fairs, field trip to companies, and assistance with interviewing skills." The collective response for both *very often* and *often* combined was 80%, indicating that students widely perceive career-focused supportive services to be present in their LC. The range of responses for this item of *very often* and *often* combined was 67% (n = 12) for College on the Hill to 85% (n = 44) for Pathway College.

College on the Hill students surfaced two additional components important to the success of their LC: a focus on career and a connection with instructors. They spoke about the connection to career in motivating them to join the LC, in helping them be able to access the non-trades courses such as English and counseling, and the services that directly helped them finding work such as resume writing and Hiring Days job fair. In terms of a strong connection with instructors, they spoke about the style of their instructors and how the instructors cared about their progress.

In College in the City students surfaced a focus on careers as an important component, especially in their motivation to join the LC and the goal of a certificate instead of a degree. Unlike the other colleges, they did not surface a connection with instructors as a new component.

Pathway College also surfaced a focus on careers and connection with instructors as important components to the success of their LC. The focus on careers was discussed as a motivation to join the LC and as particularly helpful as a subcategory under supportive services, specifically industry-related speakers in class and workshops in which they could earn industry certifications. The way they spoke about a connection with their instructors focused on two areas. They spoke about all the people involved in supporting the program, including instructors, teaching assistants, peer mentors, and coordinators as an important subcategory of supportive services. They also focused on the instructor's connection with the careers in terms of their experience and knowledge.

The emphasis on career specific supportive services extends to the more general theme that emerged from the focus groups: a focus on career. This focus was a motivation to join the LC and a motivation to succeed in the LC, especially in classes that are not in the career but are contextualized to the career (i.e., English, math, human development, counseling).

Students expressed a respect and admiration for their instructors based on their experience in the trade, their knowledge of the trade, and their network of peers in the trade, as well as their patience and understanding of students who were career-focused. An example of a quote on this topic was, "she is aware that you're not here for English and for that, and it seems like she makes it so that you don't ... get discouraged."

A connection to instructors can be considered engagement, and is strongly evidenced in the literature (Engstrom & Tinto, 2008; Rocconi, 2011; Tinto, 1993; Trautmann & Boes, 2000;

Zhoa & Kuh, 2004). The relationship of students with other students, and students to faculty, is considered an important factor in the social engagement that LCs foster.

Conclusions

Five conclusions were drawn from the analysis of the phase one and phase two findings. Findings from research question 1 resulted in two conclusions. Findings from research question 2 resulted in three conclusions.

Conclusion 1. All four core components of a successful LC—integrated curriculum, innovative pedagogy, engagement, and supportive services—are well-represented in the three community college programs that participated in this research study. Collectively the 75 survey participants responded with highest positive results as follows: supportive services (82%), followed by engagement (78%), innovative instruction (74%), and curricular integration (74%). A Pathways College teaching assistant explained of the four components:

> Kelly: You can't necessarily have one thing without the others. They're so closely knit, I almost feel even though you managed to break them up into four separate pieces, in actuality they're still that one whole. They're still that whole thing and everything supports itself. You can't have a table with just one leg.

The theory of change for LCs posits that the core components work to foster academic social engagement, deeper learning, and a more coherent curriculum, all of which leads to greater persistence and success, with engagement as the key (M. G. Visher et al., 2008; Weiss et al., 2015; Zhao & Kuh, 2004).

Conclusion 2. The online survey results indicated that students believe the supportive services are the most important component to students in LCs designed for CTE, with the component of engagement named as second in importance. The online survey items relating to supportive services had the highest average scores at 82%. Responses ranged from 65% for College on the Hill to 88% for Pathways College. Overall items relating to engagement scored an average positive score of 78%. Responses ranged from 67% for College in the City to 80%

for Pathway College. This conclusion is a departure from Tinto's (1993) identification of academic and social interaction—which in this study are concepts combined under the term *engagement*—as the most important factor for student persistence. While most studies identify a variety of components, there is strong evidence of student perception of satisfaction and a sense of community and belonging, attributed to both the cohort structure and engagement (Crisp & Taggart, 2013; Engstrom & Tinto, 2008; Tinto, 2003). Engagement was identified by students in this study as an important componant, but through focus group discussions students identified supportive services as the most important component.

Conclusion 3. Support services are perceived by students to be key to the successful participation, retention, and success in LCs designed for CTE students. While students found each of the four components of a successful learning community present in their LCs, supportive services were considered present to the highest degree, and were considered the most important. If we look at the average number of positive responses in the online survey (responses *very often* and *often* combined), the highest average, 82%, was for supportive services.

Focus group discussions narrowed the theme of supportive services to emphasize financial and career specific support, as well as individual staff and faculty interaction. This indicates that CTE LC students have financial need and a specific career goal. Students named traditional supportive services such as financial aid, writing centers, and health centers. They also named services specific to their LCs such as free textbooks, access to career specific counselors, supplies specific for their trade, workshops that offered trade specific certificates, and events like Hiring Days job fairs.

An emphasis on supportive services is supported in the literature. Findings from a longitudinal study of 13 LCs, Engstrom and Tinto (2008) found that student perception of support among LC students was higher at 2.51 (on a 4 point scale) than their non-LC

counterpoints at 2.44, although not statistically significant. The same study found that integration of student support services into the LC connected students to support networks across campus, increasing their chances of student success (Engstrom & Tinto, 2008). Shapiro and Laufgraben (1999) explain the importance of LCs as a setting for delivery of supportive services such as advising, tutoring, and career mentoring.

Conclusion 4. Specific personnel, peer mentors, teaching assistants, coordinators, counselors, and instructors represent the greatest source of support and means of engagement by connecting students to the larger campus community and to supportive services. Item II.12 in the survey, "Teachers in my LC: Encourage me to seek out other resources on campus (library, math center, writing center, learning center, student services, financial aid, etc.)," received a 83% average positive response collectively. This item demonstrates student perception of how instructors connect them with supportive services on campus. Item II.2 in the survey, "Teachers in my LC: Make all students feel comfortable about participating in class activities," received a 88% average positive response collectively. This item can serve as one measure of how instructors assist in creating an environment where students feel academically engaged. Pathways College students focused on the people who provided support, especially the peer mentor and the teaching assistant. One student explained how the peer mentor connects them with support services and general college information.

Lee: So he pretty much updates you with information about the school and also you personally, like financially or if you need to talk to a counselor about your major. You wanna switch your major, you wanna switch classes, he goes over that with you.

In all of the focus groups, students named specific personnel as mechanisms of support, and these people also acted as agents of engagement connecting the students to the larger campus community.

Both Pathways College and College on the Hill students mentioned instructors. A connection with instructors was a theme that emerged. College on the Hill students spoke gratefully about the intrusive support of staff who call, email, and show up at their class. The students at Pathways College mistakenly thought a peer mentor was a counselor and explained how he can help them find any resource. All of the students mentioned the coordinators of their LCs and how they played a supportive role.

Students spoke of the staff and instructors in the LC as instruments of support, but they also act as agents for engagement. They are the critical connectors between the LC and the rest of the college. This is true of the counselors who help students sign up for their next course, for the welding instructor who walked students to the writing center to work on a scholarship application, the coordinator who brought companies to Hiring Days, and peer mentors who help students access the health center and the food bank. M. G. Visher et al. (2010) found that a paid coordinator and leaders who were committed to the LC were essential to both managing and scaling LCs. Tinto (1993) explains that faculty and peer mentor programs help students become a part of the social and intellectual community, which supports effective retention. The faculty and staff who interact with the students are their connection to the rest of the college, connecting students to resources such as financial aid and counseling, as well as connecting them socially.

Conclusion 5. Career focus helps students persist and succeed and serves as a point of engagement, especially with the instructors and with courses that are not their trade areas but are contextualized. One item in the survey, V.4 addressed career specific support services, "My participation in my LC has given me access to: career support services such as resume writing, job fairs, field trips to companies, and assistance with interviewing skills." The average positive response collectively to item V.4 was 80%, indicating the students perceive a high level of career specific supports in their LCs.

The students in the focus groups overall were clear about their career goals and learned, through career specific counseling, a path to that career including both college and industry certificates and career options within the field. One College on the Hill student explained how her English course is contextualized:

> Rhonda: ... Our research papers was basically on any career you want, but since we're ... it's an auto and Auto-English class kind of thing where everyone's really researching automotive and they're looking at how that ... what the job satisfaction is, job pay rate, they're learning what you're getting yourself into. That's what we're learning in English.

