CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

COMPETENCY-BASED EDUCATION WITHIN A COMMUNITY COLLEGE CONTEXT

A Dissertation submitted in partial fulfillment of the requirements

For the degree of Doctor of Education in Educational Leadership

by

Arineh Arzoumanian

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The Dissertation of Arineh Arzoumanian is approved:

_________________________ ____________________
Richard Moore, Ph.D. Date

_________________________ ____________________
Deborah Bird Date

_________________________ ____________________
Julie Gainsburg, Ph.D., Chair Date

California State University, Northridge
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I dedicate this dissertation to my parents, Armik and Lorik Arzoumanian, who taught me the value of hard work and supported me in my journey. Also, I would like to thank my committee members, especially my committee chair, Dr. Julie Gainsburg for their time, dedication, and constructive feedback to my research.
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ABSTRACT

Competency-Based Education within a Community College Context

By

Arineh Arzoumanian

Doctor of Education in Educational Leadership

The community college system in the United States was established in 1901 with the mission to provide broad access to higher education (Sydow & Alfred, 2013). Today, increasing college completion has become as central as the mission of these institutions (Laine, Cohen, Nielsen, & Palmer, 2015). A change in philosophy is needed in our community colleges to meet the nation’s goal of doubling the number of graduates by 2020 (American Association of Community Colleges, 2015).

Competency-Based Education’s (CBE) results-oriented format allows for students with different learning methods to use prior learning and open educational resources to prove mastery of the material (Weise & Christensen, 2014). If designed and implemented effectively, this model often allows students to move quickly through degree programs (Mendenhall, 2012). The CBE model takes a different approach to learning from the traditional seat-time education model (Laitinen, 2012). This model allows students to work through a program of study and demonstrate knowledge and competency to receive credit at their own pace (Priest, Rudenstine, Weisstein, & Gerwin, 2012). Significant changes are required in practices and current policies of higher education institutions in order to transition to the CBE model of learning (Krause, Dias, & Schedler, 2015). Thus the full commitment of faculty, staff, and leaders of an institution is needed to overcome the challenges in the design and implementation processes (Liu, 2015).
In recent years there has been an explosion of interest in CBE among students, institutions, employers, and policymakers (Laitinen, 2012). The adoption of the CBE model by four-year universities such as Western Governors University (WGU) and Southern New Hampshire University (SNHU) has been widely publicized in recent years (Book, 2014). However, despite the model’s relevance to more career-focused programs at two-year institutions, community colleges have not received equal attention for their efforts towards embracing the model (Le, Wolfe, & Steinberg, 2014). Hence the purpose of this qualitative study was to explore the current CBE initiatives at community colleges in the United States and to investigate the campus leaders’ role in the design and implementation of the new model. The research questions addressed in this study were the following: 1) What are the current approaches to design and implementation of CBE in community colleges? 2) What leadership strategies do community college leaders use to guide their institutions toward design and implementation of CBE?

Second-order change and transformational leadership model frameworks were adopted in this study. The reason for choosing these frameworks was to study the effectiveness of transformational leadership in addressing the systemic change to the core of the institution introduced by CBE initiatives at community colleges. An online survey and individual interviews of individuals with direct involvement in the design and implementation of CBE programs were conducted to address the research questions. Fourteen individuals representing 13 campuses completed the survey and ten participated in one-on-one interviews.

Data were analyzed based on predetermined themes from the literature review to explain the current approaches to CBE at community colleges. A summary of
development, implementation, challenges, and the leadership styles of CBE programs in each participating college was developed to highlight the key elements and provide more detailed insights into the approaches. The findings of this study suggest: (a) community colleges are following a similar trend to each other in the curriculum development and delivery of their CBE programs, (b) in the beginning stages of the design process, CBE leaders focus on professional development internally, while learning about CBE best practices externally, (c) allocating resources for professional development for all stakeholders is considered critical to the CBE progress, and (d) senior administrators and specifically the college President’s support is essential in the success of the CBE initiative.

According to the participants, a plan aligned with the culture of the institution is ultimately the strategy for successful change in the context of CBE programs. The leaders raised a greater awareness among faculty and staff about the benefits of CBE to the college, provided rigorous professional development, and empowered faculty across campus to engage in the process. It is evident that the design and implementation of CBE initiative was a second-order change for all community colleges. Also, transformational leadership practices were identified in the response of the leadership to the challenges introduced at different stages of the initiative.

This study was an attempt to fill a gap in the research literature and gather data extending the current knowledge about CBE initiatives at community colleges. Individuals directly involved with the design and implementation of the CBE programs the insights of individuals are instrumental to the growth of the new model in higher education.
CHAPTER I: STATEMENT OF THE PROBLEM

Why Competency-Based Education?

Many U.S. leaders have expressed the belief that the economic prosperity of our nation is associated with improvement of the education of its citizens. Obtaining college education is considered to be a pathway toward achieving the American dream of upward social and economic mobility (Schwartz & Hoffman, 2015). Those who provide higher education must accept responsibility for a product that is relevant, useful, and has intrinsic economic utility (Taylor, 2000).

The United States has fallen from being the world’s leader in the percentage of citizens holding higher education credentials to 16th among the preeminent 34 industrialized economies in the world (Risley, 2014). Concomitantly, a study shows that in less than six years, 67 percent of all new jobs in the U.S. providing livable wages will require a post-secondary credential (Risley, 2014).

More and more students are entering our higher education institutions increasingly under-prepared. Sixty percent of all community college students must attend at least one developmental course (Bailey, Jeong, & Cho, 2009). A student entering community college who must enroll in at least three developmental classes has virtually no chance of advancing to college level credit courses (Bailey, 2009). Eighty-five percent of students enrolled in credit courses in community colleges intend to complete a baccalaureate degree; studies suggest that only 10 to 25 percent of these students actually complete their degree within six years (Risely, 2014).

According to the Department of Labor, there are more than three million unfilled middle to high-income jobs, as a consequence of higher education institutions training
students for jobs that no longer exist (Risley, 2014). Six hundred thousand manufacturing jobs in the United States are unfilled today, as are 500,000 jobs in healthcare. Automotive companies are bringing jobs back from overseas, but Americans lack the skills necessary to fill these jobs (Biden, 2014). A workforce is needed with 21st century skills if the U.S. is to compete successfully in a global economy (Black & Lynch, 2003).

Returning our nation to its economic stability will require several million more adults with these contemporary skills. Training millions of workers requires us to examine how our colleges operate, what and how they teach, how they are funded, how they work with other educational institutions, and how they engage with industry.

**Critical Role of Community College**

**Economic perspective.** From an economic perspective, society as a whole enjoys substantial financial returns on its investment in higher education. In addition to widespread productivity increases, the higher earnings of educated workers generate higher tax receipts at the local, state, and federal levels. Moreover, consistent productive employment reduces dependence on public welfare programs (Baum & Payea, 2005).

Community colleges adopt curricular functions focused on the academic transfer preparation to 4-year universities, and some community colleges adopt additional services such as local small business training and economic and workforce development (Bailey & Averianova, 1999; Bigelow, 2011). The correlation between educational attainment and economic vitality creates external pressures on educational leaders to adopt a mission that supports economic development (Bigelow, 2011; Gibbs, 2005). Community colleges that reach out to meet the local needs of their community are becoming a major force for the improvement of the local community through education (Bigelow, 2011; Cross, 1985).
Social perspective. From a social perspective, community colleges have a direct impact on the wellbeing of citizens. Adults with higher education are more likely to engage in volunteer work and to vote, and are more likely to be in good health and less likely to smoke. The children of well-educated adults have higher cognitive skill, and are better able to concentrate than other children. All these benefits improve social health and decrease welfare expenditures (Baum & Payea, 2005).

Providing access to higher education is essential for the development and sustainability of the middle class (Weise & Christensen, 2014). Without access, the gap between socioeconomic classes will continue to widen and poverty rates will continue to grow (Sydow & Alfred, 2013). For the first time in our nation’s history, a child born into poverty stands little chance of emerging from poverty (Risley, 2014). Providing access to higher education by itself, however is not enough. The challenge to our community colleges has as much to do with increasing the number of credentials or degrees earned as it has in granting access (The White House, 2014). The culture today for supporting completion in many higher education institutions may be symbolized by the professor who stands in front of class and proudly assures students that one of three in the class will not complete the course (Laine, Cohen, Nielson, & Palmer, 2015). The culture of a “right to fail” must be replaced with intentional and intrusive support to complete a course of study. A culture is required that values and achieves excellence (Laitinen, 2012).

Community college setting. Community colleges educate nearly half of the country’s college students, a fivefold increase in the past 40 years (Complete College America, 2010). Community colleges have done a remarkable job in convincing the majority of young people that high school diploma is not enough to qualify for a good
jobs and brighter future (Bailey, Jaggars, & Jenkins, 2015). Public community colleges provide open enrollment and the essential ladders to higher achievement (Complete College America, 2010). However, access without success is an empty promise and a missed opportunity, with severely negative economic consequences (Sydow & Alfred, 2013). According to Complete College America report (2014), only five percent of community college students finish an associate degree on time, and only 16% successfully finish a one or two-year certificate program. Given that two-thirds of all jobs by 2020 are projected to require advanced training or education, more students must successfully complete these programs (Carnevale, Smith, & Strohl, 2010; Sonenshine & Kanter, 2013).

**Demographics.** According to a recent study by a nonprofit and nonpartisan organization, Public Agenda (2014), 60 percent of community college students work more than 20 hours, and quarter of these students more than 35 hours per week. Nearly 40% of community college students attend school part-time, and a quarter of these students have children to support (Johnson, Rochkind, Ott, & DuPont, 2014). Yet, they still manage to attend college to pursue a better life. The cost of higher education rose more than 600 percent between 1980 and 2010 (Quandt, 2014). According to David Schejbal, Dean of Continuing Education, Outreach and e-Learning at the University of Wisconsin – Extension, “Higher education is overpriced, inefficient, elitist, and inaccessible” (Schejbal, 2012, p. 374).

At the same time, the trend of an increasing proportion of nontraditional learners is expected to continue. In spite of rising costs of higher education, the number of nontraditional (aged 25 or older) students attending college is increasing, as is the number
of students who enroll part-time (NCES, 2015). In 2006, 2.6 million nontraditional students enrolled full-time in degree-granting institutions, and 4.7 million students enrolled part-time. In 2011, 3.5 million nontraditional students enrolled full-time in degree-granting institutions, and 5.4 million students enrolled part-time (NCES, 2015). “From 2011 to 2021, National Center for Education Statistics (NCES) projects a rise of 13 percent in enrollments of students under 25, and a rise of 14 percent in enrollments of students 25 and over” (Hussar & Bailey, 2013).

With so much at stake, community college students, whether traditional or non-traditional, need to finish their studies as soon as possible. They need a clear pathway to a quality degree or a career certification to qualify for a good job (Labi, 2015). Students are looking for self-paced education with personalized schedules they can count on and control to balance job, family obligation, and school (Ellucian, 2016). This issue of balancing between personal obligations and school is even more amplified for non-traditional students. A recent survey showed that the largest barrier for adults in the work force interested in returning to school to complete a post high school credential was family responsibility (36%) followed by cost (28%) (Lumina Foundation and Gallup, 2013). The longer matriculation takes, it is more likely that personal affairs will intrude and interrupt success. Today’s traditional route to a degree does not work for students, who need a flexible option to complete their degrees faster with less debt (Ellucian, 2016).

Semester-long, multiple-level remediation courses; limitless periods of exploration before declaring a major; and even midnight courses are examples of well-intended attempts to meet students’ academic needs (Sydow & Alfred, 2013). However,
coupled with other policies, such as additional credit requirements or transfer rules that do not recognize credits earned at multiple campuses, the result has been that the time to degree for many students has been significantly lengthened (Sugar, 2010).

Community colleges must do a better job of advising students about potential career paths prior to enrollment, rather than simply offering advice on which course sections to take (Dadgar, Venezia, Nodine, & Bracco, 2013). They need to prepare students to become lifelong learners (Risely, 2014). Certificates earned by students should not be perceived as terminal, but stackable and leading to higher certifications and degrees, including applied baccalaureate degrees (Ganzglass, 2014). More importantly, these certificates should equip students with the skills needed for jobs. Students need quality advisement, a clear pathway, and a set of tools to ensure that they will complete their course of study on time (Risely, 2014).

The U.S. community college system was established in 1901 to provide broad access to higher education. Today, college completion must be seen as central to the mission of these institutions. A sea-change in philosophy is needed in our community colleges to meet the goal of doubling the number of graduates by 2020 (Schmit, 2013; Thomas, 2014).

**Competency-Based Education**

Competency-Based Education (CBE) has been defined in multiple ways and interpreted differently across academic programs (Gervais, 2016). Riesman (1979) defines CBE as:

A form of education that derives curriculum from an analysis of a prospective or actual role in modern society and that attempts to certify student progress on the basis of demonstrated performance in some or all aspects of that role.
Theoretically, such demonstrations of competence are independent of time served in formal educational settings (p. 6).

The CBE model for learning is not based on seat-time. Instead, it allows students to work through a program of study at their own pace with more time if they are struggling (Digital Promise, 2015). When students feel that they can demonstrate knowledge and competency, they are tested or they complete a project to confirm mastery and then progress to fulfillment of the next program requirement (Priest, Rudenstine, Weisstein, & Gerwin, 2012).

CBE’s results-oriented format allows students to use prior learning, open educational resources, and whatever learning methods work well for them, as long as they can prove mastery of the material (Thomas, 2014). This approach often saves time and money, allowing students to move quickly through degree programs and spend less on tuition (Mendenhall, 2012). According to the U.S. Census Bureau, there are 36 million underserved adults with some prior postsecondary coursework, but no degree; CBE is especially well suited for those adults who are looking to accelerate their careers. Table 1 outlines a comparison between traditional education and CBE models.

Although interest in CBE is growing, the idea is not new. CBE was introduced in higher education institutions in the United States in the late 1960s when, as is the case today, employers and government officials were concerned that students were not entering the workforce with the skills needed for the job (Kovacs, Johnstone, Cutter, Zartman, Gordon, & Smith, 2014). One distinction between the 1960s and today, however, is the speed with which emerging technologies are changing higher educational environments and the workplace (Pillay, Boulton-Lewis, & Wilss, 2004). CBE has
gained national attention as another delivery tool to meet the needs of non-traditional students due to its success in providing academic support, career guidance, and coaching to navigate college services to non-traditional students. Public policy makers, students and their families, and business leaders all express a sense of urgency about adapting new technologies and training a relevant workforce (Johnstone & Soares, 2014).

Rising tuition, decreases in budgets, rapid advances in technology, labor market demand, and governmental expectations to improve graduation rates have created the impetus for change in higher education (Neely, 2013). This urgency was reinforced in 2013 by the Obama Administration’s announcement of a new college/university policy agenda, “Making College Affordable: A Better Agenda for the Middle Class” (The White House, 2013), which highlighted the role of the developing technologies, institutional curriculum-design processes, and new delivery methods as keys to providing an excellent and affordable postsecondary education.
Table 1  

*Comparison Between Traditional Education and Competency-Based Education Models*

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<th>Competency-Based Education</th>
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<td><strong>Learning Pace &amp; Path</strong></td>
<td>Students advance at the instructor’s pace regardless of whether they mastered the</td>
<td>Students receive customized supports to ensure they fulfill their academic goals on their</td>
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<tr>
<td></td>
<td>learning objectives or need additional time</td>
<td>own pace</td>
</tr>
<tr>
<td><strong>Learning Setting</strong></td>
<td>Learning happens in a classroom setting (in-person or online)</td>
<td>Learning can take place anywhere regardless of the environment</td>
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<tr>
<td><strong>Learning Measurement</strong></td>
<td>Learning is measured by the time spent and grade received in a course</td>
<td>Learning is measured based on students’ ability to master each competency at their own pace</td>
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<tr>
<td><strong>Curriculum Design &amp; Delivery</strong></td>
<td>Each course has one instructor who designs and delivers the curriculum with very little differentiation for individual students.</td>
<td>Educators work collaboratively with each other to develop an individual learning plan for every student based on student interests, learning style, and preferences.</td>
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<tr>
<td><strong>Industry Partnership</strong></td>
<td>Program advisory committees provide advice to the instructors and administrators of CTE programs.</td>
<td>Program advisory committees are directly involved in the development and assessment of the competencies to ensure curriculum alignment with industry standards</td>
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According to the announcement, CBE is one of the specific examples of new approaches that can do just that. CBE reorients the educational process toward
demonstrated mastery and application of knowledge and skills in the real world and provides a means for helping quality and affordability co-exist in higher education (Johnstone & Soares, 2014). In a true competency-based program, students take as much or as little time as they need to learn the material. They make progress toward degree completion only by mastering individual competencies instead of taking courses to accumulate credit hours (Bergeron, 2013; Thomas, 2014).