One of the defining characteristics of LCs in a theme or focus (Crisp & Taggart, 2013; Matthews et al., 2012; Tinto, 2003, M. G. Visher et al., 2008). Themes such as identity, community, and agency lend themselves to a critical pedagogy framework (Jehangir, 2009). Other LCs have a theme that focuses on a specific cultural group such as Umoja's focus on African American culture (Powell, 2009) or Puente's focus on Latino culture (Mapeso, 2012). The unifying theme of an LC designed for CTE students is the specific trades area such as automotive or welding.

Recommendations for Practice

The conclusions lead to four recommendations for community college practitioners. These four recommendations are specific to the design and implementation of LCs and can be expanded to Guided Pathways design and implementation.

Recommendation 1. Both on the online survey and the focus groups, students reported finding all four components of a successful learning community present: integrated curriculum, innovative instruction, engagement, and supportive services. Given the theory of change in which all components work together to foster academic and social engagement (M. G. Visher et al., 2008; Zhao & Kuh, 2004), and the perception of students in this study of all four component

were well represented and valued, practitioners should include all four components in LC design and implementation.

Similarly, practitioners involved in the Guided Pathways redesign efforts should include all four components in design and implementation. These components will look different when designed at a college wide scale. Where a class-to-class cohort may not be possible, the basics of these components are possible given a meta-major structure and integrated student supports.

Recommendation 2. Students in the focus groups identified individual staff and faculty as essential for their success in their LC. Students at Pathways College were particularly expressive about the importance of the student workers, the peer mentors, and the teaching assistants. They categorized the peer mentors as a form of supportive services and they expressed various ways in which the peer mentors connected them to the rest of the college, including traditional services like the learning resource center and financial aid, to more acute services such as the health center or the food pantry, to career specific services such as workshops for industry certificates. Peer mentors were seen as distinct from counselors. Counselors help with which courses to take and with work readiness such as resume writing and interview skills. Peer mentors connect students to services and explains how to access those services from a student point of view. Given how important student services and engagement are, and the student testimonials to the importance of peer mentors in providing that support and engagement, practitioners should include peer mentors as a crucial component of their LC. In a study of LCs at six community colleges, M. G. Visher et al. (2010) found a paid coordinator to be essential to scaling LCs. These coordinators also needed the support of their administrators in the work of scaling (M. G. Visher et al., 2010).

The Guided Pathways framework has a strong emphasis on supporting students through their college journey for successful completion. Bailey et al. (2015) writes about peer-based

structures in to support Guided Pathways, specifically the process of inquiry. He is speaking of structures for faculty, but the same concepts apply to structures for students. Peer supports help students understand and connect with the resources and supports available. Because peer mentors are crucial as both support and mechanisms of engagement, Guided Pathways should be designed in a way to embed peer mentors or other high contact staff.

Recommendation 3. In the focus groups, students named a focus on career as motivation for joining the LC and a way to access non-trades specific courses like English and math. When instructors or activities focused on career, students found them engaging. Students came to workshops that gave them no academic credit, outside of class hours, to earn industry certificates, indicating a high level of engagement. The career focus in LCs for CTE is comparable to the themes of traditionally academic LCs (Crisp & Taggart, 2013; Matthews et al., 2012; Tinto, 2003; M. G. Visher et al., 2008). Understanding that a focus on career supports student engagement, access to college level material, and retention, practitioners should design LCs with a career focus.

In the Guided Pathways framework, a strong emphasis is placed on early career exploration to help students choose a program of study (Bailey et al., 2015). The college, via the meta-majors structure, can support this aim by offering career exploration coursework, such as the counseling and human development courses offered in the LCs in this study, or similar experiences within a meta-major. Both classroom based and non-classroom activities should be utilized for career exploration and connection within the meta-majors structure.

Recommendation 4. For courses that were not trades based, such as counseling, English, and math, contextualizing the content helped students find the material accessible. Students explained how the math taught in their welding class, or the English class that focused on automotive technology, made the material more accessible and relevant to them. LCs should

take advantage of the career focus and contextualize non-trades or major courses to support student success. Contextualized content captures the student's attention and makes the subject matter relevant to their goal (Baker et al., 2009).

The Guided Pathways structure of meta-majors, and the implications for scheduling that is coordinated college wide instead created in siloed divisions, allows for a structure conducive to contextualization. General education classes contextualized for meta-majors could help students access college level material while keeping them engaged with the meta-major.

Recommendations for Future Research

Findings from this study provide insight into student perceptions of the presence and degree of presence of four core components of successful LCs: integrated curriculum, innovative pedagogy, engagement, and supportive services. Recommendations for further study based on these findings include:

1. An exploratory study of the intersection of LCs and Guided Pathways. The Guided Pathways framework seeks to make the course of study clear, often with default schedules, and to enhance and integrate student support services (Bailey et al., 2015). These are areas that LCs have addressed. How will the Guided Pathways framework and LCs intersect? Will Guided Pathways duplicate LCs, will they enhance LCs, or will there be some other interplay?
2. An exploratory study of the intersection of Career Pathways and Guided Pathways. Career Pathways have provided a career focused structure for education, particularly at the high school level (Lanford & Tierney, 2015). Guided Pathways provides a structure of meta majors that group like majors to help students better choose a field of study and provides guided exploration for students (Bailey et al., 2015). Career Pathways also build in activities, such as work based learning so students can make the connection

between the pathway focus and a career (Lanford & Tierney, 2015). How do Career Pathways and Guided Pathways work together? Are their areas of convergence and divergence?

3. A study of the role of peer mentors or other high-touch staff in Guided Pathways implementation. Pathways College students emphasized the importance of peer mentors to their success in college. Guided Pathways is a redesign of colleges to eliminate barriers to student success and build mechanisms for success into the college experience. The Guided Pathways framework has a strong emphasis on student support services. Can peer mentors play a role in redesigned student support services?

Summary

This study investigated the rarely studied LCs for CTE. Students in LCs designed specifically for manual trades, who had been in existence for at least 4 years, and included a basic skills component, were invited to participate in the *Online Survey of Students' Experiences of Learning in a LC*, and in focus groups or interviews. The four components of a successful LC designed for traditional academic LCs were perceived as present, with supportive services and engagement present to the highest degree. Both the online survey and focus groups reflected that students perceived supportive services to be the most important component, especially as manifest in financial support, career specific supports, and individual staff and faculty. The calling out of staff and faculty as supportive services overlaps with the second most important component, which is engagement, according to the online survey and named in the focus groups. Two additional components were surfaced by the focus groups: a career focus in the LC and a strong relationship with instructors.

REFERENCES

Accenture, T. M. I. (2014). *Accenture 2014 manufacturing skills and training study*. Retrieved from http://www.themanufacturinginstitute.org/Research/Skills-and-Training-Study/~/media/70965D0C4A944329894C96E0316DF336.ashx

Bailey, T. R., Smith Jaggars, S., & Jenkins, D. (2015). *Redesigning America's community colleges: A clearer path to student success*. Cambridge, MA: Harvard University Press.

Baker, E., Hope, L., & Karandjeff, K. (2009). *Contextualized teaching & learning: A faculty primer*. Sacramento, CA: Chancellor's Office of the California Community Colleges.

Barlow, M. L. (1974). *The philosophy for quality vocational education programs*. Washington, DC: American Vocational Association.

Beach, J. M. (2011). *Gateway to opportunity?: A history of the community college in the United States*. Retrieved from https://eric.ed.gov/?id=ED515053

Board of Governors. (2015). *Task force on workforce job creation and a strong economy: Report and recommendations*. Retrieved from http://doingwhatmatters.cccco.edu/portals/6/docs/sw/BOG_TaskForce_Report_v12_web.pdf

Brewer, E. W. (2011). The history of career and technical education. In V. Wang (Ed.), *Definitive readings in the history, philosophy, theories and practice of career and technical education* (pp. 1-16). Hershey, PA: Information Science Reference.