The framework. When designing a CBE program, faculty members first look at the body of knowledge and skills required of the student at a given level and discipline. Under this model, educators work collaboratively with industry partners to connect the content areas with their real world applications to guarantee the skill attainment (Public Agenda, 2015). Also, students partner with educators to solve real-world problems, rather than being at the receiving end of the content. Each student knows how his or her learning is connected to competencies, and what criteria will be used to determine mastery (LeClair, 2015). Students receive just-in-time feedback and instruction directly from educators and are guided towards applying learning to solve real world problems (Smith, 2014). The notion of facilitating learning or partnering with students in the learning process (Prensky, 2010) breaks down many of the imaginary walls that persist in traditional departmental disciplines. Content-area expertise is essential for the educator, but the practice of collaborating with educators to facilitate cross-disciplinary learning best serves the learner’s needs (LeClair, 2015). This reflects the fact that most real-world learning is rarely isolated to one discipline area alone (Lombardi, 2007). CBE programs create that opportunity for learners by engaging educators and students in an authentic learning experience (The Council of Independent Colleges, 2015).
The online CBE initiative, “Learn on Demand,” in Kentucky’s two-year college system, is an excellent example of an authentic CBE program. The self-paced program features modular courses that are part of a sequence of credentials that lead to degree completion. The modules can be transferred to any of the 14 colleges within the Kentucky’s two-year college system. Growing number of students within the Kentucky’s system have been attracted to the convenience of the classes, which can be broken into modules that take as little as three weeks to complete. The program offers 15-week courses as well as courses that are broken into three or more sub-courses. Students are able to enroll into the program and begin their coursework at anytime during the school year. Groups of faculty who develop the courses determine the most logical competencies or learning outcomes to group together in a module. All modules build toward a certificate or associate degree, including ones in business administration, information technology and nursing. For instance, the course “Principles of Management” is part of the business administration degree, and it comprises six modules: introduction to management, planning, decision making and the manager’s environment, the process of organizing, leading and staff, controlling, and special concerns in management. Each module is worth a half-credit. Students are changed a flat tuition of $140 per credit and are allowed to enroll into the program anytime during the school year. There are no class schedules or assignment deadlines in the self-paced courses (Fain, 2012).

Kentucky’s initiative also attempted to make remedial education more efficient. Various studies and advocacy groups have pointed to the problem of students taking remedial courses they don’t need, which can be expensive and discouraging (Jobs for the Future, 2016). The initiative includes a college readiness course that enables a student to
test out of individual modules by breaking down their remedial requirements into small pieces. For instance, a student who tests into the highest level of remedial math normally has to take a 16-week long course to receive the course credit. In the Learn on Demand program, this student might only have to be enrolled in one three-week module (KCTCS Online, 2016). CBE programs such as Learn on Demand offer a more efficient solution to remedial education by providing just-in-time remediation.

Students in CBE programs can reduce the overall cost of tuition by rapidly progressing through the curriculum. Some competency-based programs price tuition as an “all you can eat” model, in which students pay a set amount every semester (frequently defined as six months) (Mendenhall, 2012). Students can earn as many credits as they wish during that period, to be able to demonstrate mastery of the competencies attempted (Laitinen, 2012). Students enrolled in a traditional program that charges tuition per credit hour invariably experience higher tuition bills (Quandt, 2014). When cost is more dependent on competencies and less dependent on prescribed sequences, individual progress will be regarded and reinforced (Sturgis, 2012).

In educational programs using traditional credit hours, an important measure of passing or failing is time spent in the classroom, not full understanding (Shavelson, 2007). As long as the learner has attended class and mastered above 60 percent of the material required for the course, course credit is earned and students are allowed to progress to the next course and ultimately graduate (Johnstone & Soares, 2014).

Educators and employers are concerned that under this model, some students will move forward before they are ready, and may as a result be underprepared for what lies ahead in workplace. However, students in the CBE model, at any campus, are required to
achieve objectives and demonstrate understanding above 80 percent to be allowed to move forward, guaranteeing they are ready to move forward (Laitinen, 2012).

**Two principal approaches to CBE.** There are two main approaches to CBE practiced by institutions: 1) A course-based approach, 2) A direct assessment approach.

In a course-based approach, institutions take the same instructor-led and credit-hour-based based approach to offering courses as traditional programs do (Brian, 2015). Institutions utilizing this approach define competencies that are expected of graduates, and students demonstrate these competencies by successfully completing courses that relate to the required competencies. This form of CBE mainly differs from the traditional model in that it is self-paced and the programs can operate on campus or off, in the classroom or online, accelerated or normally paced (Pearson, 2015). Some course-based institutions embed competency assessments into each traditional course. In other cases, institutions offer the options of awarding credit for prior learning as part of their course-based approach (Book, 2014).

Invented in 2013, direct assessment is a term used by the U.S. Department of Education to represent a subset of CBE that is not based on traditional academic terms or credits. The direct assessment approach disregards conventional courses. A student’s progress is not measured by time spent on courses, but rather through verifiable assessments that determine what competencies the student has mastered (Ellucian, 2016). Direct assessment programs allow students to proceed at their own pace rather than to progress through courses offered in a traditional academic term. Because conventional grades are not assigned and no term length is imposed, the transcript reflects competencies attained rather than grades or credit hours earned. Direct assessment
programs establish “credit-hour equivalencies” for the competencies they evaluate and may choose to provide a transcript indicating courses or credit equivalences in addition to the competency transcripts (Council of Regional Accrediting Commissions, 2015).

Well-structured programs and well-designed Learning Management Systems provide students with all material they need to establish proficiency (Bailey & Averianova, 1999). In the direct assessment approach, students usually do not need to purchase textbooks, because course materials are available online at all times with no extra cost. The College Board estimates that students in the U.S. spend on average $1,200 per year on textbooks (Baum & Ma, 2013). This approach presents a big shift in instructional and operational systems in the institution.

Currently, CBE programs must be either course-based or direct assessment. An institution cannot combine the two approaches because of Title IV funding requirements (Ellucian, 2016). Programs utilizing the direct assessment approach, which account for the bulk of the growth in CBE programs, tend to be online programs (Klein-Collins, 2012).

**Current Structure of CBE Programs**

In recent years there has been an explosion of interest in CBE among students, institutions, employers, and policymakers (Laitinen, 2012). In 1990, no more than 50,000 students were enrolled in CBE programs. At the time, only 50 institutions of higher education, including public and private colleges, offered CBE programs. Today, as many as 150 offer some form of CBE programs, with as many as 400 others with programs in development. Nearly 200,000 students were enrolled in CBE programs in 2013, with widespread efforts to attract students through innovative and creative new delivery formats (Fleming, 2015). By 2020, the U.S. Census Bureau estimates that 750 institutions
of higher education will offer CBE programs and overall enrollments will exceed 500,000 students, mostly adults in self-paced CBE programs offered wholly or mostly in an online format (Ellucian, 2016; Fleming, 2015).

To make a comprehensive transition to CBE, significant changes are required in current policy and practice at institutions of higher education. While the adoption of competency-based approaches by four-year universities such as Western Governors University (WGU), a nonprofit online university founded and supported by the Western Governors Association, and Southern New Hampshire University (SNHU) have been widely publicized, CBE at community colleges has received less attention despite the model’s relevance to more career-focused programs at two-year institutions (Book, 2014).

The evolution of CBE programs can be described by three major developments: 1) Pioneering institutions in the 1970s began assessing competencies and issuing credit for skills gained outside of the classroom, 2) Western Governors University, launched in 1995, added self-paced learning through online delivery of competency-based degree programs, and 3) Southern New Hampshire’s College for America gained approval for federal financial aid for its direct assessment program, a refinement of CBE in 2013 (Hettinger, 2014; Kamenetz, 2013).

The drive to create CBE programs in the 1970s was due to the changing demographics of U.S. college students. The Higher Education Act of 1965 prompted higher education institutions to increase access for adult students by offering grant funds to reconfigure courses to accommodate working adults (Cervantes, Creusere, McMillion, McQueen, Short, Steiner, & Webster, 2005). Beginning in 1973, the U.S. Department of
Education Fund for the Improvement of Postsecondary Education provided grant support for adult-focused CBE programs at institutions such as Alverno College and Regents College, now Excelsior College (Klein-Collins, 2012). The emphases in these early programs were acknowledgement of the adult’s prior learning and emphasis on performance rather than attendance. Although these assessment-based approaches were important at the time and continued over the next four decades, they were “virtually unheard of in mainstream higher education” until recent years (Klein-Collins, 2012, p. 5).

In 1995, Western Governors University (WGU) originated as the first distance-education, self-paced, competency-based degree granting institution (Lorenzo, 2007). Governors from the Western Governors Association drove the development of WGU, a response to increasing higher education costs and access concerns. Enrollment in WGU has increased from 500 students in 2003, when it earned regional accreditation with the Northwest Commission, to 8,000 students in 2007 (Lorenzo, 2007) and 40,000 students in 2014 (Johnstone & Soares, 2014).

An even more recent CBE development is federal government approval of direct assessment of student learning, rather than credit hours, for financial aid eligibility. Although a 2005 law allowed for direct assessment for financial aid eligibility, the first higher education institution to apply and to be approved to offer direct assessment was Southern New Hampshire University’s College for America (SNHU) in 2013 (College For America, 2013). The federal government reported the following requirements of a direct assessment program for financial aid purposes:

Instead of using credit hours or clock hours as a measure of student learning, instructional programs may use direct assessment of student learning, or
recognize the direct assessment by others of student learning. Examples of direct measures include projects, papers, examinations, presentations, performances, and portfolios (U.S Department of Education, 2013).

Unlike WGU, which translates competencies into the credit hour through individual courses, institutions that use direct assessment require no translation of competencies into the credit hour or into individual courses (Fain, 2014). At SNHU, students earn an Associates of Arts degree by demonstrating competencies in an online, self-paced learning format. The 120 required competencies are not organized within courses but are attained through projects. All 120 competencies must be mastered in order for students to earn the degree, similar to the unit requirement for a traditional bachelor’s degree (College for America, 2014).

**Change and Leadership Approach to CBE at Community Colleges**

Even though college-level CBE programs are emerging across the country, these programs typically serve students who are already prepared for higher education or have some college experience, leaving out a significant number of academically underprepared, low-income students who may benefit tremendously from a faster route to college completion (Jobs for the Future, 2016). This is partially a reflection of the general belief among program developers that CBE students need college-ready skills in reading, writing, math, and computer literacy in order to be successful (Person, Goble, & Bruch, 2014). It is also a reflection of the early stage of development of modern CBE. Higher education faculty already face complex design challenges in creating high-quality CBE programs for college-ready students, so assisting academically underprepared students may not be their top priority. However, CBE is to be designed to meet students wherever they are on their individual path to postsecondary credential and move them forward.
Based on its 30 years of work developing postsecondary career pathways for underprepared learners, Jobs for the Future (2016) concluded that flexibility, personalization, acceleration, and clear connection to careers are essential to ensuring student success. CBE has the potential to offer all of these at a greater level than traditional higher education due to its student-centered learning foundation. Therefore, CBE requires higher education faculty and leaders’ commitment to overcome the challenges in design and implementation processes.

CBE requires changes at the institutional level such as scheduling protocols, financial aid policies, and content development and delivery. These transformations demand strong leadership focused on improving individual and collective problem-solving abilities in institutional change processes (Levy & Merry, 1986). In educational contexts, Leithwood (1992) described this type of leadership as transformational leadership. Transformational leadership has a significant impact on institutional change (Leithwood & Jantzi, 2005; Liu, 2015). Leithwood, Jantzi, and Fernandez (1993a) first described the concept of an individual’s commitment to change and believed that the commitment to change is the core element in building institutional capacity to embrace the change process. Transformational leaders share a vision with their followers, inspire, mentor, coach, and respect their followers, and foster creativity to promote team spirit within the institution (Bass, 1990; Bass & Riggio, 2006). The emergence of transformational leadership has been proven crucial to generating effective change (Liu, 2015).

CBE, which has received a lot of attention in recent years, is so new that no one knows enough yet to make strong claims about its success. Institutions are experimenting
with and learning about CBE. In this study, I aimed to explore the CBE programs community colleges are attempting to design and implement across the nation. In addition, I intended to examine campus leaders’ experiences in the process through a transformational leadership lens, and to assess the effectiveness of transformational leadership in supporting second-order change.

**Problem Statement**

From an educational standpoint, the U.S. is not yet in the Twenty-First Century (Bramante & Colby, 2012). The Twentieth Century model of delivering content inside classrooms during specific times seems to not work the way it was intended for many students today. Nonetheless, great efforts continue to be made to transform the outdated system (Morrison, 2003). New models for delivering content and measuring success such as CBE is among these efforts (Kelchen, 2015).

The design and delivery of a CBE model represents challenges in development and service that touch every aspect of an institution (Johnstone & Soares, 2014). While policies and regulations influence the process of moving toward CBE, effective leadership at the institutional level is crucial in bringing change (Bell, 1986). Given that virtually every process in an existing college structure needs to be changed to integrate CBE into the institutional structure, centralizing administrative activities and support systems are key to support CBE and to improve its chance of success.

Higher education has not yet changed its philosophical approach in response to new methods to learning such as CBE. Community college leaders face the challenge of responding appropriately and effectively to the needs and challenges of CBE. This study aimed to provide an improved understanding of different approaches to CBE, as well as
the community college leaders’ responses to the challenges in the design and implementation of CBE at community colleges nationwide.

**Purpose of the Study**

Despite the strong arguments in favor of CBE as a new model of teaching and learning at community colleges, the change may be inconsistent with the existing procedures and processes and may be seen as threatening or difficult for some internal and external stakeholders such as students, faculty, and public to envision. It is possible for some to see this different approach as inevitably leading to the deconstruction of public education, and there will undoubtedly be resistance to such dramatic systemic change. It requires skilled leadership to build trust and to move forward collaboratively. This study investigated the campus leaders’ role in the design and implementation of CBE, and considered community colleges’ unique approach to the CBE initiative.

The research questions addressed in this study were:

1) What are the current approaches to design and implementation of CBE in community colleges?

2) What leadership strategies do community college leaders use to guide their institutions toward design and implementation of CBE?

**Significance of the Study**

Competency-based degree programs represent a qualitative leap in postsecondary education policy in many areas, including funding, assessment of student learning, and operations. Given the dramatic difference between CBE and traditional educational approaches, CBE poses one of the greatest challenges for public two-year institutions. This study investigated the leadership practices in providing an opportunity for CBE to be implemented and integrated within already existing institutional structures.
This study is significant because it highlights the operational and institutional needs of community colleges to begin a CBE program and how leaders address the needs and challenges during the design and implementation processes. This study extends our knowledge regarding the impact of leaders in accomplishing change in public institutions of higher education. Furthermore, it has the potential of influencing professional development programs relevant to CBE for different group of leaders involved in the programs.

Methodology Overview

In this study, a transformational leadership model framework was adopted in the context of introducing a second-order change to an institution. The reason was to explore effectiveness of this leadership model on enhancing the individual and collective commitment to change in design and implementing CBE programs at community colleges (Hallinger, 2003; Heck & Hallinger, 1999; Leithwood, Jantzi, & Steinbach, 1999; Liu, 2013; Northouse, 2007).