Bruffee, K. A. (1995). Sharing our toys: Cooperative learning versus collaborative learning. *Change, 27*(1), 12-18. doi:10.1080/00091383.1995.9937722

Butler, A., & Christofili, M. (2014). Project-based learning communities in developmental education: A case study of lessons learned. *Community College Journal of Research and Practice, 38*(7), 638-650. doi:10.1080/10668926.2012.710125

California Career Pathway Trust, § Cal. Assemb. B. 86 (2013-2014), Chapter 48, (Cal. Stat. 2013) (2013).

Career and Technical Education Incentive Grant, § Cal. Assemb. B. 104 (2015-2016), Chapter 13, (Cal. Stat. 2015) (2015).

Carnevale, A., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018.* Retrieved from https://eric.ed.gov/?id=ED524310

Cech, S. J. (2008). Engineering a blueprint for success: PLTW attracts students beyond the usual pool of talent. *Education Digest, 73*(5), 39. Retrieved from https://www.eddigest.com/

Clark, B. R. (1960). *The open door college: A case study*. New York, NY: McGraw-Hill.

Cooper, D., Rodriguez-Kiino, D., Scharper, A., Karandjeff, K., Chaplot, P., & Schiorring, E., …Taylor, S. (2014). *Practically speaking. Community college practices that help (re)define student support: A practitioner primer*. Retrieved from https://rpgroup.org/Portals/0/PractitionerPrimer_Spring2014_1.pdf

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.

Crisp, G., & Taggart, A. (2013). Community college student success programs: A synthesis, critique, and research agenda. *Community College Journal of Research and Practice, 37*(2), 114-130. doi:10.1080/10668920903381847

Cross, K. P., & League for Innovation in the Community. (1998). *Opening windows on learning: The cross papers* (No. 2). Retrieved from http://www.league.org/

Desai, S. A. (2012). Is comprehensiveness taking its toll on community colleges?: An in-depth analysis of community colleges' missions and their effectiveness. *Community College Journal of Research and Practice, 36*(2), 111-121. doi:10.1080/10668920802611211

Donahoe Higher Education Act, § 66010.4 (1991).

Dunlap, L., & Pettitt, M. (2008). Assessing student outcomes in learning communities: Two decades of studies at a community college. *Journal of Applied Research in the Community College, 15*(2), 41-50. Retrieved from www.montezumapublishing.com/jarcc

Engstrom, C., & Tinto, V. (2008). Learning better together: The impact of learning communities on the persistence of low-income students. *Opportunity Matters, 1*, 17. Retrieved from collegeofsanmateo.edu/bsi/docs/Engstrom%20Tinto2008.pdf

Equal Measure. (2015). *Sustaining the career advancement academies*. Retrieved from http://www.careerladdersproject.org/wp-content/uploads/2011/09/CAA-Sustainability-Report-Final-for-CCCAOE.pdf

Foster, P. N. (1997). Lessons from history: Industrial arts/technology education as a case. *Journal of Vocational and Technical Education, 13*(2), 5-15. doi:10.21061/jcte.v13i2.672

Freire, P., & Macedo, D. P. (1987). *Literacy: Reading the word & the world*. South Hadley, MA: Bergin & Garvey Publishers.

Freire, P., & Ramos, M. B. (1970). *Pedagogy of the oppressed*. New York, NY: Seabury Press.

Gabelnick, F. G. (1990). *Learning communities: Creating connections among students, faculty, and disciplines*. San Francisco, CA: Jossey-Bass.

Giroux, H. A. (1997). *Pedagogy and the politics of hope: Theory, culture, and schooling: A critical reader*. Boulder, CO: WestviewPress.

Goldberg, B., & Finkelstein, M. (2002). Effects of a first-semester LC on nontraditional technical students. *Innovative Higher Education Innovative Higher Education, 26*(4), 235-249. doi:10.1023/A:1015876829313

Hesse, M., & Mason, M. (2005). The case for learning communities: Learning communities foster connections among students, faculty and disciplines. *Community College Journal, 76*(1), 30. Retrieved from https://www.aacc.nche.edu

Hill, W., & Woodward, L. S. (2013). Examining the impact learning communities have on college of education students on an urban campus. *Journal of College Student Development, 54*(6), 643-648. doi:10.1353/csd.2013.0085

Jackson, D. L., Stebleton, M. J., & Laanan, F. S. (2013). The experience of community college faculty involved in a LC program. *Community College Review, 41*(1). doi:10.1177/0091552112473145

Jaffee, D. (2007). Peer cohorts and the unintended consequences of freshman learning communities. *College Teaching, 55*(2), 65-71. doi:10.3200/CTCH.55.2.65-71

Jehangir, R. (2009). Cultivating voice: First-generation students seek full academic citizenship in multicultural learning communities. *Innovative Higher Education, 34*(1), 33-49. doi:10.1007/s10755-008-9089-5

Killacky, J., Thomas, C., & Accomando, A. (2002). Learning communities and community colleges: A case study. *Community College Journal of Research and Practice, 26*(10), 763-775. doi:10.1080/10668920290104859

Koos, L. V. (1925). *The junior-college movement*. Boston, MA: Ginn and Company.

Laanan, F. S., Jackson, D. L., & Stebleton, M. J. (2013). LC and nonLC students in a midwestern community college. *Community College Journal of Research & Practice, 37*(4). doi:10.1080/10668920903505023

Labaree, D. F. (1990). From comprehensive high school to community college: Politics, markets, and the evolution of educational opportunity. *Research in Sociology of Education and Socialization, 9*, 203-240. Retrieved from https://www.researchgate.net/journal/0197-5080_Research_In_Sociology_Of_Education_And_Socialization

Labaree, D. F. (2008). An uneasy relationship: The history of teacher education in the university. In M. Cochran-Smith, S. Feiman Nemser, & D. J. McIntyre (Eds.), *Handbook*

of research on teacher education: Enduring issues in changingcontexts (pp. 290-306). Washington, DC: Association of Teacher Educators.

Labov, J. B. (2012). Changing and evolving relationships between two- and four-year colleges and universities: They're not your parents' community colleges anymore. *CBE: Life Sciences Education, 11*(2), 121-128. doi:10.1187/cbe.12-03-0031

Lanford, M., & Tierney, W. G. (2015). *From vocational education to linked learning: The ongoing transformation of career-oriented education in the U.S.* Los Angeles, CA: Pullias Center for Higher Education.

LaVenia, M., Cohen-Vogel, L., & Lang, L. B. (2015). The Common Core State Standards initiative: An event history analysis of state adoption. *American Journal of Education, 121*(2), 145-182. doi:10.1086/679389

Leask, M., & Younie, S. (2001). Communal constructivist theory: information and communications technology pedagogy and internationalisation of the curriculum. *Journal of Information Techology for Teacher Education, 10*(1-2), 117-134. doi:10.1080/14759390100200106

Malnarich, G., Pettitt, M. A., & Mino, J. J. (2014). Washington Center's online student survey validation study: Surfacing students' individual and collective understanding of their LC experiences. *Learning Communities Research and Practice, 2*(1), 1. Retrieved from washingtoncenter.evergreen.edu/lcrpjournal/

Mapeso, R. C. (2012). *The Puente Project: A case study of the English and counseling faculty* (Doctoral dissertation). Available from ProQuest Dissertations & Theses. (UMI No. 1112061137)

Matthews, R. S., Smith, B. L., & MacGregor, J. (2012). The evolution of learning communities: A retrospective. *TL New Directions for Teaching and Learning, 2012*(132), 99-111. doi:10.1002/tl.20039

McCarthy, M. A. (2014). *Beyond the skills gap: Making education work for students, employers and communities*. Retrieved from http://www.newamerica.org/downloads/20141013_BeyondTheSkillsGap.pdf

Meiklejohn, A. (1932). *The experimental college*. New York, NY: Harper.

Minkler, J. E. (2000). *The efficacy of learning communities at two community colleges.* Available from http://worldcat.org//z-wcorg/ database

Minkler, J. E. (2002). ERIC review: Learning communities at the community college. *Community College Review, 30*(3), 46-63. doi:10.1177/009155210203000304

Morgan, D. L. (1988). *Focus groups as qualitative research*. Newbury Park, CA: Sage.

Morgan, D. L. (1997). *Focus groups as qualitative research*. Thousand Oaks, CA: Sage.