I selected a multiple case study approach for comparative analysis within campuses as well as across them, to better clarify similarities and differences (Creswell, 2012). A case-by-case design allowed for an in-depth investigation of perceptions, practices, and the understanding of community college leaders as they collaborated to implement CBE at their institutions (Creswell, 2012).

An online survey and one-on-one interviews were conducted to address the research questions. I conducted an online survey of CBE liaisons, individuals directly involved in the design and implementation of CBE programs, at two-year institutions involved in a CBE initiative. Some participating colleges were in initial stages of planning, and some were implementing a CBE program. The goal of conducting the
survey was to determine the current approaches to design and implementation of CBE in community colleges across the nation. In the online survey, participants were invited to participate in a personal interview, and if interested, they were asked to furnish preferred contact information. Ten individuals participated in one-on-one interviews. Interviews allowed for “in-depth explorations of activities and processes based on data collection” (Creswell, 2007, p. 476). Data collected from the survey and the interviews allowed me to answer both Research Questions. The collective findings of this study were expected to inform future approaches to CBE in community colleges.

To identify current approaches to CBE, I categorized each survey using predetermined themes related to CBE design and implementation and transformational leadership from the literature review. In the interview analysis, I labeled the interview data that provided details about the development, implementation, challenges, and the leadership of the CBE programs accordingly. I assigned key themes to the CBE approaches and leadership styles required to address the challenges in the CBE design and implementation processes. Also, I developed a summary of each CBE program based on the information shared by the interviews. Lastly, I provided my interpretation and discussion of the findings in Chapter 5.

**Limitations and Delimitations**

Regardless of how carefully a study is designed and conducted, there are always expected limitations that should be explicitly acknowledged (Bloomberg & Volpe, 2012). Sampling was exclusive rather than exhaustive, and consequently theoretical. The quality of data collection, analysis, and conclusions were dependent on my ability as the researcher. Combined with possible fallibility of the participants, some concern about the credibility and dependability of the study persists. Most of the current CBE initiatives at
community colleges were grant funded, which might have restricted those institutions’ abilities to address the challenges because of the requirements of the grant. In addition, the leaders might have been limited to what information they could or were allowed to share about their programs because of grant restrictions. Therefore, the data gathered in the survey and interviews might have not reflected the institutional approaches to implementation of a program.

This study contained delimitations, which I created to clarify the boundaries of the study and to narrow its scope (Bloomberg & Volpe, 2012). This study was bounded by recognized participant community colleges involved in CBE initiatives in the United States. The research relied on presumption that CBE liaisons would be responsive and that a sufficient number would be willing to participate in the research.

**Organization of the Remainder of the Dissertation**

This chapter described the problem, defined the purpose and significance of research to address this problem, provided an overview of the study’s methodology, and its limitations. Chapter Two surveys and reviews the literature by identifying and describing existing research related to CBE, and campus leaders’ contribution to the success of the design and implementation of CBE programs. Chapter Three provides the detailed methodology followed for data collection. Chapter Four provides the findings derived from the collection and analysis of the data. Chapter Five includes discussion and a conclusion based on my interpretation of the findings, as well as the implications and recommendations for future research. The dissertation concludes with references followed by related documents in the appendices.
CHAPTER II: LITERATURE REVIEW

The purpose of this study was to explore current CBE approaches community colleges nationwide employ to develop and implement their Competency-Based Education (CBE) initiatives. It also examined the leadership practices and strategies in facilitating the changes in development and implementation processes of CBE at community colleges. The following research questions addressed the purpose of this study: 1) What are the current approaches to design and implementation of CBE in Community Colleges? 2) What leadership strategies do community college leaders use to guide their institutions toward design and implementation of CBE?

Research shows development and facilitation of CBE requires significant changes at the institutional level (Donohune, 2010). Creating a CBE program touches every structure within an institution and requires that colleges and universities undergo dramatic transformations to develop and implement their CBE initiatives (Bell, 1986). However, higher educational institutional systems are resistant to change. Community college leaders continue to face the challenge of responding appropriately and effectively to the change that design and implementation of CBE requires in their institutions (Weick & Quinn, 1999).

This chapter begins by discussing change in higher education. Then, two different leadership styles and change orders are discussed. The chapter ends with a review of popular CBE programs across the nation and general insight into the leadership needed for successful design and implementation of CBE programs.

Higher Education and Change

While the call for change in higher education is significant, and there is broad agreement that changes in society dictate changes within the academy, higher education
has remained slow to change (Murray, 2008). The literature on change in higher education points to the unique nature of higher education institutions as responsible for this slow, or sometimes non-existent change (Baldrige, Ecker, Curtis, & Riley, 1978). “The running joke about higher education is that change doesn’t come eventually, but glacially” (Weise, 2014). Weise (2014) observes that much academic inertia originates in the complicated business model of delivering higher education, as well as the required involvement of numerous stakeholders on and off campus. Tradition plays a large role in how decisions are made among multiple stakeholders such as administrators, faculty, shared governance committees, unions, and trustees on campuses. Academicians tend to adapt to these traditional constraints as culture and processes become intrinsic inefficiencies in the system – just the way things have always been done. The embedded, habitual inefficiencies and normative practices such as seat-time and semester-long courses as the only measures to demonstrate learning are among the examples of how traditional institutions continue to invest in processes that drive increased costs for consumers of higher education (Christensen & Kristin, 1999; Schein, 1988; Weise, 2014).

Some higher education institutions are beginning to acknowledge the inefficiencies inherent to measuring learning by seat-time (Fain, 2013). They are becoming more willing to experiment with CBE programs, to begin to re-center goals away from the fixed learning outcomes, and to rethink strategic plans and methods (ETS, 2013). Institutional leaders must understand that regardless of the established inefficiencies in the organization, the CBE model must be given the latitude to exist
Leadership and two different approaches to leading change that allows CBE model to flourish are discussed in the following sections.

**Leadership and Change**

Leadership is the critical component in successful organizations (Kouzes & Posner, 2002). Kouzes and Posner (2002) explained that individuals develop leadership skills through their own values and experiences. Leaders advocate for change, while managers pursue stability (Burnes, Todnem, & Oswick, 2011; Barker, 2001). Leadership is essentially concerned with bringing about transformational change; management is primarily concerned with achieving stability and predictability by ensuring that subordinates comply with the rules, regulations, and working procedures laid down by the organization (Barker, 2001). Compliance is achieved through a transactional exchange between the subordinates and the organization, which is policed by managers using the authority granted by their position in the organization (Bass, 1995; Hughes, Ginnett, & Curphy, 2009).

Leadership and change are two of the most important issues facing organizations (Weick & Quinn, 1999). At the same time, they are two of the most problematic elements of organizational life, with much debate and controversy over what constitutes leadership and how beneficial change should be achieved (Beer & Nohria, 2000; Daft, 2002; Yukl & Van Fleet, 1992). Burnes (2009a) points out that if leadership and change were easy, they would not attract so much attention or be seen as so important. Only 30% of all organizational change initiatives are successful (Crosby, 1979; Hammer & Champy, 1993; Smith, 2002). If the main task of leaders is to bring about change, then this implies that only a small number of leaders are successful in their job (Hughes et al., 2009). Therefore, in viewing leadership and change, we are looking at fundamental phenomena
for organizational change that are difficult to undertake successfully. Leadership styles have evolved in recent decades. In the following section, I discuss two prominent styles that were identified during the 1930s and have remained dominant.

**Leadership Models and Styles**

Bolman and Deal (2003) define leadership as a “subtle process of mutual influence fusing thought, feeling, and action to produce a cooperative effort in the service of purposes and values embraced by both the leader and the led” (p. 339). This definition presupposes that the both the leader and the led will be able to define their own will in working together to complete a particular task. The implication is that the leader understands what is to be accomplished, and the subordinate or followers are in agreement and will cooperate in completion of the task.

The success of community colleges is closely tied to effective leadership (Pate & Angell, 2013). Effective leadership is heavily dependent on interactions and transactions between the leader and the followers; leadership is not about power, authority, and position exercised unilaterally (Cohen & Brawer, 2008). The leader must take charge, establish rules, and obligate others if he or she is to lead their followers to successful and promising careers in higher education environment.

**Transactional Leadership**

Transactional leadership is the most widespread leadership model in higher education today (Murray, 2008). It can be characterized as leadership of the status quo, in that it manages on a day-to-day basis and does not focus on an organization’s mid- or long-term goals of increasing productivity. Kanungo (2001) explains that, “[The] transactional leader is more concerned with the routine maintenance activities of allowing resources, monitoring, and directing followers to achieve task and organizational goals”
Transactional or hierarchical leadership acknowledges the system within a formalized structure (Gardner, 1990); leaders focus on the performance of their subordinates (Burns, 1978). Research has demonstrated that the transactional leadership model is currently more prevalent than any other leadership models in higher education as a whole (Bass, 1990; Bass, Avolio, Jung, & Berson, 2003).

The transactional leader identifies and cultivates subordinates or followers motivated by a system of rewards and punishments (Bass, 1985). Leaders use rewards and punishments simply to encourage the performance of their followers, thereby forming the basis of transactional relationship (Bass, 1985). According to Bryant (2003), by inspiring, assuring, and encouraging consistent performance from followers, transactional leaders attempt to meet agreed-upon goals. In this approach, leadership goals must be clearly established to meet the needs of the institution (Bass, 1985; Bryant, 2003).

As described by Burns (1978) and Bryant (2003), transactional leadership features three essential characteristics: (a) working with followers to accomplish their performance objectives, (b) granting rewards to followers for effort to fulfill organizational and individual gains, and (c) responding to the followers’ personal needs to incentivize task completion. Consequently, transactional leaders are goal-oriented toward the completion of tasks. While transactional practices may be central in fulfillment of day-to-day routine, they do not stimulate improvement or change (Bass, 1985). Leaders who simply reward or acknowledge mutually agreed upon performance objectives without intellectual stimulation or consideration of workers’ individual needs are not likely to attract or retain employees (Bass, 1998a).
Even though the structured model of transactional leadership may benefit a CBE initiative by responding to the needs of constituents in the design and developmental phases, the top-down approach of transactional leadership will fail to address the issues that may initially rise from the CBE approach questioning the status quo and unwillingness of colleagues to recognize the value of the new initiative.

**Transformational Leadership**

Transformative leadership attempts to provide the incentive for people to attempt improvements and change in their practices. Bass (1985) refers to transformational leadership as “value added.” As defined by Bass and Avolio (1994), transformational leadership is the process of motivating and stimulating subordinates to strive beyond what they may initially believe as desirable or possible. According to Burns (1978), transformational leadership focuses on restructuring an organization. Well-planned and organized strategies are required for leadership to develop into a more effective, holistic solution to solve old problems inherited from status quo environment (Bass & Avolio, 1994).

Transformational leaders attempt to and succeed in raising colleagues, subordinates, or constituencies to a greater awareness of the issues (Bass & Avolio, 1994; Bass & Riggio, 2006). “The heightening of awareness requires a leader with vision, self-confidence, and inner strength to argue successfully for what he sees is right or good, not for what is popular or is acceptable according to established wisdom of the time” (Bass, 1985, p.17).

According to Chemers (1997), there are four characteristics of transformational leadership: charisma, inspirational motivation, intellectual stimulation, and individualized consideration. These characteristics assist both the leader and follower with a
collaborative vision for the organization. If leaders have charisma, as described as Chemers, they are perceived as trustworthy and as having the vision to implement change. Bass and Avolio (1994) note that transformational leaders with charisma are identified as role models and are highly cherished and trusted. Inspirational motivation is defined by Chemers (1997) as the status and passion of the leaders’ vision for change. A leader may not be extremely talented, but the leader’s inspiring vision allows the follower to become committed to its realization. Transformational leaders have the ability to intellectually stimulate and motivate their followers through team spirit (Bass & Avolio, 1994), which encourages followers to employ new and more creative approaches to address situations. Such leaders focus on coaching and mentoring each individual to inspire him or her to reach increased levels in their development (Brass & Avolio, 1994).

Yukl (1998) explains that transformational leaders motivate their followers by: “(a) making them aware of the importance of task outcomes, (b) inducing them to transcend their own self-interest for the sake of the organization or team, and (c) activating their higher-order needs” (p. 351). Transformational leaders understand Maslow’s (1954) hierarchy of needs theory, which includes physiological, safety, and social needs. Those needs are prioritized by the leaders so that the employees are motivated at each level and empowered to perform and respond better to their responsibilities. The major goal as people grow and mature intellectually, emotionally, socially, and spiritually is to fulfill their need of self-actualization (Maslow, 1954).

Transforming an institutional structure requires a group, not an individual, process (Astin & Astin, 2000). Ultimately, the role of a leader in transformational leadership theory is to cultivate a culture of learning. According to Bolman and Deal (2003), leaders
face a powerful and high-risk problem-solving opportunity in restructuring or reorganizing an institution because they assume the most responsible role in that process. CBE requires changes at the institutional level that require strong leadership focused on improving individual and collective problem-solving abilities in the processes (Levy & Merry, 1986). According to Liu (2015), transformational leadership has a significant impact on institutional change. Astin and Astin (2000) identify the transformational leader’s responsibility as communicating the vision of the institution and the direction faculty, staff, and students are expected to take. Collaboration among members of the institution alleviates some of the internal and external pressures as leaders become more transformational in their approach (Astin & Astin, 2000). The emergence of transformational leadership has been proven crucial to generating effective change (Liu, 2015).

Orders of Change

Internal sources of authority in an institution are well positioned to initiate change by forming a dominant coalition of influence, and making sure internally that they are prepared to establish their readiness and willing to implement transformational leadership. Although planned change is often a response to an external source, the impetus for successful change is usually internal (Carnall, 1995). However, interaction between an institution and its external environment plays a powerful role in the change process.

The change process most managers are familiar with is continuous, or first-order, change – change that occurs within a larger, stable system that itself remains unchanged. Most of the change processes discussed in the literature focus on managing first-order change. These changes are necessary for a business to grow and thrive in a competitive
environment. Discontinuous, or second-order, change occurs when fundamental properties or states of the larger system are changed. Some industries currently experiencing the magnitude of second-order change include telecommunications, financial services, and health care, as discontinuous changes restructure the industry, relocate its boundaries, and change the bases of competition. First- and second-order changes and the difference between the two are discussed in more detail below.

First-order change. Continuous or first-order change is the change that occurs within a system as part of the system’s dynamics; it is the usual operational movement and alteration within the system, while the system itself does not change (Marzano, Waters, & McNulty, 2005). Indeed, system stability often requires frequent first-order change, just as the myriad small compensatory steering movements that permit a bicyclist to maintain equilibrium (Watzlawick, Weakland, & Fisch, 1974).

Much of the change described in higher education is first-order change (Kezar, 2001). It involves minor adjustments and improvements in one or a few dimensions of the organization; it doesn’t transform the core of the organization. First-order change is associated with organizational development, and it may refer to improving the interaction among individuals or groups (Levy & Merry, 1986). An example of efforts that conform to existing values and structure, and could be considered first-order change, would be redesigning a single course curriculum in an academic department.

Second-order change. Discontinuous or second-order change transforms fundamental properties or states of the system (Weick & Quinn, 1999). It is a change of the system itself and its components. Second-order change is complex change that exceeds existing paradigms and requires new knowledge and skills (Waters, 2004). In
second-order change, the organization changes at its core, and the change is irreversible. It is associated with transformational change that modifies underlying values, and redefines mission, culture, functioning processes, and structure of the organization (Levy & Merry, 1986). Second-order change is often associated with a specific crisis that stimulates change, tends to be multidimensional because it touches many aspects of the organization, and involves individuals and groups at different levels within the organization. Second-order change can appear to be discontinuous and irrational, because in the context of the institutional hierarchy this change is based on an unfamiliar logic or worldview and results in a paradigmatic shift (Levy & Merry, 1986). In other words, second-order change is associated with organizational transformation rather than institutional development. An example of second-order change in higher education is the development of Massive Open Online Courses (MOOCs), which offered a new model for online courses that allows students to complete programs of study in a non-traditional format. MOOCs were built on institutions’ ability to allow students to begin courses at any time and access course content from anywhere. Institutions opened their online courses to thousands of students at once. MOOCS would have the ability to transform higher education if they were to become widespread. I was unable to find in the literature examples of actual, successful second-order changes to higher education. Transformational leadership is associated with effective and significant institutional change (Leithwood & Jantzi, 2005, Liu, 2015). Therefore, either course-based or direct assessment approach to CBE resembles the definition of second-order change if fully implemented.
The Challenge of Second-Order Change

The common human response is to address all problems utilizing solutions requiring first-order change (Marzano, Waters, & McNulty, 2005). It makes sense to approach new problems as issues that can be solved using our previous repertoire of solutions and the perspective of our experiences.

Fritz (1984) explains the tendency to approach all situations as first-order change issues in the following way:

A common rule of thumb in life is to have a formula about how things should work so that if you learn the formula you will always know what to do. From a reactive responsive orientation, this notion is very appealing, because with such a formula you would hypothetically be prepared to respond appropriately to any situation. Unfortunately, at best this would prepare you for situations that are predictable and familiar. Your mastery of those situations would be similar to that of a well-trained mouse in a maze. From the orientation of the creative, on the other hand, the only rule of thumb about process is not to have a rule of thumb (p. 73).

The tendency to approach almost all changes as if they were first-order change provides a reasonable explanation for the rarity of cases of second-order change initiatives in higher education (Elmore, 2003).

Paradigm shift, a term often used to describe a second-order change, has been invoked in popular culture since the 1980s. In the context of change, a paradigm encompasses the philosophy, beliefs, values, structures, policies, and operations that characterize an organization (Waters, 2004). Introducing a CBE model in an institution that had operated exclusively in a traditional teaching-learning format would then be
considered a paradigm shift because it would suggest changing the values, structures, policies, and operations of the institution at its core. CBE would represent a second-order change in such institution, and this fact would necessarily lengthen the time between proposing the model and actual implementation because certain intermediate modifications need to happen in the existing processes (Fullan, 1993). Leaders seeking to provide leadership for second-order change must be able to endure all constituents’ different viewpoints and transform the institution. Transformational leadership provides an appropriate model to engage followers in change processes and raise the followers’ level of consciousness about the importance and value of CBE approaches (Burns, 1978; Bass, 2006).

**Current Structures of CBE Programs**

Nationally, compiling a list of colleges that offer CBE programs is difficult because of their rapidly increasing number. In the 2015 report, “The Landscape of Competency-Based Education,” Robert Kelchen identified 52 institutions of higher education with CBE programs either in existence or announced as of Spring 2014. Eighteen of these colleges had not yet launched their CBE programs as of Spring 2014, with the remaining 34 colleges offering one or multiple CBE programs. Seventeen of the 34 colleges utilized the course-based approach for the content delivery and assessment. The remaining 17 colleges used the direct assessment approach. Though the popular conception of CBE suggests doing away with the seat time, in reality there is a continuum of CBE approaches in both two-year and four-year higher education institutions. Some institutions build their programs into the existing academic calendar and others allow students to move entirely at their own pace (Klein-Collins, Ikenberry, & Kuh, 2014). A variable among institutions is their level of reliance on the seat time. Some colleges, such
as Sinclair Community College (SCC) in Dayton, CA, provide students with the option of following traditional semester guidelines or working on their own deadlines to complete the course before the end of the semester (CBEinfo, 2014). Students at Northern Arizona University (NAU) can register for six-month periods and complete courses entirely at their own pace (Northern Arizona University, 2016). The next section includes examples of the current institutional structures for CBE across the nation.

**Stand-alone Institutional Structure**

Two-year and four-year institutions of higher education nationwide have utilized different institutional structures when building their CBE initiatives.

Recognized as the CBE pioneer in higher education, Western Governors University (WGU) was founded in 1995 by the governors of 19 U.S. states (wgu.edu, 2014). The independent not-for-profit institution is a stand-alone institution that was founded on competency-based values. A fully online university, WGU offers degree programs to students in all 50 states today. Currently, more than 40,000 students are enrolled in bachelor’s, master’s, or other post-baccalaureate programs (wgu.edu, 2014).

Rather than adopting the traditional role of faculty, where faculty develop courses and assessments, teach courses, grade assignments and conduct assessment, tutoring and academic support to students, WGU assigns each of these tasks to different groups of professionals, with some involvement from external experts. Full-time faculty members serve as mentors, focusing primarily on supporting students as they work through courses, providing supplemental materials as needed. Since WGU’s courses are structured around competency units rather than credit hours to ensure that students receive federal financial aid, WGU treats all students as full-time and charges tuition at a
flat rate regardless of the number of competency units attempted or completed by the student in a six-month term (wgu.edu, 2014). WGU also translates competency units into traditional credits when a student wishes to transfer to another institution.

As an autonomous institutional unit, despite its success in fostering the CBE model and re-defining conversations about CBE as a potential new approach in higher education, WGU found itself translating competencies into course credits to be in compliance with federal financial aid policies. By making changes to the CBE model requirements and conforming to the traditional model as much as possible, WGU is able to offer financial aid to its students (Book, 2014). As an independent institution WGU was able to design and control its internal processes to ensure the success of its CBE initiative.

**Integrated into Existing Institutional Structure**

Some institutions have integrated CBE programs into an existing college structure. Sinclair Community College (SCC) has transformed its degree program in Information Technology into a competency-based program building upon its existing SinclairOnline distance learning course development, and leveraging existing college support services. In 2012, under the ambitious Trade Adjustment Assistance Community College and Career Training (TAACCCT) program of the U.S. Department of Labor, Employment and Training Administration, an innovative three-year project was funded. A consortium led by SCC and two other co-grantees are adopting and adapting the Western Governors University (WGU) model of competency-based education to revamp their Computer Information Systems (CIS) curriculum, to align it with current state and industry standards (CBEinfo, 2014). The key components of the revised program include
courses that feed into four short-term certificates, all industry certificated, and leading to an associate of applied science degree. Students will be able to choose among four different modes: self-paced online, instructor-led online, hybrid, and web-enhanced classroom hours supplemented by student support services (Person, Goble, & Burch, 2014).

The well-developed distance learning division of SCC became the home for CBE programs (CBEinfo.org, 2014). Seven current staff and faculty members were reassigned to help with transformation of the program. They brought their knowledge and experience from previous positions and were required to report to their original departments, applying lessons learned from the grant to departmental practices. Campus leadership believed this approach was key to the program’s sustainability, because the college would retain knowledge acquired from the project, given that the staff and faculty would remain at the college after the grant period. Making use of its existing operational system, course development, and student support services, SCC was able to launch its CBE program successfully within a year. The college found itself well prepared to respond to an increase in the enrollment and continue to efficiently serve students. The structured, time-based approach at SCC was made possible by engaging individuals, and then groups, in understanding emerging workforce trends in the planning process. College leadership was successfully able to modify staffing to ensure that SCC would be educating students for jobs in the region, by making minor adjustments in the institutional planning. By leading the initiative from a centralized distance-learning division rather from an academic department, SCC faculty increasingly took ownership of the CBE project (Person, Goble, & Burch, 2014).
Independent Unit within Existing Institutional Structure

There are several examples of universities that have CBE programs operating independent as units within their institution. This includes Lipscomb University in Tennessee, Southern New Hampshire University’s (SNHU) College for America, and NAU. These universities have successfully employed institutional strategies to allow CBE programs to operate as independent units within the overall institution (Book, 2014).

In 2012, SNHU created College for America, a self-paced online program focused on helping working learners build essential personal and professional skills rather than credit hours and grade points (College for America, 2014). The non-profit college seeks to build a program to better connect workforce research, higher education, and labor market needs. The key component of College for America’s model is that there are no courses, no credit hours, no traditional faculty, and no grades. Students develop an Academic Plan that outlines the key competencies they will master throughout the course of the program (College for America, 2014). Student progress is captured in an online transcript in terms of capabilities understandable to employers (College for America, 2014). After graduation, those competencies are converted to traditional course credits for students who wish to transfer to a four-year institution.

The SNHU College for America model is differentiated from credit-based CBE models in how it relates to federal financial aid. SNHU has received approval from regional accreditors and the U.S. Department of Education to make use of Title IV funds for direct assessment of competencies to grant credit to students.
To avoid redesigning or making changes to the existing institutional processes and keep the idea of CBE model as pure as possible – independent of time and space – programs such as at NAU and SNHU were originally organized as small separate units from the university that houses them (College for America, 2014). As the president of SNHU Paul LeBlanc describes his program, the decision was made to give the CBE approach its requisite “breathing room” to facilitate its growth away from possible manipulation, ownership, and competing channels of existing structures (Weise, 2015).

**Competency-Based Education at Community Colleges**

Community college leaders embracing CBE acknowledge that CBE has significant benefits for students and employers; however, there are many issues that need to be addressed at institutional level when designing and implementing a CBE initiative. For instance, while WGU and SNHU have been able to disaggregate the faculty role, most community colleges and public four-year universities are not at liberty to dramatically change faculty practices without negotiation with the faculty unions. Institutional culture influences what is possible with respect to not only the faculty, but to curriculum, student services, and general administration.

In an article, the Vice President of Enrollment Management at SCC stated that embracing CBE is a priority for the institution (Ashford, 2015). As mentioned in the previous section, SCC has been the lead college in a $12 million TAACCCT grant from the U.S. Department of Labor to develop CBE programs in IT in collaboration with Austin Community College (ACC) in Texas and Broward College in Florida based on WGU’s CBE model. President Richard Rhodes at ACC believes CBE is the best way to accelerate training for underemployed people and students with bachelor’s degrees who cannot find jobs in their field (Ashford, 2015). The President of Jackson College, Daniel
Phelan, articulated that establishing CBE required colleges to redesign their administrative systems and a significant cultural change (Ashford, 2015).

**Cultural Change at Community Colleges**

As mentioned in the previous section, the structural formats of current CBE initiatives in higher educational institutions are different. Community colleges are generally not in the position of building an institution from ground-up to ensure the success of their CBE initiative. Also, community colleges do not have the resources to design and implement a CBE initiative that functions as a completely independent unit within the existing structure of the college. SCC led its CBE initiative by integrating CBE into a division within the college. College leaders were successful in implementing the initiative by making minor adjustments in the institutional planning and operational processes. Although SCC was able to launch its CBE program within a year of planning, its CBE program resides in one division of the college. SCC’s successful implementation of CBE is an example of stable leadership utilizing first-order change to launch a new initiative without transforming the processes at core of the existing institution.

Changing the culture of the institution to accept and embrace CBE as a new model is a second-order change. Insofar as the faculty role in CBE eschews the traditional paradigm, college and university leaders must educate themselves about options for their students, to offer alternative pathways to degree completion. CBE is an unfamiliar educational model that disrupts the traditional credit-based model in higher education. As such second-order change evoked by CBE has profound implications for leadership, if it is to succeed in transforming the institution (Bell, 1986).

Simply having the intention to move from the traditional model of education to CBE is not enough. CBE requires significant alterations at the institutional level
including in scheduling protocols, financial aid policies, and how course content is developed and delivered, suggesting that this is a second-order change in how the systems within an institution operate. A failure to recognize this fact coupled with the natural inclination to approach all change as first-order change may cause those leading the initiative to employ inappropriate leadership behaviors that ultimately can lead to the downfall of the change. Since institutions of higher education are decentralized and operate somewhat autonomously, managing change becomes difficult because leaders are responsible for convincing their followers of the value of the change to achieve their consensus (Kezar, 2001). Effective leadership is required to overcome the challenges before it is possible to start implementing change in any institution. When involved in day-to-day changes, a transactional leader will be able to manage and regulate the activities at the institution (Bass, 1990). When involved in second-order change initiatives such as CBE at full capacity, transformational leadership is required to question the status quo and move the institution forward without compromising the initiative itself. Transformational leadership becomes a critical element in the change process because it focuses on building institutional capacity for sustainable change and sets up a new vision for the institution (Liu, 2013).

Despite the increasing number of community colleges embracing the CBE model across the nation, four-year institutions seem to receive all the national attention (Laitinen, 2012). This study attempted to fill that gap in the literature by studying the range of the current CBE initiatives at community colleges in the United State. The change order represented through the design and the implementation of CBE programs depends on the way the institution structures its CBE program. If fully implemented
across the existing institution, CBE has the ability to transform the entire operational processes. In that case, the design and implementation of a CBE initiative would introduce significant institutional change resembling a second-order change. Transformational leadership is associated with effective and significant institutional change (Leithwood & Jantzi, 2005, Liu, 2015). Because I presumed that the campus leaders I studied were interested in fully implementing CBE across their campuses, that is, making second-order change, I used a transformational leadership lens to investigate how the campuses’ CBE leaders led this change initiative toward successful implementation at six community colleges. Details of the research methodology are presented in Chapter 3.
CHAPTER III: METHODOLOGY

The purpose of this study was to describe different approaches to Competency-Based Education (CBE) at community colleges in America, challenges in implementing the initiative, and leadership strategies to address the challenges. This study sought to answer the following research questions: 1) What are the current approaches to design and implementation of CBE in Community Colleges? 2) What leadership strategies do community college leaders use to guide their institutions toward design and implementation of CBE?

This chapter addresses research tradition, research setting, research sample and data sources, data collection instruments, procedures, analysis, and role of the researcher.

Research Tradition

Community colleges are experimenting with CBE and learning about the changes the new model introduces to various system and processes at the institutional level. The role of leadership is critical in engaging followers to appropriately respond to the challenges in the change process. I chose a qualitative study approach for this study to differentiate varying CBE approaches and practices from the perspective of the individuals having direct involvement in the design and implementation of the model. I aimed to construct descriptions of current approaches to the development and implementation of the CBE model in community colleges across the nation to discover the range of practices. I chose transformational leadership as the conceptual framework for this study. I presumed community colleges in this study planned to fully implement CBE initiatives across their institutions, thus introduce second-order change on their campuses. I used the transformational leadership framework to explore effectiveness of the CBE leaders on enhancing the individual and collective commitment to change in
design and implementing CBE programs at community colleges (Hallinger, 2003; Heck & Hallinger, 1999; Leithwood et al., 1999; Liu, 2013; Northouse, 2007). The framework informed the data sources, collection instruments, procedures, and analysis.

I selected a multiple case study approach for comparative analysis within the campuses as well as across them, to better clarify similarities and differences (Creswell, 2012). I considered a case-by-case design to allow for an in-depth investigation of perceptions, practices, and the understanding of community college leaders as they collaborate to implement CBE at their institution (Creswell, 2012). The case-by-case design provided clear and detailed description of leadership styles and a holistic perspective on the complexity of interactions and relationships between leaders and subordinates at different stages of planning, implementing, and evaluating change.

**Research Setting**

**Research Setting Selection Strategy**

I employed purposeful, theoretical, and snowball samplings to select this study’s participants (Merriam, 1998). To explore the current CBE approaches at community college in the United States, I considered all the states in which at least one institution of higher education, system, or agency at the two-year level is engaged in a national CBE initiative. These states and institutions are shown in Table 2. The national CBE initiatives include the Competency-Based Education Network (CBEN) initiative, Council for Adult and Experiential Learning (CAEL) Jumpstart, and Community Colleges in Partnership with Western Governors University (WGU).

CBEN includes a group of public and private institutions and higher education agencies working together to develop an evidence-based approach to CBE programs (www.cbenetwork.org, 2015). CAEL intends to provide training and technical assistance
to faculty at 14 institutions and systems working to implement CBE programs. WGU is involved in an ongoing partnership with 11 community colleges, all of whom receive assistance and support from WGU as they develop CBE degree and certificate programs.

Individuals with direct involvement in the design and implementation stages of the CBE program were the data sources for this study. These individuals would have the most relevant and updated information about the changes and leadership strategies employed in the design and implementation processes. I recruited 44 individuals from the 22 community colleges in Table 2. I identified these individuals and their contact information from documents available to the public such as college websites, CBE reports, and conference presentations. Two individuals were identified from each college to increase the chances of receiving responses from each college. In this study, I refer to these participants generally as “the CBE liaisons” since they participate in the CBE initiative in different capacities and work under a variety of titles such as academic coach, faculty, faculty chair, program director, dean, vice president, and president. I presumed that the CBE liaisons would be knowledgeable about the scope of project and the processes most successful in achieving cost saving and best outcomes to save time and effort (Bloomberg & Volpe, 2012).