Morgan, D. L., & Bottorff, J. L. (2010). Advancing our craft: Focus group methods and practice. *Qualitative Health Research, 20*(5), 579-581. doi:10.1177/1049732310364625

Morrison, T., Maciejewski, B., Giffi, C., DeRocco, E. S., McNelly, J., & Carrick, G. (2011). *Boiling point? The skills gap in U.S. manufacturing.* Retrieved from http://www.the manufacturinginstitute.org/~/media/A07730B2A798437D98501E798C2E13AA.ashx

Ogren, C. A. (2003). Rethinking the "nontraditional" student from a historical perspective: State normal schools in the late nineteenth and early twentieth centuries. *Journal of Higher Education, 74*(6), 640-664. doi:10.1080/00221546.2003.11780862

OMG Center on Collaborative Learning. (2013). *Career advancement academies: 2011-12 evaluation report*. Retrieved from www.omgcenter.org/insights/tags/evaluation

Parsley, K., Tinto, V., Goodsell-Love, A., & Russo, P. (1994). *Building learning communities for new college students: A summary of research findings of the collaborative learning project*. University Park, PA: Pennsylvania State University NCTLA.

Piaget, J. (1967). *Six psychological studies*. New York, NY: Random House.

Powell, M. J. (2009). *From Ujima to emergence: An historical case study of a community college LC* (Doctoral dissertation). Available from ProQuest Dissertations & Theses. (UMI No. 3379603)

Richburg-Hayes, L., M. G. Visher, M. G., & Bloom, D. (2008). Do learning communities effect academic outcomes? Evidence from an experiment in a community college. *Journal of Research on Educational Effectiveness, 1*(1), 33-65. doi:10.1080/19345740701692472

Rivera, C. (2012, March 14). Santa Monica College to offer two-tier course pricing. *Los Angeles Times,* p. 2. Retrieved from http://articles.latimes.com/2012/mar/14/local/la-me-college-classes-20120314

Rocconi, L. M. (2011). The impact of learning communities on first year students growth and development in college. *Research in Higher Education: Journal of the Association for Institutional Research, 52*(2), 178-193. doi:10.1007/s11162-010-9190-3

Schnee, E. (2014). "A foundation for something bigger": Community college students' experience of remediation in the context of a LC. *Community College Review, 42*(3), 242-261. doi:10.1177/0091552114527604

Seidman, I. (2013). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. New York, NY: Teachers College Press.

Seymour-Campbell Student Success Act 2012, California Annual Digests of Legislation § Cal. S. B. 1456 (2012), Chapter 624 (Cal. Stat. 2012) (2011-12).

Shapiro, N. S., & Laufgraben, J. L. (1999). *Creating learning communities: A practical guide to winning support, organizing for change, and implementing programs*. San Francisco, CA: Jossey-Bass Publishers.

Simon, M. A., & Schifter, D. (1991). Towards a constructivist perspective: An intervention study of mathematics teacher development. *Educational Studies in Mathematics, 22*(4), 309-331. doi:10.1007/BF00369293

Smith, B. L. (2004). *Learning communities: Reforming undergraduate education*. San Francisco, CA: Jossey-Bass.

Sommo, C., Mayer , A., Rudd, T., & Cullinan, D. (2012). *Commencement day: Six-year effects of a freshman LC program at Kingsborough Community College.* Retrieved from http://www.mdrc.org/sites/default/files/Commencement Day FR.pdf

Tampke, D. R., & Durodoye, R. (2013). Improving academic success for undecided students: A first-year seminar/LC approach. *Learning Communities Research and Practice, 1*(2), 3. Retrieved from washingtoncenter.evergreen.edu/lcrpjournal/

Threeton, M. D. (2007). The Carl D. Perkins Career and Technical Education (CTE) Act of 2006 and the roles and responsibilities of CTE teachers and faculty members. *Journal of Industrial Teacher Education, 44*(1), 66-82. Retrieved from https://scholar.lib.vt.edu/ejournals/JITE/

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: University of Chicago Press.

Tinto, V. (1997). Classroom as communities. *Journal of Higher Education, 68*(6). Retrieved from http://www.uab.edu/2015compliancecertification/IMAGES/SOURCEE148.PDF?id=40d5d239-fd27-e411-99c8-86539cf2d30e

Tinto, V. (2003). Learning better together: The impact of learning communities on student success. *Higher Education Monograph Series, 1*, 8. Retrieved from www.nhcuc.org/pdfs/Learning_Better_Together.pdf

Trochim, W., & Donnelly, J. P. (2006). *The research methods knowledge base*. Mason, OH: Atomic Dog Publishing.

Trautmann, N., & Boes, C. (2000). *Sociology, writing, and reading and the community college learning community*. Bethlehem, PA: Northampton Community College. (ERIC Document Reproduction Service No. ED454897)

Valentine, J., Hirschy, A., Bremer, C., Novillo, W., Castellano, M., & Banister, A. (2011). Keeping at-risk students in school: A systematic review of college retention programs. *Educational Evaluation and Policy Analysis, 33*(2), 214-234. doi:10.3102/0162373711398126

Visher, C. A., Lattimore, P. K., Barrick, K., & Tueller, S. (2017). Evaluating the long-term effects of prisoner reentry services on recidivism: What types of services matter? *Justice Quarterly, 34*(1), 136-165. doi:10.1080/07418825.2015.1115539

Visher, M. G., Teres, J., & Richman, P. (2011). *Breaking new ground: An impact study of career-focused learning communities at Kingsborough Community College*. Retrieved from files.eric.ed.gov/fulltext/ED533915.pdf

Visher, M. G., Wathington, H., Richburg-Hayes, L., & Schneider, E. (2008). *The Learning communities demonstration: Rationale, sites, and research design* [Working paper]. York, NY: www.postsecondaryresearch.org/

Visher, M. G., Wathington, H., Schneider, E., & Collado, H. (2010). *Scaling up learning communities: The experience of six community colleges*. New York, NY: Columbia University, National Center for Post-Secondary Research.

Visher, M. G., Weiss, M. J., Weissman, E., Rudd, T., & Wathington, H. D. (2012). *The effects of learning communities for students in developmental education: A synthesis of findings from six community colleges*. New York, NY: National Center for Postsecondary Research.

Warner, M., Caspary, K., Arshan, N., Stites, R., Padilla, C., Park, C., . . . Adelman, N. (2015). *Taking stock of the California Linked Learning District Initiative: Sixth-year evaluation report*. Retrieved from http://www.linkedlearning.org/wp-content/uploads/2015/12/Yr6_Evaluation_Report_2015.pdf

Weisman, E., Flores, S., & Valenciana, C. (2007). Building bilingual-bicultural learning communities. *Journal of Hispanic Higher Education, 6*(3), 191-208. doi:10.1177/1538192707302284

Weiss, M. J., Cullinan, D., Ratledge, A., Sommo, C., Diamond, J., & Mayer, A. K. (2015). A random assignment evaluation of learning communities at Kingsborough Community College seven years later. *Journal of Research on Educational Effectiveness*. doi:10.1080/19345747.2014.946634

Weiss, M. J., M. G. Visher, M. G., & Wathington, H. (2010). *Learning communities for students in developmental reading: An impact study at Hillsborough Community College*. Retrieved from http://www.postsecondaryresearch.org/

Wood, E., & Bennett, N. (1998). Teachers' theories of play: Constructivist or social constructivist? *Early Child Development and Care, 140*(1), 17-30. doi:10.1080/0300443981400103

Zhao, C. M., & Kuh, G. D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education: Journal of the Association for Institutional Research, 45*(2), 115-138. doi:10.1023/B:RIHE.0000015692.88534.de

APPENDIX A

MOU College Funds Survey

Memorandum of Agreement Regarding Services
Term: one survey administration between Spring 2017-Spring 2018

This memorandum refers to the *Online Survey of Students' Experiences of Learning in Learning Communities*. The memorandum is between (institution name) _____ and Dr. Maureen Pettitt, the survey administrator.