In 2014, 17 out of 34 institutions of higher education offering CBE programs nationwide were public and private community colleges (Kelchen, 2015). Considering the report and rapid growing number of CBE providers, the 22 colleges considered for this study represent a comprehensive list of the community colleges engaged in the model.
Table 2

*Participating Institutions in National CBE Initiatives at the Community College Level*

<table>
<thead>
<tr>
<th>State</th>
<th>Institution or System</th>
<th>Initiative</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>Los Angeles Trade Technical College</td>
<td>CAEL Jumpstart</td>
</tr>
<tr>
<td>Connecticut</td>
<td>Charter Oak State College</td>
<td>CBEN</td>
</tr>
<tr>
<td></td>
<td>Broward College</td>
<td>CBEN and Community</td>
</tr>
<tr>
<td>Florida</td>
<td></td>
<td>CBEN and Community</td>
</tr>
<tr>
<td></td>
<td>Valencia College</td>
<td>CBEN and Community</td>
</tr>
<tr>
<td>Indiana</td>
<td>Ivy Tech Community College - Fort Wayne and Lafayette</td>
<td>Community Colleges in Partnership with WGU</td>
</tr>
<tr>
<td>Kentucky</td>
<td>Kentucky Community &amp; Technical College System</td>
<td>CBEN</td>
</tr>
<tr>
<td>Michigan</td>
<td>Kalamazoo Valley Community College</td>
<td>CAEL Jumpstart</td>
</tr>
<tr>
<td>Minnesota</td>
<td>Minnesota State Colleges and University System</td>
<td>CAEL Jumpstart</td>
</tr>
<tr>
<td>Missouri</td>
<td>Missouri Department of Higher Education/ Missouri Community College Association</td>
<td>CAEL Jumpstart</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>Granite State College</td>
<td>CAEL Jumpstart</td>
</tr>
<tr>
<td>New York</td>
<td>Excelsior College</td>
<td>CBEN</td>
</tr>
<tr>
<td>State</td>
<td>Institution or System</td>
<td>Initiative</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>The New School</td>
<td>CAEL Jumpstart</td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>Sinclair Community College</td>
<td>Community Colleges in Partnership with WGU</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Community College of Philadelphia</td>
<td>CAEL Jumpstart</td>
</tr>
<tr>
<td>Austin Community College</td>
<td></td>
<td>Community Colleges in Partnership with WGU</td>
</tr>
<tr>
<td>Texas</td>
<td>Lone Star College System</td>
<td>Community Colleges in Partnership with WGU</td>
</tr>
<tr>
<td>South Texas College and Texas A&amp;M University-Commerce</td>
<td></td>
<td>CBEN</td>
</tr>
<tr>
<td>Utah</td>
<td>Salt Lake Community College</td>
<td>CBEN</td>
</tr>
<tr>
<td>Bellevue Community College</td>
<td></td>
<td>CBEN and Community Colleges in Partnership with WGU</td>
</tr>
<tr>
<td>Washington</td>
<td>Columbia Basin College</td>
<td>Community Colleges in Partnership with WGU</td>
</tr>
<tr>
<td>Edmonds Community College</td>
<td></td>
<td>Community Colleges in Partnership with WGU</td>
</tr>
<tr>
<td>Spokane Falls Community College</td>
<td></td>
<td>Community Colleges in Partnership with WGU</td>
</tr>
</tbody>
</table>
Participation in any nationwide CBE initiatives suggested an interest in both discovering successful approaches for sustainability and establishing partnerships with like-minded individuals in higher education for cross-campus networking and idea sharing. Thus, it can be assumed participants who were considered for this study could provide rich information about CBE.

**Survey Setting**

I invited the 44 identified CBE liaisons to participate in an online survey. Participants were asked to respond to the survey during a three-week period in September 2015, during which seven respondents attempted and completed the survey. All seven respondents were from different community colleges. Because of the low rate of return, the survey was left open for another three-week, and a reminder email was sent to the participants. Overall, 14 individuals completed the survey before the final closing day. These 14 survey respondents were representative of 13 unique community colleges. All individuals who began the survey successfully completed the survey by the extended deadline.

I utilized the data collected from the 14 respondents to answer Research Question One. At the end of the survey, I invited the survey participants to participate in a personal interview, and asked them to provide preferred contact information. Seven out of the 14 participants expressed interest in participating in an interview. Those seven participants represented six distinct community colleges.

**Interview Setting**

I decided to include one participant from each distinct institution for the interviews to raise the possibility that the data set would be diverse. Therefore, I selected six participants from the seven survey respondents who expressed interest in participating
in an interview. In addition, I chose to interview four other individuals from the institution that was the furthest ahead in implementing its CBE program. I relied on the survey participants from that institution to identify the additional four participants from the institution. My rationale for further exploring one institution was to analyze the effectiveness of implementation and leadership approaches to the program. I also anticipated that this in-depth exploration of this one campus would provide more insights to community college leaders in development stages of a CBE program and those who are considering engaging in a CBE initiative.

I asked these ten selected participants to provide details of their programs and leadership practices during the interview. I intended to collect trustworthy and authentic data from the participants, but the trustworthiness and the authenticity of the data was dependent on the participants. I analyzed the collected data from all ten interviews to answer Research Question Two.

**Research Sample and Data Sources**

**Survey Sample**

I emailed the survey to 44 individuals and 14 responses were received in a six-week period in September and October 2016. Thirteen out of 14 survey respondents worked in two-year public institutions and only one participant was from a two-year private institution.

The only criterion for initial participation was that the community college must have been participating in a CBE initiative mentioned in Table 2. In selecting participants, I did not attempt to determine whether the colleges were at the stage of considering CBE, beginning design and implementation, or operating as a CBE site in full capacity.
Interview Sample

Following completion of the survey, I selected total of ten participants for individual interviews. Based on the survey responses, those who did not wish to be interviewed were not considered for the interview. One participant from each of the six distinct community colleges who agreed to be interviewed was selected. The six colleges represented were in different stages of design and implementation stages of their CBE program. Additionally, I extended an interview invitation to all individuals involved in the CBE program at VenusCC, the college that was well into the implementation stage. The survey participant from VenusCC provided the contact information for all the other individuals involved in the CBE programs. Four individuals agreed to participate in a personal interview. I was convinced the data acquired from a college well into the implementation stage would benefit answering both research questions.

Data Collection Instruments and Procedures

I conducted an online survey and ten individual interviews with community college CBE liaisons for this study. I designed the survey and the interview instruments to provide supportive findings for greater understanding of current approaches to CBE and associated successful leadership practices (Bloomberg & Volpe, 2012). The literature review of second-order change and transformational leadership provided an appropriate understanding of these two constructs, which informed the design of the survey and interview instruments for this study.

I conducted the survey prior to the interviews to discover information about the campuses, student population, and CBE program characteristics to then explore more deeply in the interviews. I also used the survey instrument to identify the interview participants.
Survey Instrument

I developed the online survey to identify the range of main approaches to design and implementation of CBE in the community colleges and generate demographic information about the colleges. I also asked the participants to rank the challenges encountered in the design and implementation processes of their CBE initiative. I emailed a research invitation including the link to the online survey to 44 CBE liaisons at 22 distinct community colleges, two per college. This invitation outlined the study’s purpose and levels of participation. Also, it affirmed that participation would be confidential, voluntary, and terminable by participants. See Appendix A for a copy of the research invitation. At the conclusion of the survey, I asked the respondents whether or not they were willing to participate in a 45-minute interview, and if so, to provide direct contact information.

I created, distributed, and collected the survey using SurveyMonkey, an online survey software and questionnaire tool widely used in academia to conduct various types of research. The CBE liaisons were asked to complete the survey during in September and October 2016. I sent a reminder email to respond to the survey two days prior to the closing day. Fourteen survey responses from 13 distinct community colleges were collected by the closing day. A copy of the survey instrument can be found in Appendix B. I used the data collected from the survey to answer Research Question One.

Interview Instrument

The second form of data collection was comprised of interviews with ten CBE liaisons leading the CBE initiative on their campuses who were identified through the survey process. Semi-structured interviews, with open-ended questions and probes, allowed for flexibility as the interviews progressed (Bloomberg & Volpe, 2012; Glesne,
Building on the survey questions, I developed the interview questions to focus on how the leaders addressed different elements of CBE, and which effective leadership styles supported and constrained the progress of the CBE program on their campuses. I used an interview instrument that included a list of questions with possible probes to conduct a more systemic and comprehensive process. A copy of the interview instrument can be found in Appendix C. The interview instrument that included informed consent form and interview questions was emailed to the ten interview participants. The informed consent form outlined the study’s purpose, participation steps, potential risk, potential benefits, non-payment, audio recording procedures, confidentiality procedures, uses of data, withdrawal ability, identity of the researcher, and rights of participants. The informed consent clearly stated that any identifying information about institution and interviewees would be masked by assigning pseudonyms. It was critical that all participants understood any information they provided in interviews that might be traced back to them and their institutions would not be shared with other participants and would only be used to answer the research questions (Bloomberg & Volpe, 2012). A copy of the consent form is provided in Appendix D.

I identified six interview participants based on the survey results. An additional four interview participants were solicited through the survey participant from VenusCC. I have described the interview participant selection process in the previous section. Once I finalized the list of preferred participants, I contacted all respondents by email to schedule interviews. Interviews occurred in Fall 2015 and Spring 2016.

I conducted the interviews either in person or by phone via FreeConferenceCall services. I recorded in-person interviews on a password-protected iPhone, and each
phone interview using FreeConferenceCall’s Call Recorder. At the outset of the interviews, I reviewed the purpose of the study, informed consent form, and the participant’s right to terminate participation in the study at any time during the research. At the conclusion of the question and response phase, I asked the interviewees to participate in follow-up email exchange if I needed further clarification. I used professional transcription services to transcribe the audio recordings. I then compared the transcripts to audio recordings to confirm accuracy.

**Data Analysis**

**Analysis of Survey Data**

I began the survey data analysis immediately after the closing date of the survey to identify main approaches to CBE. I categorized each survey response using predetermined themes from the survey development to determine the scope of the approaches to CBE. For example, different levels of programmatic involvement were used as a category title and responses that stated the level of involvement of a college in CBE were placed under the relevant category. While participants were asked to name the person who introduced the initiative to the campus, all referred to a senior administrator. Instead of using predetermined themes, I labeled the responses for initial individual involvement under a single theme as senior leadership. See all categorized responses in Appendix E. Information generated from surveys was used to answer Research Question One.

**Analysis of Interview Data**

After the interview data were transcribed, I checked the accuracy of transcriptions and read through the interviews to obtain a general sense of the material. I used statements in brackets to label the interview data that provided details about the
development, implementation, challenges, and leadership of the CBE program (e.g., program description). I then assigned thematic labels to indicate key themes related to the CBE approaches and leadership styles required to address the challenges (e.g., learner support and senior administrator’s support). I developed the themes based on knowledge developed from survey data and the relevant literature (Creswell, 2007). Coding samples can be found in Appendix F.

Then, I developed case descriptions to capture the details of the design and implementation processes for each of the six campuses because case descriptions better addressed Research Question One (Creswell, 2007). However, as I was developing the cases, they became lengthy; thus, for the purposes of reporting in Chapter 4, I summarized each case under appropriate themes (e.g. program description, curriculum development and delivery). A full case description of each campus is included in Appendix G. In addition, I described the leadership responses to the key challenges of CBE initiative in the design and implementation stages. I used descriptive examples and direct quotes to demonstrate the findings. I used seven categories identified from the literature review within and across six community colleges describing their CBE approaches. Another three themes emerged from analyzing the challenges and leadership strategies across all six campuses. For example, participants spoke about senior administrators’ support and their collaboration with the rest of the campus as the key to getting their CBE program off the ground. “Effective teamwork” was used as a theme for these descriptions and explanations about teamwork and leadership. The final stage of data analysis and interpretation of the findings was to develop responses to the research questions.
Role of the Researcher

As the researcher, I controlled the parameters of the study including selection of the research topic, determination of research questions, design and methodology, collection of data, interpretation of findings, and framing of the conclusions. I was engaged in discussions with my dissertation committee chair in designing the structure and the approach of this study. I applied knowledge acquired from research methodology courses in the doctoral program to my research.

I also played the role of a learner because the purpose of the research was to learn about the CBE model. According to Glesne (2011), approaching research as a learner fosters both reflection and curiosity, which encourages the author to address personal and professional biases. I am a faculty member at a community college who practices project-based learning as an instructional methodology. I did not have a foundational knowledge of the research topic. My knowledge of the CBE model prior to this study was limited to my personal research on different approaches to teaching and learning.

CBE is in the news quite often these days. From the Department of Education to educational foundations such as Lumina and Bill Gates Foundation, different agencies have championed the model in recent years. I believe those in higher education are responsible for designing and implementing new curriculum and programs that provide quality education and help students succeed at the same time. We need to be open to new models that have the potential of transforming our practices, if we want to produce real results. Also, as a student who has completed my share of traditional, online, and hybrid courses and as an educator always seeking to provide quality education, I was interested in learning about the CBE model.
These views could have effected my data interpretations. For instance, I may have found statements from faculty more significant than the statements from administrators because they aligned with my values as a faculty. In an effort to monitor my biases as the researcher, I employed suggested methods to monitor and mitigate biases for a qualitatively grounded study (Glesne, 2011). I designed the survey and interview instruments to encourage authentic and trustworthy responses, including open-ended questions and asking for clarification of ambiguous responses (Seidman, 2006). Also, I engaged in discussions with my dissertation committee chair, doctoral cohort members, and colleagues to review and provide feedback about my research process.

The following chapter demonstrates the synthesized data collected form both survey and interview instruments.
CHAPTER IV: FINDINGS

The purpose of this study was to explore the current Competency-Based Education (CBE) initiatives at community colleges in the United States and how the CBE leaders on each campus address the challenges in design and implementation processes. Furthermore, this study aimed to develop a greater awareness of institutional issues in implementing a new program at community college and benefit leaders interested in initiating pedagogical change at their institutions. The research questions were as follows:

1) What are the current approaches to design and implementation of CBE in Community Colleges? 2) What leadership strategies do community college leaders use to guide their institutions toward design and implementation of CBE?

This chapter summarizes the results from a qualitative study of the design and implementation of CBE programs at community colleges. The first part of the research utilized a survey instrument to identify the nature of the CBE programs and demographic information about the institutions. CBE liaisons, individuals with direct involvement in the design and implementation stages of the program at 13 distinct community colleges, completed the survey. In the second part, I gathered qualitative input from six of the survey participants who willingly further informed the results of this study via individual phone interviews and four in-person interviews with other CBE liaisons from the institution furthest ahead in implementation stage based on the survey results. The interview protocol was centered on design and implementation of CBE programs at the institutions and the leadership and decision-making involved in the processes.

This chapter is organized into two parts. Part one presents an overview of the survey and interview participants and the results. Part two is organized around the
research questions. It covers the design and implementation approaches to CBE initiatives at each community college. It also explores the emerging themes within the interviews that relate to the literature review, followed by new findings that are not in the literature.

Part I: Survey and Interview Participation and Results

Survey Results

A list of all two-year higher education institutions and agencies involved in a CBE initiative nationwide was solicited from the Competency-Based Education Network (CBEN) initiative, Council for Adult and Experiential Learning (CAEL) Jumpstart, and community colleges in partnership with Western Governors University (WGU) as described in Chapter 3. I identified two individuals from each institution on the list. I emailed the survey to 44 CBE liaisons from 22 community colleges, two per college. According to Kelchen’s report in 2014, 17 out of 34 colleges offering CBE programs nationwide were community colleges. Considering the report, the sample for this study virtually captured all community colleges currently offering CBE nationwide. The survey was open for a three-week period in September 2015, during which seven program leaders attempted and completed the survey. Because of the low rate of return, the survey was left open for another three weeks and a reminder email was sent to the participants. Out of the 44, 14 members responded to the online survey. These 14 (a 32% survey response rate) represented 13 different campuses (a 59% campus response rate).

Participants were asked to share their campus and CBE program characteristics. In addition, they were asked to rank the challenges in the design and implementation processes discussed in the Literature Review relating to their CBE initiative. Tables 3, 4,
and 5 provide summaries of the survey results. Figure 1 also provides characteristics of survey campuses.

Out of 34 colleges mentioned in the 2015 Report by Robert Kelchen, 17 were two-year colleges (public and private). A list of institutions generated for this study in 2016 included 22 community colleges or community college systems, which reflects the rapid growing number of CBE providers in the past couple of years. The survey data for this study include 13 of the 22 identified colleges and follow-up interview data from six of the colleges. I further investigated one of the six colleges by conducting in-person interviews with four more CBE liaisons. Thus, I believe the data collected for this study are representative of the scope and the progress of competency-based education at community colleges across the country.

**Interview Results**

Seven out of 14 survey respondents agreed to participate in individual phone interviews to discuss CBE practices and leadership involved in the design and implementation process on their campuses in more detail. I emailed the interview invitation to six participants from distinct community colleges to schedule phone interviews. I also used a snowball sampling technique to identify four more individuals from the college with longest history of CBE initiative. I scheduled in-person interviews with the four participants who agreed to participate in one-on-one interviews.

The interview questions ranged from programmatic to leadership questions. Table 6 displays a summary of the interviewees and their program and institutional information. To honor confidentiality provisions of the study, names used to describe the interviewees and the associated institutions are pseudonyms.
### Institutional Information about Colleges Explored in this Study

<table>
<thead>
<tr>
<th>Institution</th>
<th>Type</th>
<th>Student Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>JupiterCC</td>
<td>Public</td>
<td>1,000 - 10,000</td>
</tr>
<tr>
<td>MarsCC</td>
<td>Public</td>
<td>1,000 - 10,000</td>
</tr>
<tr>
<td>PlutoCC</td>
<td>Public</td>
<td>1,000 - 10,000</td>
</tr>
<tr>
<td>CarpoCC</td>
<td>Public</td>
<td>10,000 - 30,000</td>
</tr>
<tr>
<td>CeresCC</td>
<td>Private</td>
<td>10,000 - 30,000</td>
</tr>
<tr>
<td>HaumeaCC</td>
<td>Public</td>
<td>10,000 - 30,000</td>
</tr>
<tr>
<td>PandoraCC</td>
<td>Public</td>
<td>10,000 - 30,000</td>
</tr>
<tr>
<td>UranusCC</td>
<td>Public</td>
<td>10,000 - 30,000</td>
</tr>
<tr>
<td>ErisCC</td>
<td>Public</td>
<td>More than 30,000</td>
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<tr>
<td>MercuryCC</td>
<td>Public</td>
<td>More than 30,000</td>
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<tr>
<td>NeptuneCC</td>
<td>Public</td>
<td>More than 30,000</td>
</tr>
<tr>
<td>SaturnCC</td>
<td>Public</td>
<td>More than 30,000</td>
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<td>PhobosCC</td>
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<td>VenusCC</td>
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</tr>
<tr>
<td>Name</td>
<td>CBE Initiative Stage &amp; Program Longevity</td>
<td>Level of involvement</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>MercuryCC</td>
<td>Design and Implementation; 3-4 years</td>
<td>Offering stand-alone CBE program(s)</td>
</tr>
<tr>
<td>MarsCC</td>
<td>Design; 1-2 years</td>
<td>Beginning stages of design and implementation (do not offer yet)</td>
</tr>
<tr>
<td>JupiterCC</td>
<td>Design and Implementation; 1-2 years</td>
<td>CBE embedded into many departments within the college</td>
</tr>
<tr>
<td>SaturnCC</td>
<td>Design; 1-2 years</td>
<td>Beginning stages of design and implementation (do not offer yet)</td>
</tr>
<tr>
<td>VenusCC</td>
<td>Design and Implementation; 1-2 years</td>
<td>Offering stand-alone CBE program(s)</td>
</tr>
<tr>
<td>NeptuneCC</td>
<td>Design and Implementation; 3-4 years</td>
<td>Offering stand-alone CBE program(s)</td>
</tr>
<tr>
<td>PlutoCC</td>
<td>Design and Implementation; 1-2 years</td>
<td>Beginning stages of design and implementation (do not offer yet)</td>
</tr>
<tr>
<td>UranusCC</td>
<td>Design and Implementation; 3-4 years</td>
<td>Offering stand-alone CBE program(s)</td>
</tr>
<tr>
<td>HaumeaCC</td>
<td>Design and Implementation; More than 5 years</td>
<td>Offering stand-alone CBE program(s)</td>
</tr>
<tr>
<td>Name</td>
<td>CBE Initiative Stage</td>
<td>Level of involvement</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>ErisCC</td>
<td>Design and Implementation;</td>
<td>Beginning stages of design and implementation (do not offer yet)</td>
</tr>
<tr>
<td></td>
<td>1-2 years</td>
<td></td>
</tr>
<tr>
<td>CeresCC</td>
<td>Design and Implementation;</td>
<td>Offering stand-alone CBE program(s)</td>
</tr>
<tr>
<td></td>
<td>3-4 years</td>
<td></td>
</tr>
<tr>
<td>PandoraCC</td>
<td>Design and Implementation;</td>
<td>Considering offering CBE program (do not offer yet)</td>
</tr>
<tr>
<td></td>
<td>3-4 years</td>
<td></td>
</tr>
<tr>
<td>PhobosCC</td>
<td>Design and Implementation;</td>
<td>Offering stand-alone CBE program(s)</td>
</tr>
<tr>
<td></td>
<td>3-4 years</td>
<td></td>
</tr>
<tr>
<td>CarpoCC</td>
<td>Design; 3-4 years</td>
<td>Beginning stages of design and implementation (do not offer yet)</td>
</tr>
</tbody>
</table>
### Table 5

*Programmatic Information about CBE Programs Explored in the Survey*

<table>
<thead>
<tr>
<th>Name</th>
<th>Program Approach</th>
<th>Program Type</th>
<th>Delivery Model</th>
<th>Targeted Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>MercuryCC</td>
<td>Course-based</td>
<td>CTE</td>
<td>Hybrid (both online and resident)</td>
<td>Application process for all students</td>
</tr>
<tr>
<td>MarsCC</td>
<td>Course-based</td>
<td>CTE &amp; General Education</td>
<td>Hybrid (both online and resident)</td>
<td>Restricted to non-traditional students</td>
</tr>
<tr>
<td>JupiterCC</td>
<td>Course-based</td>
<td>CTE</td>
<td>Hybrid (both online and resident)</td>
<td>Open to all students</td>
</tr>
<tr>
<td>SaturnCC</td>
<td>Direct Assessment</td>
<td>CTE</td>
<td>Fully online</td>
<td>Open to all students</td>
</tr>
<tr>
<td>VenusCC</td>
<td>Course-based</td>
<td>CTE &amp; General Education</td>
<td>Fully online</td>
<td>Open to all students</td>
</tr>
<tr>
<td>NeptuneCC</td>
<td>Course-based</td>
<td>CTE &amp; General Education</td>
<td>Hybrid (both online and resident)</td>
<td>Open to all students</td>
</tr>
<tr>
<td>PlutoCC</td>
<td>Course-based</td>
<td>CTE</td>
<td>Hybrid (both online and resident)</td>
<td>Open to all students</td>
</tr>
<tr>
<td>Name</td>
<td>Program Approach</td>
<td>Program Type</td>
<td>Delivery Model</td>
<td>Targeted Students</td>
</tr>
<tr>
<td>----------</td>
<td>------------------</td>
<td>-----------------------</td>
<td>-------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>UranusCC</td>
<td>Course-based with credit with credit equivalency</td>
<td>General Education</td>
<td>Fully online</td>
<td>Application process for all students</td>
</tr>
<tr>
<td>HaumeaCC</td>
<td>Course-based with credit with credit equivalency</td>
<td>CTE &amp; General Education</td>
<td>Fully online</td>
<td>Open to all students</td>
</tr>
<tr>
<td>ErisCC</td>
<td>Course-based with credit with credit equivalency</td>
<td>CTE &amp; General Education</td>
<td>Hybrid (both online and resident)</td>
<td>Open to all students</td>
</tr>
<tr>
<td>CeresCC</td>
<td>Direct Assessment</td>
<td>General Education</td>
<td>Fully online</td>
<td>Restricted to non-traditional students</td>
</tr>
<tr>
<td>PandoraCC</td>
<td>Course-based with credit with credit equivalency</td>
<td>General Education</td>
<td>Fully online</td>
<td>Open to all students</td>
</tr>
<tr>
<td>PhobosCC</td>
<td>Course-based with credit with credit equivalency</td>
<td>CTE &amp; General Education</td>
<td>Fully online</td>
<td>Open to all students</td>
</tr>
<tr>
<td>Name</td>
<td>Program Approach</td>
<td>Program Type</td>
<td>Delivery Model</td>
<td>Targeted Students</td>
</tr>
<tr>
<td>-------</td>
<td>------------------</td>
<td>------------------</td>
<td>---------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>CarpoCC</td>
<td>Course-based</td>
<td>General</td>
<td>Hybrid (both online and resident)</td>
<td>Application process for all students</td>
</tr>
<tr>
<td></td>
<td>with credit</td>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>equivalency</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part II: Research Questions and Themes

Competency-Based Education Rationales

Little other than cost and quality of education have been documented as rationales for CBE in the literature (Klein-Collins, 2012). Thus, before addressing the design and implementation approaches to CBE, the rationale for embracing the CBE initiative at the colleges is discussed. Three rationales emerged from the analysis of the interview data: higher education affordability and efficiency, degree completion, and innovation. All interview participants viewed these themes as critical motivations for beginning discussions about CBE initiatives on their campuses.
Table 6

*Interview Participants Information*

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marco</td>
<td>Director</td>
<td>MercuryCC</td>
</tr>
<tr>
<td>Mary</td>
<td>Dean</td>
<td>MarsCC</td>
</tr>
<tr>
<td>Janet</td>
<td>Completion Coach</td>
<td>JupiterCC</td>
</tr>
<tr>
<td>Sandra</td>
<td>Associate Vice President</td>
<td>SaturnCC</td>
</tr>
<tr>
<td>Nancy</td>
<td>Program Chair</td>
<td>NeptuneCC</td>
</tr>
<tr>
<td>Vince</td>
<td>Dean</td>
<td>VenusCC</td>
</tr>
<tr>
<td>Virginia</td>
<td>Academic Coach</td>
<td>VenusCC</td>
</tr>
<tr>
<td>Victor</td>
<td>Program Chair</td>
<td>VenusCC</td>
</tr>
<tr>
<td>Vanessa</td>
<td>Vice President</td>
<td>VenusCC</td>
</tr>
<tr>
<td>Victoria</td>
<td>President</td>
<td>VenusCC</td>
</tr>
</tbody>
</table>

**Higher education affordability and degree completion.** The goal of reducing costs for students while maintaining quality education emerged as a theme from the interview data. The interview participants identified the need to reduce costs in order to enhance affordability and efficiency for students, and the need to increase the quality of education while maintaining the current level of institutional costs among the driving factors for the institution to pursue a CBE initiative.

All interviewees viewed CBE as a strategy to offer quality education at a reduced cost to the students. CBE programs often charge a flat-fee tuition for a specific time period that allows students to attempt as many competencies as they wish and offer
unlimited access to educational resources at no extra cost to students. All participating colleges in the implementation stage had adopted this tuition model. Two colleges in the design stage had not decided on the tuition model at the time of the interviews. Vince discussed his hope to provide an affordable program, which would enable students to complete their education. He explained, “We have quite a large group of students who have 80-90 credit hours but no degree because they are switching from one major to another. So we redirect them into this program so they can graduate and find a job.”

Marco also referred to the affordability of the CBE program at MercuryCC as a major motivation: “We have more than doubled the output of graduates by the college, we’ve reduced time to completion, and we have developed a large industry partner program that has enabled us to have about an 89% success rate in placing our students upon graduation.”

Sandra noted that SaturnCC was attracted to CBE because the college was looking for a “sustainable program that could be adopted by the system.” She continued, “[CBE] is a way to look at education differently, and serve students in a much different way and try to address them on an individual basis, but do so in a way that can be managed and can be done efficiently and as cost effectively as possible.”

Building an affordable program was a major motivation for all institutions, and most participants emphasized the cost reduction and quality education CBE offers to students. However, it is worth mentioning that all six of these institutions participated in some form of a grant-funded project to offset the initial one-time costs in the development of their CBE initiatives. Because the programs are integrated into the college structure, they must compete with the traditional programs for institutional
resources. The interview data suggest that the initial decision to engage the college campus and to integrate the program into the college structure broadened the scope of the CBE initiative.

**Degree Completion.** All interview participants referred to new market opportunities made possible through the offering of CBE programs. MercuryCC, NeptuneCC, and SaturnCC participants mentioned that the primary target for CBE was “degree completers” – students who had some prior college experience but had not obtained a degree. MercuryCC’s CBE efforts focused on industry and employability in offering a CBE program that would be more attractive to certain students than the equivalent traditional program. Marco explained the linkage between employer partnership and high student success rates:

> Because it is a well-organized and recognized program, we have students move out of school here directly into positions with our industry partners, or anyone else. We have good brand recognition for our [CBE] program… When the students see that [company] logo sheet they can really visualize a path to the middle class.

Also, industry partners provided virtual job fairs and mock interview sessions to students at MercuryCC, giving them a chance to network and practice interview skills with hiring managers. Sandra praised the CBE initiatives at SaturnCC as “It’s the right thing to do for the students.” Nancy emphasized the influence the regional business needs had on the direction of the CBE initiative at NeptuneCC. She explained:

> The demand for more training and development was the reason we selected this program. It was an opportunity to lower costs and offer a degree that was feasible
for the students with some college credit and the ability to accelerate through and utilize some of their prior learning and knowledge. And it is working.

Although the participants focused primarily on the degree completers, hints of other potential markets emerged from the interviews. At SaturnCC, Sandra wanted to see the innovation from the CBE program be applied to the traditional programs. She expressed interest in designing a statewide General Education core: “I think [CBE] could work beautifully for General Education, especially for Math and English… For those students who need more time this is actually a perfect perfect opportunity for them.”

**Innovation.** Participants indicated that pursuing a CBE initiative was enticing because it was new, exciting, and different. Sandra commented on the current state of the new model in higher education:

Institutions are scrambling to figure out what CBE means to their systems, and how it’s going to work in their systems. Higher ed is not known for being innovative. We are not known for driving change; change usually drives us and it normally comes from legislative sources. This is the situation where the education market is trying to move ahead and move faster than even what the Fed and what IT industry are doing.

Vince described CBE as a “new degree model,” and not just a different way of offering a course. Marco emphasized the power of the CBE approach to effect change across the campus: “At MercuryCC, we did not have real universal standards for distance learning, and so now we really have an idea of what a top-notch distance learning program could look like.”
All participants noted the faculty’s excitement around creating new curriculum. Sandra said, “Generally, all of our [faculty] are pretty successful in the classroom, but I think they saw something that was different and unique with CBE.” Janet referred to the CBE program as pursuing the institution’s strategic plan, which supported “innovative learning” approaches. Vanessa at VenusCC commented, “[Faculty] had hard time grasping the model and thought that it may not be a quality program. But soon after they got involved and engaged, they realized it is a quality program; it is something that students can achieve and succeed.”

The data indicated that, for many individuals, the innovative aspects of the CBE model influenced their perception and motivated them to engage in the design and implementation of the initiative. Based on data, innovation, by and of itself, was not a primary reason for institutions to pursue CBE; however, the intentional nature of designing and implementing CBE and noticeable impacts of its innovative features on institutions are in agreement with the definition of innovation in higher education (King & Anderson, 1995).