By completing this form, your institution agrees to pay the estimated fees for survey data reports as follows:

Selections	Analysis/Report	Fees per term	Your fees
✓	Flat fee for survey use and aggregated data report	$200	$200
✓	Single institutional data set in either Excel or SPSS	No charge	$0
___	For each additional analysis by single variable (course ID, course type, OR course level)	$50 for each variable analysis	____
✓	For customizing the survey by adding 5 institution-specific questions	$50	$50
✓	Analysis of additional questions	$50	$50
		Total	$300

The institution will receive an aggregated data report. An additional aggregated data report, and a raw data set will be sent to dissertation student Naomi Castro, Pepperdine University - Graduate School for Education and Psychology. An institutional data set in either Excel or SPSS will be made available upon request. An invoice will be mailed to the institution after your survey reports are sent to you.

Please provide contact information below, including the administrator responsible for this work on your campus. Please return the form electronically to pettittm@evergreen.edu

Date:

LC program contact and e-mail address:

Institutional research contact and e-mail address:

Billing contact and e-mail address:

Billing address (snail mail):

Billing phone number:

Responsible administrator, including e-mail address:

Please sign here:

Date: _____ PO #_____

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APPENDIX B

MOU Principal Investigator Funds

Memorandum of Agreement Regarding Services
Term: one survey administration between Spring 2017-Spring 2018

This memorandum refers to the *Online Survey of Students' Experiences of Learning in Learning Communities*. The memorandum is between (institution name) _____ and Dr. Maureen Pettitt, the survey administrator.

By completing this form, your institution agrees to the procedures outlined for survey data reports as follows:

Selections	Analysis/Report	Fees per term	Your fees
✓	Flat fee for survey use and aggregated data report	$200	$200
✓	Single institutional data set in either Excel or SPSS	No charge	$0
___	For each additional analysis by single variable (course ID, course type, OR course level)	$50 for each variable analysis	____
✓	For customizing the survey by adding 5 institution-specific questions	$50	$50
✓	Analysis of additional questions	$50	$50
		Total	$300

The institution will receive an aggregated data report. An additional aggregated data report, and a raw data set will be sent to dissertation student Naomi Castro, Pepperdine University - Graduate School for Education and Psychology. An invoice will be mailed to Naomi Castro, Pepperdine Graduate who will pay the fee for the survey.

Please provide contact information below, including the administrator responsible for this work on your campus. Please return the form electronically to pettittm@evergreen.edu

Date:

LC program contact and e-mail address:

Institutional research contact and e-mail address:

Responsible administrator, including e-mail address:

Please sign here:

Date: _____ PO #_____

APPENDIX C

Survey Items

Students' Experiences of Learning in Learning Communities

Enter the name of the college _____

Type of LC (pick one only)

_ A common cohort of students enrolled in two or more classes who attend these classes together
_ A cohort enrolled in a program where students share a common experience, such as a single course, seminar, and/or integrative project
_ Other

LC ID (drop down menu)

LC courses (pick one only)
_ pre-college (developmental classes)
_ pre-college and college level classes
_ college level classes only
_ other

Part I. In my LC, I:				
	Very often	Often	Sometimes	Never
Ask questions in class				
Participate in class discussions or seminars				
Work on reading, writing and/or problem solving assignments during class				
Work with other students to examine complex issues during class				
Peer review my and other students' work during class				
Work with other students on group projects during class				
Present my work, or work done as part of a group, to the class				
Work on connecting or integrating ideas, strategies, or skills from classes (or disciplines) included in this LC				
Reflect on how these connections lead to new insights or understandings				
Use what I'm learning to contribute to another class				
Work with classmates outside of class on class assignments, homework or projects				
Discuss ideas from this LC with family members, coworkers, other students etc.				
Develop friendships with classmates based on shared LC experiences				

Part II. Teachers in my LC:				
	Very often	Often	Sometimes	Never
Make the goals and vocabulary of learning communities clear				
Make **all** students feel comfortable about participating in class activities				
Encourage students to ask questions in class				
Encourage students to discuss assigned work in class				
Help students establish productive working groups				
Talk to me about my ideas				
Encourage me to explore my ideas				
Help me use my background knowledge and life experiences to learn new things				
Demonstrate how to integrate concepts and skills from different classes in a meaningful way				
Assign work that asks me to connect concepts and skills from different classes to reach new understandings and/or applications				
Show me how to evaluate the strengths and weaknesses in my work as a basis for improvement				
Encourage me to seek out other resources on campus (library, math center, writing center, learning center, student services, financial aid, etc.)				
Encourage me to plan the next steps in my education with a counselor or advisor				

Part III. My participation in this LC helps me to develop my ability to:				
	Very often	Often	Sometimes	Never
Write clearly and effectively				
Speak clearly and effectively				
Think critically and analytically				
Analyze quantitative problems				
Work effectively with others to complete assignments/projects				
Identify the learning strategies that are most effective for me				
Persist when faced with academically challenging work				
Take responsibility for my own learning				
Connect my learning in school to problems and issues in my local community and the world				
Be successful in future courses and programs				

Part IV. In my LC, compared to other classes, I spend more, less, or about the same amount of time:			
	More	Less	About the same amount
Memorizing facts and figures			
Analyzing elements of an idea, experience, or theory			
Thinking through my assumptions			
Synthesizing ideas, experiences, or theories			
Evaluating information, methods, and arguments			
Integrating ideas, strategies, and skills from multiple sources			
Applying theories or concepts to practical problems or new situations			

Customized questions added for Support Services Specific for CTE

Part V: My participation in my LC has given me access to:				
	Very often	Often	Sometimes	Never
Student support services such as a counselor, financial aid, and assistance with registration.				
Academic support services such as math and English tutors, a writing center, and other assistance with my school work.				
Community support services such as child care, housing assistance, and transportation assistance.				
Career support services such as resume writing, job fairs, field trip to companies, and assistance with interviewing skills.				

Submit
[After students press "submit" they will be directed to an outside link with the following]

If you choose to participate in a focus group or interview, please complete the questions below. You will receive a $20 gift card for participation in the focus group or survey. If you choose not to participate in a focus group or interview please close this window and thank you for participating in the survey.

Name: _____
Email address: _____
Phone number: _____
College: _____

Choose one:
_ Yes - I would like to participate in a focus group, which is a small group discussion lead by the principal investigator of this study. The focus group will be on your campus and will last between 30-90 minutes. My real name will not be used in the study.

_Yes – I would like to participate in an interview. The interview will be only myself and the principal investigator for this study. It will be either over the phone or via video conference. My real name will not be used in the study.

_No – I would not like to participate in either.

Thank you. If you choose to participate in either the focus group or the interview the principal investigator will contact you shortly with the time, date and location of the focus group or to set up an interview. Thank you.

APPENDIX D

Focus Group and Interview Protocol

1. Welcome participant(s) to the group/interview.
2. Explain the purpose of the study.
3. Review the voluntary nature of participation.
4. Read the informed consent form and answer any questions.
5. Hand focus group participants /email interview participants a copy of the Adult Informed Consent form.
6. Start recording equipment.
7. Begin discussion using the questions below to guide the discussion.
8. Summarize the main themes and key ideas from the focus group/interview. Invite participant(s) to contact the PI in the next 7 days if they have any additional ideas or comments they would like to share.
9. Wrap up the focus group and thank participants.
10. Hand out gift cards to focus group participants/ask interview participants where they would like their gift card mailed.
11. Turn off recording equipment.

APPENDIX E

Focus Group and Interview Questions

1. Introduction – principal investigator share experience in academia and in the trades.
2. Introductory question: Please tell us your name and why did you choose this LC.
3. Remind participants of the online survey, explain we will be talking more about their experience in the LC.
4. Content question 1: Can you give some examples of how the content of curricular integration in your LC, how the subject of one class was integrated into the other class?
5. Content question 2: What are some examples of your instructors using innovative strategies in your LC?
6. Content question 3: Can you give me some examples of how your LC helped with social integration – making you feel connected to each other or to the campus?
7. Content question 4: What are some examples of support services did you LC provide for you?
8. Follow-up question 5: Follow-up for ranking importance: Of all of these components, integrated curriculum, innovative instructional strategies, social integration, and support services – which were most important to your success as a student?
9. Exploratory question 6: Was there anything about the LC that was important to you that we have not discussed yet?
10. Ask for any closing comments, any last words.
11. Thank student(s) for their participation and remind them of how to contact the principal investigator.

APPENDIX F

Email Communication to Potential Participants

Dear Students,

Because of you are a current or recent student in [insert name of local LC for CTE] you are being invited to participate in a study. This study is looking at Learning Communities like [insert name of local LC for CTE] to learn about the core components that make it a successful program.

Your participation is completely voluntary. Participation consists of taking an online survey that will last between 20-30 minutes, and, if you choose to, you can also participate in a follow-up group or individual interview. The interview – either group or individual, will last between 60-90 minutes and will ask about your experience in [name of local LC]. If you participate in the group or individual interview you will receive a $20 gift card. If you choose to be in the focus group or individual interview you will need to participate in the survey first.

I will be giving a short information session on [insert date, time and location] if you would like more information about the study.

You are invited to join me in the [name and location of computer lab] on [day and time] to participate in the survey. If you want to participate in the survey on your own, I can give you a link if you respond to this email. If you do the survey on your own you will need to complete it by [insert date one week from day of computer lab date].

When you press the submit button at the end of the survey it will take you to a link that explains how to participate in the group or individual interview.

If you have any questions about this study please contact the principal investigator, Naomi Castro, at [contact information removed for publication]

Thank you,
[insert name of college designee]

APPENDIX G

Script for Student Information Meeting

Thank you for coming today. Because of you are a current or recent student in [insert name of local LC for CTE] you are being invited to participate in a study. This study is looking at Learning Communities like [insert name of local LC for CTE] to learn about the core components that make it a successful program.

Your participation is completely voluntary. Participation consists of taking an online survey that will last between 20-30 minutes, and if you choose to you can also participate in a focus group or an individual interview. If you participate in the focus group or individual interview you will receive a $20 gift card. If you choose to be in the focus group or individual interview you will need to participate in the survey first.

The online survey is anonymous. You will put in the name of the college but no information that could identify who you are. Even the name of the college will be changed in the actual study and any publication.

After you submit the survey, you will be directed to an outside link that will ask if you want to participate in a face to face focus group or a phone or video conference individual interview. Either interview option will take between 30-90 minutes and you will get a $20 gift card for participating. The outside link will ask for your name, phone number and email address so the Principal Investigator, the researcher for this study, can contact you with focus group or individual interview information.

You can take just the survey, take the survey and participate in the focus group or individual interview, or do none of those things. This is completely voluntary.

The questions for both the focus group and the interview will be about your experience in [insert name of local LC for CTE].

[Hand out informed consent form] This form explains what you are agreeing to if you volunteer to participate and what to expect. Please take a few minutes to read the form [give students time to read].

Do you have any questions? [wait for questions, if designee can not answer any of the questions please forward the question to PI].

If you want to participate in the online survey you can come to [location of computer lab] at [time and day] or I can give you a link to take it on your own. If you take it on your own you must complete it by [one week from date of information session].

APPENDIX H

Informed Consent for Participation in Research Activities Phase I - Online Survey

PEPPERDINE UNIVERSITY

Graduate School for Education and Psychology

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES
PART I - ONLINE SURVEY

"Measure Twice, Cut Once: Community College Learning Communities Designed for Career and Technical Education Students"

You are invited to participate in a research study conducted by **Naomi Castro, MA Edu, under the supervision of Dr. Linda Purrington, Ed. D,** at Pepperdine University, because you are **an adult (over 18 years of age) California Community College student, currently or recently enrolled in a LC designed for Career and Technical Education (CTE) students.** Your participation is voluntary. You should read the information below, and ask questions about anything that you do not understand, before deciding whether to participate. Please take as much time as you need to read the consent form. You may also decide to discuss participation with your family or friends. You will be given a copy of this form for your records.

PURPOSE OF THE STUDY

The purpose of this sequential, explanatory, mixed methods study is (a) to investigate the degree to which Career Technical Education (CTE) students in selected California Community College (CCC) believe that the core components of Learning Communities (LCs) designed for traditional, academic track students exist in LCs designed for CTE students, (b) to determine which of the core components, if any, are perceived by students as most beneficial, for CTE LCs and (c) to explore any additional components that students might believe to be essential for LCs designed for CTE students.

STUDY PROCEDURES – PHASE I

If you volunteer to participate in this study, you will be asked to fill out an online survey on a computer. You have a choice to take the online survey on campus in a computer lab, or to use an internet link and take the online survey on your own computer. The survey may take between 10-30 minutes. The questions in the survey will be about your experience as a student in a LC designed for CTE students.

At the end of the survey you will be invited to participate in an additional focus group or individual interview.

POTENTIAL RISKS AND DISCOMFORTS

Potential discomforts in participating in the online survey may include sitting and typing for an extended length of time, a loss of personal time, and recognition by another student.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Participants receive no direct benefits. Potential indirect benefits to the participants may include a greater understanding of their own LCs and learning experience through the reflective nature of the survey, focus group and interview questions. Potential benefits to the institution and the field may include a better understanding of best practices for Learning Communities designed for Career and Technical Education students. Potential benefits to society at large include a better learning experience for CTE students and, therefore, a better prepared workforce for manual trades.

CONFIDENTIALITY

The records collected for this study will be ***confidential*** as far as permitted by law. However, if required to do so by law, it may be necessary to disclose information collected about you. Examples of the types of issues that would require me to break confidentiality are if disclosed any instances of child abuse and elder abuse. Pepperdine's University's Human Subjects Protection Program (HSPP) may also access the data collected. The HSPP occasionally reviews and monitors research studies to protect the rights and welfare of research subjects.

The online survey does not collect your name, address or other identifiable information. At the end of the survey, you will be directed to an external link that asks if you would like to participate in either a group interview (a focus group) or, as an alternative, an individual interview over the phone or via video conferencing. If you choose to participate in either of these, you will be asked for your name, email and phone number.

The data will be stored on a password protected computer in the principal investigator's place of home office. All data, electronic and paper, will be held a maximum of 5 years after publication of the study before it is destroyed. The data collected from the online has no information to identify individual students. The only identifiable information will be the name of the college. The college name will be changed for the study.

Data from the online survey will be released to the Washington Center, the National Resource Center for Learning Communities who will release an aggregated data report along with the raw data to the PI.

COUNSELING RESOURCES

Should you choose, you may also contact **[insert college specific health center or counseling resource]** for medical and/or psychological services. The **[college specific name of the health center or resource]** is located in the **[basic campus directions]** and is open Monday through Friday with various hours of operation. You may contact the **[insert college specific health center or counseling resource and phone number]**.

SUSPECTED NEGLECT OR ABUSE OF CHILDREN

Under California law, the researcher(s) who may also be a mandated reporter will not maintain as confidential, information about known or reasonably suspected incidents of abuse or neglect of a child, dependent adult or elder, including, but not limited to, physical, sexual, emotional, and financial abuse or neglect. If any researcher has or is given such information, he or she is required to report this abuse to the proper authorities.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

ALTERNATIVES TO FULL PARTICIPATION

The alternative to participation in the study is not participating or only completing the items for which you feel comfortable.

INVESTIGATOR'S CONTACT INFORMATION

You understand that the investigator is willing to answer any inquiries you may have concerning the research herein described. You understand that you may contact Naomi Castro at [contact information removed for publication], or Dr. Linda Purrington at Linda.Purrington@pepperdine.edu 949-223-2568 if you have any other questions or concerns about this research.

RIGHTS OF RESEARCH PARTICIPANT – IRB CONTACT INFORMATION

If you have questions, concerns or complaints about your rights as a research participant or research in general please contact Dr. Judy Ho, Chairperson of the Graduate & Professional Schools Institutional Review Board at Pepperdine University 6100 Center Drive Suite 500 Los Angeles, CA 90045, 310-568-5753 or gpsirb@pepperdine.edu.

APPENDIX I

Informed Consent for Participation in Research Activities Phase II - Focus Group

PEPPERDINE UNIVERSITY

Graduate School for Education and Psychology

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES PHASE II - FOCUS GROUP

"Measure Twice, Cut Once: Community College Learning Communities Designed for Career and Technical Education Students"

You have participated in Phase I of this research study, an online survey. Because you participated in Phase I, you are being asked to participate in Phase II, a focus group, for the same study. Your participation is voluntary. You should read the information below, and ask questions about anything that you do not understand, before deciding whether to participate. Please take as much time as you need to read the consent form. You may also decide to discuss participation with your family or friends. You will be given a copy of this form for your records.

Please refer to the Informed Consent for Participation in Research Activities Phase I – online survey for the purpose of the study.