In summary, multiple participants mentioned higher education affordability, degree completion, and innovation as rationales for developing and implementing CBE programs on their campuses. All participants mentioned these themes, although the relative emphasis varied by institution. MercuryCC, JupiterCC, NeptuneCC, and VenusCC overwhelmingly emphasized improving education quality while reducing costs and time to degree as well as gainful employment after graduation as the main intentions for their CBE initiatives.
It is important for the stakeholders in an institution to realize why a change is desirable before embarking upon the change initiative (Burnes, 1996; Rajagopalan & Speritzer, 1996). All six community colleges in this study had successfully established the rationales for their CBE initiative before beginning to take any actions. All leaders in this study adopted similar strategies to leaders who seek to instigate second-order change by actively engaging their followers with different viewpoints in the change processes. They effectively communicated the importance and value of the CBE initiative, which is consistent with the transformational leadership model (Bass, 2006; Burns, 1978).

**Current CBE Initiatives at Six Community Colleges Nationwide**

This section presents the results that answered the first research question. The research question was: What are the current approaches to design and implementation of CBE in community colleges?

Four categories were used to organize the interview data from the six community colleges explored in the interviews: program description, curriculum design and delivery model, learner support model, and industry and workforce engagement. The four categories effectively describe the current trends in design and implementation of CBE program at community colleges that participated in this study. In all cases, institutions offered non-CBE curriculum in the same program areas as the CBE programs. CBE programs described in this section are either at the design stage or implementation stage.

**Program Description**

Engaged in a Department of Labor Grant project, MarsCC was currently in the development phase of its CBE initiative. The college was expected to offer ten
competency-based courses in math, English, and arts as a part of technical certificate degree in Fall 2016.

SaturnCC was participating in the U.S. Department of Education’s Experimental Site Initiative Program. Sandra described the initiative as “A grant program with no significant dollars attached to it.” Two one-year technical certificate programs were being developed in CBE format. SaturnCC anticipated offering its CBE programs in Fall 2016. One of the certificates would be fully competency-based and only students who prove to be “program-ready” would be able to enroll in the certificate program. The courses in the second certificate program, except for Liberal Arts courses, were designed in competency-based format. The main focus of the programs at SaturnCC was to meet the demands of the industry in terms of employability rather than transferability to a four-year institution.

Under a Department of Labor grant, MercuryCC developed a CBE pilot program. Housed in an academic department, the program was fully online and designed to lead into seven college certificates as well as courses that prepare students for several additional industry certificates. MercuryCC now is expanding its CBE initiative to two additional academies, one for high school students and one for low-income adults, which are offered in hybrid format.

Neptune Community College (NeptuneCC) designed the core curriculum of an applied science degree in a fully online CBE format in collaboration with a four-year institution. The program targets students with some college credit hours but unfinished degrees who were able to utilize prior learning and knowledge to accelerate through the program.
At Jupiter Community College (JupiterCC), the CBE initiative transformed an academic department by building on the success of piloting a few classes in CBE format. Faculty who were satisfied with the results of the CBE pilot redesigned all courses within an academic program in a CBE format. The new CBE courses were open to all students across campus. The program led to multiple certificates; however, students did not have to commit to a certificate if they wish to register in a CBE course.

Two years into implementing its CBE initiative, VenusCC offered a fully online, general education sequence in a CBE format. The majority of students enrolling in the program were working individuals who attended college part-time. Students were able to attempt as many competencies and courses as possible within a seven-week time frame, which constitutes a CBE academic term. Flat-rate tuition was defined for the CBE academic term. Federal financial aid was available for eligible students in the CBE program.

**Curriculum Development and Delivery**

MarsCC initially planned on engaging in a direct assessment model, which did not require CBE programs to translate the competencies into the credit hours or into individual courses for financial aid eligibility. However, campus leaders decided to switch to a course-based approach after attending a national conference on CBE. Mary commented on the direct assessment approach, “We would have to start a whole new college…. We learned from other colleges… [Our CBE model] is essentially an online course where you strip the due dates. It is going to have the same number of students, faculty gets paid the same, and faculty workload is the same. Everything will be the same as an online course.”
Faculty members led the curriculum development efforts at MarsCC. An appointed faculty lead worked with other faculty members, an instructional designer, and a faculty fellow in developing the content and assessment of the courses. The instructional designer’s role was to provide assistance in setting up the courses in competency-based format of delivery. MarsCC utilized its online learning platform, “Blackboard,” to deliver the curriculum. The faculty fellow’s role was to meet one-on-one with instructors who would be teaching the CBE courses to provide support in the development process.

At SaturnCC, a committee of full-time faculty led the course and content development of the CBE program. Constituents involved in the program design process have started to discuss the details about how the program would be delivered online.

A team of faculty and an instructional designer who had an extensive experience in online education were involved in the curriculum design process at MercuryCC. The college converted typical three-credit hour courses into CBE courses. The CBE program was delivered online. A hybrid model of the CBE program has been developed for underprepared and low-income high school students.

At NeptuneCC, the curriculum development team included administrators, faculty members, representative from a high school district, and industry stakeholders. The team defined the competencies, and then worked backwards from competencies to develop the content and assessments. The program was offered in an entirely online format. For the most part, communication between students and instructors occurs through emails or the Learning-Management System, and sometimes by phone or in person.
At JupiterCC, the development team included the academic dean, department chair, lead faculty, and the completion coach. The courses were offered in online and on-ground self-paced formats. For online classes, all content and course resources were available to the students online through the college Learning Management System, “Canvas.”

The curriculum development team from VenusCC first designed the competencies of the CBE program, and then grouped them into courses. After the design process was completed, a third-party publisher was contracted to evaluate the curriculum, attach appropriate educational resources such as lectures, books, and assignments for each competency, and create assessments at competency and course levels. The CBE curriculum was offered to the students through the publisher’s online delivery platform.

**Learner Support**

MarsCC planned to utilize an academic coach model to support the students and faculty in the program. The academic coach would also assess student readiness to participate in online courses prior to the beginning of each course.

SaturnCC was building a student-coaching program by leveraging institutional student support systems to foster student relationships with faculty, coaches, and staff to engage students more deeply in their learning.

At MercuryCC, a student support specialist was hired to facilitate enrollment management, making sure students enroll in the proper sequence of courses for their particular pathway, and encouraging them to stay enrolled. Career supports were offered as students approach the end of their program to help students obtain internship and jobs.
NeptuneCC also adapted the academic coach model for general academic advising, helping students to overcome their learning barriers, facilitating efforts to find the resources they need to support learning, and counseling students on plans for the future. Students had access to an academic coach through email and phone calls, though occasionally they meet in person.

The current open-style course model made it difficult for JupiterCC to track students for coaching and advising purposes specific to CBE. The college continues looking for solution to address the issues related to coaching and advising students.

The CBE program at VenusCC had an academic coach who monitors student progress and assumes the role of a liaison between faculty and academic services.

**Industry and Workforce Engagement**

Three out of six colleges dedicated resources to engage employers and develop formal relationships with industry partners. They leveraged their industry relationships not only to develop curriculum, but also to recruit students. The level of involvement varied across colleges and partner organizations.

Currently not engaged with its industry partners, MarsCC was designing the processes to engage with partners in the development processes of its CBE initiative. Although the impetus of the CBE initiative at SaturnCC was the demand from specific industry in its region, Sandra did not discuss the capacity of the industry partners’ involvement in the design process. At MercuryCC, the CBE leaders placed heavy emphasis on partnerships with employers, especially in supporting student recruitment and transition to jobs.
At NeptuneCC, all academic programs are required to have advisory committees who were actively involved in the design and developmental process of the CBE initiative. According to Nancy, industry partners in the advisory committees provided feedback on what competencies were the most critical or relevant to be included in the curriculum.

At JupiterCC, the curriculum development took place within the academic department that offers the courses. Industry partnerships were not considered or discussed among the faculty at JupiterCC.

At VenusCC, industry representatives from the City’s Economic Development Corporation were directly involved in the CBE curriculum design process, providing feedback on the necessary competencies to prepare the next generation’s workforce.

In institutions offering CTE-related CBE programs, competencies were developed and compared to industry standards and needs. VenusCC and NeptuneCC developed competencies using program-level learning objectives as the starting point by consulting with local employers and companies to ensure alignment with industry standards. MercuryCC used existing academic learning objectives as the competencies in the CBE courses. SaturnCC and MarsCC’s programs with a general education focus did not engage with industry in developing the curriculum. However, in all cases, all participants referred to faculty as the experts in developing the curriculum on multiple occasions during the interview.

In summary, despite having different design and implementation strategies and processes, the resulting CBE programs were similar across the colleges. For instance, the terminologies used in the curriculum and the processes the institutions used to engage industry partners to achieve their objectives in the design and implementation varied
across institutions. However, all institutions followed the course-based approach to CBE model for their programs, all focused on providing extensive professional development to faculty and staff across campus, and all provided extensive student support services for students in the CBE programs. I expect that these similarities were partly due to the fact that the CBE leaders shared their practices with other colleges involved in CBE initiatives through national CBE networks.

The scope of current CBE initiatives at community colleges discussed in this section is summarized in Tables 7 and 8. More detailed information about the programs is provided in Appendix G.
Table 7

Summary of Program Description, Degree Offerings, Funding, and Level of Industry Engagement

<table>
<thead>
<tr>
<th>Colleges</th>
<th>Grant Awarded</th>
<th>Program Description &amp; Degree Offerings</th>
<th>Industry Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>MarsCC</td>
<td>None</td>
<td>Standalone courses</td>
<td>None</td>
</tr>
<tr>
<td>SaturnCC</td>
<td>Department of Education experimental site initiative program</td>
<td>Technical certificate program</td>
<td>None</td>
</tr>
<tr>
<td>MercuryCC</td>
<td>Department of Labor grant</td>
<td>Technical certificate program</td>
<td>Curriculum development level</td>
</tr>
<tr>
<td>NeptuneCC</td>
<td>Federal grant</td>
<td>Lower division core curriculum courses</td>
<td>Curriculum development level</td>
</tr>
<tr>
<td>JupiterCC</td>
<td>None</td>
<td>Standalone courses</td>
<td>None</td>
</tr>
<tr>
<td>VenusCC</td>
<td>Department of Education grant</td>
<td>Lower division core curriculum sequence</td>
<td>Curriculum development level</td>
</tr>
</tbody>
</table>
### Table 8

**Summary of Curriculum Design, Delivery, and Learner Support Model**

<table>
<thead>
<tr>
<th>Colleges</th>
<th>Design</th>
<th>Delivery</th>
<th>Learner Support Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>MarsCC</td>
<td>Course-based</td>
<td>Fully online</td>
<td>Academic coach: Provides student support services</td>
</tr>
<tr>
<td>SaturnCC</td>
<td>Course-based</td>
<td>Fully online</td>
<td>Academic coach: Facilitate student progress and provides support service</td>
</tr>
<tr>
<td>MercuryCC</td>
<td>Course-based</td>
<td>Online &amp; hybrid</td>
<td>Support specialist: Monitors student registration, enrollment, and persistence</td>
</tr>
<tr>
<td>NeptuneCC</td>
<td>Course-based</td>
<td>Fully online</td>
<td>Academic coach: Provides academic planning and student support services</td>
</tr>
<tr>
<td>JupiterCC</td>
<td>Course-based</td>
<td>Online &amp; hybrid</td>
<td>Completion coach: Provides student support services</td>
</tr>
<tr>
<td>VenusCC</td>
<td>Course-based</td>
<td>Fully online</td>
<td>Academic coach: Facilitate interactions between faculty and academic support services, monitor student progress, and provide support</td>
</tr>
</tbody>
</table>
Design and Implementation Challenges and Leadership Strategies

This section is organized in response to the second research question: What leadership strategies do community college leaders use to guide their institutions toward the design and implementation of CBE?

As described in the literature review, the culture and tradition built around procedures and processes in a higher education institution make it difficult to introduce a model that deviates from the current system (Weise & Christensen, 2014). The current system allows institutions to only consider solutions that conform to their existing academic and business models (Weise, 2014). Although colleges are beginning to view the benefits of CBE, they are currently faced with significant challenges in making alterations at the institutional level to adopt CBE as a whole. There are several examples of institutions that offer CBE programs as an independent unit within the institution without addressing required changes in business and academic processes including but not limited to scheduling, financial aid, content development and delivery.

The CBE liaisons in all institutions were aiming to fully integrate the CBE initiative into their campus structures. In that case, the CBE initiative could introduce a second-order change for the existing college structure. Such a second-order change would require transformative leaders who question the status quo and move the institution forward without compromising the CBE initiative.

The leaders I studied did indeed employ transformational leadership strategies to address the changes within the institutions. Leaders of these CBE programs had the autonomy to set up the right processes and resources that were essential for the new program’s success. It was important to observe the kinds of challenges these community
college leaders encountered as they attempted to design and implement their CBE programs from within the institution, and how they navigated around the already existing processes at their respective institutions to transform those processes.

Three major themes emerged from interview data describing the leadership challenges in the design and implementation stages of CBE initiatives. First, the three themes are described: (1) curriculum development, (2) non-traditional curriculum delivery, and (3) industry alignment and employer validation. Then, the leadership response to each theme is explained in the subsequent section to the theme.

**Curriculum Development**

**The challenges.** Across all institutions, the data indicated that the process of developing curriculum was more collaborative and transparent than traditional course development models, which often rely on an individual subject expert member. All colleges have developed structures that support collaboration between dedicated individuals with different expertise involved in the process.

Traditionally, faculty assuming the role of the content expert in the curriculum design process work in silos to create or modify curriculum. While all participants referred on multiple occasions to faculty as the content experts in the developing CBE curriculum, other professional experts were involved in the process. In three institutions, professional experts including technology and industry stakeholders provided input in different capacities to make the process transparent and collaborative.

All participants that admitted creating the inclusive and collaborative environment introduced challenges early in the development phase of the project. Marco explained, “Faculty being humans are inherently conservative when it comes to changing their job
description. And so, [chuckles] so this wasn’t the way that they were doing it before.”

NeptuneCC realized for the initiative to be successful, faculty buy-in was essential. Nancy ranked it as the most challenging part in the design process. VenusCC was faced with a similar challenge across campus. Vince elaborated, “The big challenge in the beginning was the faculty’s perception of CBE.”

Even though proven effective, the new curriculum development processes were in some cases in conflict with constituents’ personal values and prevailing norms and required new knowledge, attitude, or skills. This confirmed Levy and Merry’s (1986) claim that even seemingly simple change efforts to introduce an alternative approach inconsistent with prior experience of the stakeholders in an organization can appear irrational to some stakeholders, implying a second-order change. Hence, it can be concluded the curriculum development processes imposed significant changes in the colleges. Leaders need to adopt the necessary strategies to engage the stakeholders in the change effort immediately to guarantee the initiative’s timely progress (Prestine & Bowen, 1993). The section below discusses the leadership response to address the curriculum development challenges.

**Leadership response.** Each college adapted a different strategy to encourage the faculty to engage in the collaborative process for curriculum development in the early stages of the project. Marco explained MercuryCC’s strategy to address the issue: “We overcame the obstacle by offering a large stack of cash [chuckles], so that instantly gained converts. Once faculty began working on the curriculum design, they were very excited, they were learning together, this really brought them together.” NeptuneCC presented the initiative to faculty and program advisory committees at their events.
Nancy commented, “It allowed us not only to have access to the faculty in those programs but also to their advisory committee members that are hiring the students in the areas. That was very helpful and very necessary.” VenusCC provided professional development to familiarize faculty with CBE and engage them in the development process early on.

Leaders took this opportunity to engage the faculty in conversations around curriculum development and redesign. In this study, leaders focused on coaching and mentoring individuals and groups to increase their engagement levels. Janet emphasized the critical role of the information sharing across campus on course and program development. At JupiterCC, once the leaders had exposed the team to different models and approaches to CBE, the development team began engaging in the process by analyzing what CBE would look like on their campus. At SaturnCC, a faculty lead who was chosen to lead the initiative on campus by the senior administrators generated interest among his colleagues by educating them about CBE model. Sandra explained that the coalition of full-time faculty led to a committee who developed course and content of the CBE program. At MarsCC, the assistant dean, who worked directly with the faculty, appointed a faculty lead, who worked with other faculty members in developing the content and assessment of the courses. The president of VenusCC, Victoria, shared her strategy to provide professional development to faculty and staff: “I picked strategically who got involved in the beginning because they would be effective messengers with the faculty.” She added assigning the right leaders to provide professional development to the faculty about CBE and encourage them to engage in the
process was critical in the successful curriculum and program development and implementation of CBE initiative at VenusCC.