STUDY PROCEDURES – PHASE II

At the end of the online survey you were directed to an external link that asked if you would like to participate in either a group interview (a focus group) or, as an alternative, an individual interview over the phone or via video conferencing. You chose to participate in the focus group and submitted your name, email and phone number in the online link.

You were informed, via phone call and email, when and where the focus group will take place. The location is on the college campus in a building that is different from where your LC is housed.

In the focus group, the PI will give an overview of the study and review this form. The PI will then lead a discussion with participants asking about their experience as students in a LC designed for CTE. The discussion will be audio recorded. The focus group may take between 60-90 minutes. Participants may take a break at any time. The PI will pause the focus group if students ask or if they appear to be uncomfortable and need a break.

POTENTIAL RISKS AND DISCOMFORTS

Potential discomforts in participating in the **focus** group may include sitting for an extended length of time, a loss of personal time, recognition by another student, and anxiety related to sharing in a group.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

You will receive no direct benefits from participating in this focus group. Potential indirect benefits to the participants may include a greater understanding of their own LCs and learning

experience through the reflective nature of the focus group questions. Potential benefits to the institution and the field may include a better understanding of best practices for Learning Communities designed for Career and Technical Education students. Potential benefits to society at large include a better learning experience for CTE students and, therefore, a better prepared workforce for manual trades.

PAYMENT/COMPENSATION FOR PARTICIPATION

You will receive $20 gift card for your participation. You do not have to answer all of the questions in order to receive the card. The card will be given to you at the end of the focus group.

CONFIDENTIALITY

The records collected for this study will be ***confidential*** as far as permitted by law. However, if required to do so by law, it may be necessary to disclose information collected about you. Examples of the types of issues that would require me to break confidentiality are if disclosed any instances of child abuse and elder abuse. Pepperdine's University's Human Subjects Protection Program (HSPP) may also access the data collected. The HSPP occasionally reviews and monitors research studies to protect the rights and welfare of research subjects.

Audio recordings of the focus group will be typed out as transcripts. Participants will be given a pseudonym in the transcripts. The name of the college will be changed in the transcripts. The PI will look at the transcripts for common themes and insights. Two additional researchers will also read the transcripts to look for common themes and insights. The additional researchers will only read transcripts with pseudonyms and will not have access to students' real names or college.

The data will be stored on a password protected computer in the principal investigator's place of home office. All data, electronic and paper, will be held a maximum of 5 years after publication of the study before it is destroyed.

COUNSELING RESOURCES

Should you choose, you may also contact **[insert college specific health center or counseling resource]** for medical and/or psychological services. The **[college specific name of the health center or resource]** is located in the **[basic campus directions]** and is open Monday through Friday with various hours of operation. You may contact the **[insert college specific health center or counseling resource and phone number]**.

SUSPECTED NEGLECT OR ABUSE OF CHILDREN

Under California law, the researcher(s) who may also be a mandated reporter will not maintain as confidential, information about known or reasonably suspected incidents of abuse or neglect of a child, dependent adult or elder, including, but not limited to, physical, sexual, emotional, and financial abuse or neglect. If any researcher has or is given such information, he or she is required to report this abuse to the proper authorities.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw your consent at any time and

discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

ALTERNATIVES TO FULL PARTICIPATION

The alternative to participation in the focus group is participating in an individual interview, not participating at all, or only answering only the questions for which you feel comfortable. If you choose the individual interview as an alternative to the focus group please let the PI know and she will contact you for an interview.

INVESTIGATOR'S CONTACT INFORMATION

You understand that the investigator is willing to answer any inquiries you may have concerning the research herein described. You understand that you may contact Naomi Castro at [contact information removed for publication], or Dr. Linda Purrington at Linda.Purrington@pepperdine.edu 949-223-2568 if you have any other questions or concerns about this research.

RIGHTS OF RESEARCH PARTICIPANT – IRB CONTACT INFORMATION

If you have questions, concerns or complaints about your rights as a research participant or research in general please contact Dr. Judy Ho, Chairperson of the Graduate & Professional Schools Institutional Review Board at Pepperdine University 6100 Center Drive Suite 500 Los Angeles, CA 90045, 310-568-5753 or gpsirb@pepperdine.edu.

APPENDIX J

Informed Consent for Participation in Research Activities Phase II Alternative - Interview

PEPPERDINE UNIVERSITY

Graduate School for Education and Psychology

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES PHASE II ALTERNATIVE - INTERVIEW

"Measure Twice, Cut Once: Community College Learning Communities Designed for Career and Technical Education Students"

You have participated in Phase I of this research study, an online survey. Because you participated in Phase I, you are being asked to participate in Phase II, an **interview**, for the same study. Your participation is voluntary. You should read the information below, and ask questions about anything that you do not understand, before deciding whether to participate. Please take as much time as you need to read the consent form. You may also decide to discuss participation with your family or friends. You will be given a copy of this form for your records.

Please refer to the Informed Consent for Participation in Research Activities Phase I – online survey for the purpose of the study.

PURPOSE OF THE STUDY

The purpose of this sequential, explanatory, mixed methods study is (a) to investigate the degree to which Career Technical Education (CTE) students in selected California Community College (CCC) believe that the core components of Learning Communities (LCs) designed for traditional, academic track students exist in LCs designed for CTE students, (b) to determine which of the core components, if any, are perceived by students as most beneficial, for CTE LCs and (c) to explore any additional components that students might believe to be essential for LCs designed for CTE students.

STUDY PROCEDURES – PHASE II

At the end of the online survey, you were directed to an external link that asked if you would like to participate in either a group interview (a focus group) or, as an alternative, an individual interview over the phone or via video conferencing. You chose to participate in the alternative individual interview and submitted your name, email, and phone number in the online link.

You and the PI communicated via email and/or phone to find a mutually convenient time and format for the interview.

In the interview, the PI will give an overview of the study and review this form. The PI will then lead an interview asking about your experience as students in a LC designed for CTE. The interview will be audio recorded. The interview may take between 60-90 minutes. You may take a break at any time. The PI will stop the interview if you ask or if you appear to be uncomfortable.

POTENTIAL RISKS AND DISCOMFORTS

Potential discomforts in participating in the interview may include sitting for an extended length of time, a loss of personal time, recognition by another student, and anxiety related to sharing in a group.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

You will receive no direct benefit from participating in the interview. Potential indirect benefits to you may include a greater understanding of your own LCs and learning experience through the reflective nature of the interview questions. Potential benefits to the institution and the field may include a better understanding of best practices for Learning Communities designed for Career and Technical Education students. Potential benefits to society at large include a better learning experience for CTE students and, therefore, a better prepared workforce for manual trades.

PAYMENT/COMPENSATION FOR PARTICIPATION

You will receive $20 gift card for your participation. You do not have to answer all of the questions in order to receive the card. At the end of the interview you will let the researcher know the best address to mail your gift card to.

CONFIDENTIALITY

The records collected for this study will be ***confidential*** as far as permitted by law. However, if required to do so by law, it may be necessary to disclose information collected about you. Examples of the types of issues that would require me to break confidentiality are if disclosed any instances of child abuse and elder abuse. Pepperdine's University's Human Subjects Protection Program (HSPP) may also access the data collected. The HSPP occasionally reviews and monitors research studies to protect the rights and welfare of research subjects.

Audio recordings of the interview will be typed out as transcripts. You will be given a pseudonym in the transcripts. The name of the college will be changed in the transcripts. The PI will look at the transcripts for common themes and insights. Two additional researchers will also read the transcripts to look for common themes and insights. The additional researchers will only read transcripts with pseudonyms and will not have access to students' real names or college.

The data will be stored on a password protected computer in the principal investigator's place of home office. All data, electronic and paper, will be held a maximum of 5 years after publication of the study before it is destroyed.

COUNSELING RESOURCES

Should you choose, you may also contact **[insert college specific health center or counseling resource]** for medical and/or psychological services. The **[college specific name of the health center or resource]** is located in the **[basic campus directions]** and is open Monday through Friday with various hours of operation. You may contact the **[insert college specific health center or counseling resource and phone number]**.

SUSPECTED NEGLECT OR ABUSE OF CHILDREN

Under California law, the researcher(s) who may also be a mandated reporter will not maintain as confidential, information about known or reasonably suspected incidents of abuse or neglect

of a child, dependent adult or elder, including, but not limited to, physical, sexual, emotional, and financial abuse or neglect. If any researcher has or is given such information, he or she is required to report this abuse to the proper authorities.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

ALTERNATIVES TO FULL PARTICIPATION

The alternative to participation in the focus group is participating in an individual interview, not participating at all, or only answering only the questions for which you feel comfortable.

INVESTIGATOR'S CONTACT INFORMATION

You understand that the investigator is willing to answer any inquiries you may have concerning the research herein described. You understand that you may contact Naomi Castro at [contact information omitted for publication], or Dr. Linda Purrington at Linda.Purrington@pepperdine.edu [contact information omitted for publication] if you have any other questions or concerns about this research.

RIGHTS OF RESEARCH PARTICIPANT – IRB CONTACT INFORMATION

If you have questions, concerns or complaints about your rights as a research participant or research in general please contact Dr. Judy Ho, Chairperson of the Graduate & Professional Schools Institutional Review Board at Pepperdine University 6100 Center Drive Suite 500 Los Angeles, CA 90045, 310-568-5753 or gpsirb@pepperdine.edu.

APPENDIX K

Survey Responses All Colleges

SURVEY RESPONSES ALL COLLEGES

Part I. In my learning community, I:					
		Very often	Often	Sometimes	Never
I.1.	Ask questions in class	24	29	18	3
I.2.	Participate in class discussions or seminars	27	31	16	0
I.3.	Work on reading, writing and/or problem solving assignments during class	31	30	11	1
I.4.	Work with other students to examine complex issues during class	45	18	11	0
I.5.	Peer review my and other students' work during class	24	26	19	5
I.6.	Work with other students on group projects during class **1 response missing*	38	19	14	2
I.7.	Present my work, or work done as part of a group, to the class	21	19	24	10
I.8.	Work on connecting or integrating ideas, strategies, or skills from classes (or disciplines) included in this learning community	24	31	18	1
I.9.	Reflect on how these connections lead to new insights or understandings	24	31	17	2
I.10	Use what I'm learning to contribute to another class	26	29	16	3
I.11	Work with classmates outside of class on class assignments, homework or projects	19	17	26	12
I.12	Discuss ideas from this learning community with family members, coworkers, other students etc.	29	27	12	6
I.13	Develop friendships with classmates based on shared learning community experiences	34	23	17	0

Part II. Teachers in my learning community:					
		Very often	Often	Some times	Never
II.1	Make the goals and vocabulary of learning communities clear **2 missing responses*	34	30	7	1
II.2	Make **all** students feel comfortable about participating in class activities **2 missing responses*	41	25	6	0
II.3	Encourage students to ask questions in class **2 missing responses*	39	28	5	0
II.4	Encourage students to discuss assigned work in class **3 missing responses*	35	22	12	2
II.5	Help students establish productive working groups **3 missing responses*	34	23	11	3
II.6	Talk to me about my ideas **3 missing responses*	27	28	15	1
II.7	Encourage me to explore my ideas **4 missing responses*	31	22	14	3
II.8	Help me use my background knowledge and life experiences to learn new things **2 missing responses*	25	27	16	4
II.9	Demonstrate how to integrate concepts and skills from different classes in a meaningful way **2 missing responses*	29	28	14	1
II.10	Assign work that asks me to connect concepts and skills from different classes to reach new understandings and/or applications **2 missing responses*	25	31	13	3
II.11	Show me how to evaluate the strengths and weaknesses in my work as a basis for improvement **2 missing responses*	28	30	12	2
II.12	Encourage me to seek out other resources on campus (library, math center, writing center, learning center, student services, financial aid, etc.) **2 missing responses*	36	26	8	2
II.13	Encourage me to plan the next steps in my education with a counselor or advisor **2 missing responses*	41	22	8	1

Part III. My participation in this learning community helps me to develop my ability to:					
		Very often	Often	Sometimes	Never
III.1	Write clearly and effectively **3 missing responses*	25	30	15	1
III.2	Speak clearly and effectively **4 missing responses*	25	35	9	1
III.3	Think critically and analytically **4 missing responses*	37	26	7	0
III.4	Analyze quantitative problems **3 missing responses*	32	31	7	1
III.5	Work effectively with others to complete assignments/projects **3 missing responses*	43	24	4	0
III.6	Identify the learning strategies that are most effective for me **3 missing responses*	35	26	9	1
III.7	Persist when faced with academically challenging work **3 missing responses*	34	29	8	0
III.8	Take responsibility for my own learning **4 missing responses*	49	20	1	0
III.9	Connect my learning in school to problems and issues in my local community and the world **3 missing responses*	32	25	12	2
III.10	Be successful in future courses and programs **3 missing responses*	42	24	4	1

Part IV. In my learning community, compared to other classes, I spend more, less, or about the same amount of time:				
		More	Less	About the same amount
IV.1	Memorizing facts and figures **5 missing responses*	39	18	12
IV.2	Analyzing elements of an idea, experience, or theory **5 missing responses*	44	18	7
IV.3	Thinking through my assumptions **5 missing responses*	40	19	9
IV.4	Synthesizing ideas, experiences, or theories **5 missing responses*	40	22	7
IV.5	Evaluating information, methods, and arguments **5 missing responses*	42	21	6

IV.6	Integrating ideas, strategies, and skills from multiple sources **5 missing responses*	42	21	6	
IV.7	Applying theories or concepts to practical problems or new situations **5 missing responses*	44	22	3	
Part V: My participation in my learning community has given me access to:					
		Very often	Often	Sometimes	Never
V.1	Student support services such as a counselor, financial aid, and assistance with registration. **3 missing responses*	41	24	5	1
V.2	Academic support services such as math and English tutors, a writing center, and other assistance with my school work. **3 missing responses*	37	28	5	1
V.3	Community support services such as child care, housing assistance, and transportation assistance. **3 missing responses*	30	24	8	9
V.4	Career support services such as resume writing, job fairs, field trip to companies, and assistance with interviewing skills. **3 missing responses*	36	24	7	2

APPENDIX L

Citi Collaborative Institutional Training Completion Report

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Naomi Castro (ID: 5879646)
- **Email:** Naomi.castro@pepperdine.edu
- **Institution Affiliation:** Pepperdine University (ID: 1729)
- **Institution Unit:** Graduate School of Education and Psychology
- **Phone:** 310-782-5407

- **Curriculum Group:** GSEP Education Division
- **Course Learner Group:** GSEP Education Division - Social-Behavioral-Educational (SBE)
- **Stage:** Stage 1 - Basic Course

- **Report ID:** 21050303
- **Completion Date:** 03-Oct-2016
- **Expiration Date:** 02-Oct-2021
- **Minimum Passing:** 80
- **Reported Score*:** 94

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction (ID: 1127)	02-Oct-2016	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	02-Oct-2016	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	02-Oct-2016	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	02-Oct-2016	5/5 (100%)
Assessing Risk - SBE (ID: 503)	02-Oct-2016	5/5 (100%)
Informed Consent - SBE (ID: 504)	03-Oct-2016	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	03-Oct-2016	3/5 (60%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: https://www.citiprogram.org/verify/?add9d1ff-7075-443f-b18b-6917ea8b8f58

CITI Program
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

APPENDIX M

IRB Approval Notice

Pepperdine University
24255 Pacific Coast Highway
Malibu, CA 90263
TEL: 310-506-4000

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Date: May 22, 2017

Protocol Investigator Name: Naomi Castro

Protocol #: 17-03-522

Project Title: Measure Twice, Cut Once: Community College Learning Communities Designed for Career and Technical Education Students

School: Graduate School of Education and Psychology

Dear Naomi Castro:

Thank you for submitting your application for exempt review to Pepperdine University's Institutional Review Board (IRB). We appreciate the work you have done on your proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations 45 CFR 46.101 that govern the protections of human subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an amendment to the IRB. Since your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite the best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete written explanation of the event and your written response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at community.pepperdine.edu/irb.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval. Should you have additional questions or require clarification of the contents of this letter, please contact the IRB Office. On behalf of the IRB, I wish you success in this scholarly pursuit.

Sincerely,

Judy Ho, Ph.D., IRB Chair