**Online and Hybrid Curriculum Delivery Model**

**The challenge.** Data collected revealed that CBE was offered in online, hybrid, or on-ground formats across the participating community colleges in this study. All colleges utilized an online platform to take full advantage of what CBE had to offer, even for the on-ground format. The online component of any form of CBE ensured that students had access to resources at all times, and that time was truly the variable factor and learning is fixed.

At JupiterCC, the courses were developed and offered in online and on-ground self-paced formats. For online classes, all content and course resources are available to the students online. Students who chose the on-ground option need to attend the computer labs and work at their own pace during the school’s lab hours. They still have access to all content online and extra academic assistance is available in the labs if they need during the lab sessions. For all formats, the assessments are built into the school’s Learning Management System to allow students multiple attempts until they master the competency, and instructors can utilize the system to act as a personalized tutor when necessary. Learning materials mapped to various competencies at different levels of sophistication are also available to students. According to the participants, colleges in the implementation stages overall are satisfied with the results of their CBE initiatives. Despite its successful progress, the CBE delivery model in all three formats (online, hybrid, and on-ground) presented challenges in the beginning stages of implementation.
In the first semester of implementation of the program at VenusCC a large number of students did not successfully complete all the courses. The academic leaders reflected on the issue, stating that students’ and faculty’s lack of knowledge of the new learning model resulted in a poor success rate. Virginia further explained, “I realized it was not only the incomplete issues [meaning the poor success rate]; there was a lack of communication between faculty and the students. Among other issues with the faculty, they were not accustomed to responding promptly.” Full-time instructors on campus who were hired to teach part-time in the CBE program, failed to respond to students in a timely manner due to their demanding teaching schedules. The lack of communication resulted in students not being able to finish modules by end of the term. Victor praised the academic coach leadership role for addressing the “Issue of in-completers,” which resulted in an 80% success rate in the following year. Virginia, the academic coach, explained her strategy:

Clearly there was a need for us to offer student orientation in the beginning of each term. We describe how CBE works; we go over student email access, distance-learning information, and resources available to them. Students know what to expect once the term starts. The faculty issues belong to Victor. We worked as a team to clarify the misunderstandings with the faculty.

As discussed in the literature review, full implementation of CBE would be considered a complete paradigm shift for institutions that had been operating exclusively in a traditional teaching-learning model. Because of a need for training faculty members and traditional practices of the institutions, introducing CBE would represent a second-order change in such institutions if it were fully implemented across the campus. As a
result, it could lengthen the time between design and actual implementation of the model compared to a first-order change. Therefore, leaders needed to address certain issues such as faculty roles to effectively move the institution and stakeholders forward in the CBE implementation. The leadership approach made a large difference in the success of the initiative. The leadership response is discussed in detail in the section below.

**Leadership response.** At VenusCC, some instructors incorporated additional assignments with hard deadlines, which contradicts the fundamental principle of CBE. Victor further elaborated on the issue, “For many of [the instructors] who are grounded in the more orthodox approach to the traditional sage on stage model of learning, it is difficult to transition to a model that is in many ways challenging the old model.” At VenusCC, the department chair’s responsibility was to reinforce the objectives of the new model and make sure the instructors’ pedagogical approach was compatible with CBE format; he also provided additional professional learning opportunities to instructors interested in teaching the courses.

At MercuryCC, the nature of CBE courses made it necessary to adapt standards and structures to support students as they worked independently and to encourage timely progress in courses. The leaders and faculty established the standards and structures, which were utilized as a framework to provide support to the program and the students. The role of faculty members involved in the program was redefined. Full-time faculty who were qualified to teach online courses functioned as tutors primarily addressing students’ questions in online or classroom settings. Marco explained the iterative and ongoing process of the program development cycle, which occurs in four-month periods.
at MercuryCC. The department chair constantly reminded the faculty of their new roles and responsibilities in the online delivery model.

At JupiterCC, the lead faculty and the program chair defined the new faculty roles and responsibilities in the beginning of the development stages of the CBE initiative. Students are able to access instructional resources online and work at their own pace either online or on ground. The faculty’s role is to provide assistance either in person or electronically when approached by the students.

In summary, the leaders’ tactical decisions to reevaluate faculty roles, qualifications, and interactions with students are reflected in this study. Obviously, similar to the development of any new program, there is a level of uncertainty in the processes and results of CBE initiative. Leaders made sure that feedback loops were built into the program to review the results at different levels of the program.

In addressing a second-order change, Argyrus and Schon (1978) emphasized the importance of considering both existing and new strategies to solve a given problem. If a strategy was not successful, the leaders in this study considered new ways to expand the institution’s perspective and add new strategies to its repertoire, which aligns with practices defined by Bass and Avolio (1994) for transformational leaders. In this study, the leaders focused on improving individuals’ abilities to embrace the changes to their roles and responsibilities introduced by CBE. Leithwood (1992) associated this type of leadership with transformational leadership.

**Industry Alignment and Employer Validation**

**The challenge.** Creating effective career pathways for students entering college was one of the key objectives of CBE (Johnston & Soares, 2014). The data presented in
this study included CBE programs in both general education and career technical education areas. In the design stage of general education courses, SaturnCC, MarsCC, and JupiterCC did not emphasize the involvement of industry stakeholders in the program design. However, MercuryCC, NeptuneCC, and VenusCC viewed industry partner participation as a critical component for CBE program development and implementation because the programs were in CTE.

**Industry partners.** VenusCC created industry alignment by having industry partners present in the curriculum design meetings for the general education program. Interview participants expressed their industry partners’ eagerness to work with their institutions to articulate and develop standards that would help improve the quality of potential employees.

Colleges dedicated resources to engaging employers and developing formal relationships with industry partners through advisory meetings, the curriculum development process, and hosting industry events on and off campus for the students. They leveraged their industry relationships not only in curriculum development, but in student recruitment, and in some cases regional economic development. The level of involvement varied across colleges and partner organizations. Institutions created a common ground with their industry partners to articulate programs and competencies through advisory committees.

Marco shared his concerns about the sustainability of the industry partnership model, “[industry partners] are very very busy people, and just getting them to volunteer to just look at the competencies over email, 90% of them say, ‘No, I don’t have enough time.’” He suggested the industry linkage should not be overlooked by adding, “That is
one of the reasons we are so successful.” Marco encouraged proper use of program resources to align the program requirements with industry requirements, by making industry involvement and presence explicit by organizing industry-related activities such as job fairs on campus. Marco added, “The system needs to work for both sides, for the students obviously, for the college, but also for the industry partners because they use our resources to prepare students for jobs.”

**Technology partners.** As one of the critical components of any CBE program design and implementation, institutions focused on developing relationships with their technology partners. In this study, technology partners provided technical assistance with operationalizing the components of CBE programs from design to implementation.

Janet explained, “There’s a lot of really interesting innovation in terms of industry partnership, in terms of technology partnership.” She continued, “Operationalizing the program from the business side is the challenge. And every IT vendor on the planet who works in this space of student information management and learning management thinks they can solve every problem you have around CBE.”

At VenusCC, participants expressed that the partnership with a publisher to design and deliver the content of the program was the major challenge in the program implementation. According to Vanessa, “Partnership with [the publisher] was one of the requirements of the grant with our partners. We are stuck with it till the end of the grant period.” The college currently cannot make any changes to the curriculum or the display of the content on their online platform due to contractual obligations. Referring to the publisher, Virginia commented, “We did need a third party to vet the quality of our program and demonstrate to our board and 4-year partners.” VenusCC’s Leaders agreed
that the terms of the partnership needed to be discussed and better and more viable communication channels with the partners needed to be established moving forward with the program implementation.

The critical role of the leaders in allocating resources and cultivating the relationships with industry is described in the section below.

**Leadership response.** Participating colleges embraced the opportunity to partner closely with employers to bridge the traditional divide between academia and the labor market. Senior administrators, specifically presidents of the colleges offering CBE programs, are at the frontlines of cultivating relationships with industry partners. Marco explained that the relationship between the local Chamber of Commerce and the college president helped MercuryCC to utilize the large network of industry partners in designing the program.

Victoria emphasized the relationship VenusCC had cultivated with the workforce board and the advisory councils for each academic program to stay informed on the unfilled jobs and the skill sets needed to fulfill those jobs. She shared:

> We work closely with the [City’s] Economic Development Corporation in attracting industry to our region. Industries rely on us to train and prepare the needed workforce, so that’s the primer to all of our programs… By aligning with industries, it makes so much sense for educators to identify the competencies needed for a particular position or trade or profession and give students an opportunity to demonstrate mastery of those competencies or not and then it’s our responsibility to help them achieve those competencies.
Burnes, Rajagopalan, and Speritzer (1996) highlighted the importance of interaction between an organization and its external environment in any change initiative. Leaders in this study engaged both internal and external sources of change in their organizations to ensure successful development and implementation of their CBE programs. The CBE initiative requires a new form of collaboration and data sharing among industry and institutions that are not necessarily aligned with existing processes. In this study, presidents employed some transformational leadership strategies by leveraging their external and internal networks to create the culture of collaboration among the CBE stakeholders to effectively move the initiative forward (Astin & Astin, 2000).

The president at VenusCC, Victoria, described the success of the program as being due to her ability to build consensus not only internally, but externally in the community because she believes that the college could not be successful in any initiatives without the support of the in-district public schools, the community, and partner universities.

**Summary**

In summary, all leaders referred to educating faculty about the benefits of CBE to the students and the institution, training faculty, and experimenting with ideas and concepts as essential components of any CBE initiative. With respect to general receptivity to CBE implementation, respondents cited initial negative attitudes toward change. Participants mentioned that they expected the negative attitudes towards the CBE initiative. Leaders in this study utilized well-planned and organized strategies to introduce the CBE model to the college. They described the resistance to change as being
mostly resolved by presenting the CBE model to the campus, educating and engaging a coalition of acceptors early on, and allowing the CBE to take root.

According to Bass and Avolio (1994), transformational leaders challenge, motivate, and encourage followers to be more creative when addressing issues. In this study, the leaders clearly communicated the importance of CBE initiatives for their student success, and by making participation voluntary, allowed stakeholders choose to commit to the CBE initiative’s success. Yukl (1998) referred to this as a strategy to introduce a transformative change to an organization. According to Astin and Astin (2000), practicing a transformational approach allows leaders to create a collaborative environment and alleviate the internal and external pressures. CBE leaders attempted and succeeded in addressing a second-order change by raising colleagues and subordinates to achieve a goal – a characteristic of transformative leadership described in the literature review.

Institutions benefited from strong collaborative leadership in all stages of the project. Despite having different design and implementation processes, the resulting CBE program and the leadership experiences were similar across the colleges. In all colleges, the senior leaderships’ inspirational motivation allowed the followers to become committed to the CBE vision. Chemers (1997) identified inspirational motivation as one characteristic of transformational leader. Astin and Astin (2000) described the role of a leader in transformational leadership as creating an opportunity for learning.

Across all six institutions, senior leadership support and collaborative leadership were critical strategies in both design and implementation processes of the CBE initiative. All participants that emphasized that the initiative would not have moved
forward without senior leadership support and collaboration at all personnel levels. This is consistent with the literature identifying transformational leadership as a critical element in a change process (Liu, 2013). The transformational leaders in this study were focused on building institutional capacity and setting up a new vision for a sustainable change in the context of a new learning model (Liu, 2013).

All participants brought up the influence of college culture on CBE program development and implementation. Most noted that it was important to respect institutional culture, even as they were trying to change it through their work with CBE.

The participation of individuals across campus was identified as a critical factor in the success of the CBE initiative. However, the nature of the collaboration differed across all institutions in this study. In the case that CBE was more integrated into the institution, collaboration took place campus-wide. If CBE was developed in a separate structure, collaboration took place within the separate structure. However, if CBE was integrated into the institution by engaging all faulty, staff, and administrators in the process, collaboration took place campus-wide, resulting in the success of the initiative across the college.

Vanessa pointed out the cultural difference between community colleges and four-year universities: “Universities are not as active or proactive, or aggressive as community colleges. They approach things different than us; being a community college, we come together and get things done!” Victoria added, “Faculty culture is committed to student success at community colleges, not like the university model where faculty are focused only on their own discipline.”
The following chapter provides an overall discussion of the findings, recommendations for higher education leaders at institutions developing CBE programs, suggestions for future research, and conclusions.
CHAPTER V: DISCUSSION AND CONCLUSIONS

An increasing number of community colleges are developing Competency-Based Education (CBE) degree programs across the nation. However, they are not receiving national attention (Laitinen, 2012). This research was a step in filling that gap in the literature. The purpose of this study was to provide the range of current CBE initiatives at community colleges in the United States. Additionally, it investigated how the CBE leaders’ led the CBE initiatives toward successful implementation at six community colleges. The research questions were the following: 1) What are the current approaches to design and implementation of CBE in community colleges? 2) What leadership strategies do community college leaders use to guide their institutions toward design and implementation of CBE?

The findings of this study suggest that current CBE approaches at community colleges nationwide follow a similar trend. Similar to Sinclair Community College (SCC), all six community colleges integrated their CBE programs into the college structures. The colleges in this study made changes to the processes at their institution to design and launch their CBE initiatives. The CBE leaders in this study adopted and adapted practices that produced results based on their environmental conditions in both design and implementation stages. The findings on design and implementation processes can be found in Chapter 4 and Appendix D.

The qualitative methodology described in Chapter 3 and the findings in Chapter 4 were developed and presented in an attempt to answer the two research questions. This chapter includes discussion of the findings for the two research questions based on
related literature, recommendations, the future of CBE in higher education, and conclusions.

**Discussion of Findings**

Fourteen CBE liaisons representing 13 different colleges responded to the online survey and total of ten interviews were conducted to explore the current CBE programs at community colleges across the nation. Different approaches to CBE, challenges in the design and implementation of the initiative, and the leadership needed to address the challenges at six community colleges were explored in this study. Further, the lessons learned and recommendations from the leaders of CBE programs well into the implementation stage were discussed in the interviews.

**Research Question One: Current Approaches to the Design and Implementation of CBE**

The survey findings showed large and medium size community colleges (more than 30,000 and 10,000 – 1,000) were involved in design and/or implementation processes of the model. There was no response from small size (fewer than 1,000 students) colleges in this study. As discussed in the previous chapter, 17 out of 52 institutions of higher education nationwide engaged in CBE model are community colleges. Although the sample size of this study is small, it captured responses from 13 of these 17 community colleges by the survey instrument. Out of the 13 surveyed colleges, representatives from six institutions engaged in follow-up interviews to further discuss their CBE initiatives. Also, I investigated one of the community colleges that was well into implementation stage to further study its model. Considering the complexity of community colleges due to the organizational and structural inefficiencies inherited from
the 20th century and diverse student population they serve (Townsend & Twombly, 2001), the number of community colleges involved in a CBE initiative could suggest the willingness of community colleges to invest in new ways of approaching education that will benefit our students by reducing time to completion.

Eighty-five percent of the campuses that participated in the survey followed a course-based approach similar to Western Governors University (WGU) and SinClair Community College (SCC). Fifteen percent of colleges indicated adopting a direct assessment approach; all of those colleges were in the design stage of their CBE initiative. The rapidly changing policies and regulations related to direct assessment may have a negative effect on community colleges’ decision to whether or not go forward with the direct assessment model. According to Janet, JupiterCC is interested in adopting CBE’s direct assessment model; however, it is difficult for the college to begin planning the CBE development because the United States Department of Education (DOE) constantly introduces new information and modifies policies around the direct assessment model. Once the policies are modified, the college needs to make certain adjustments to address the policy modifications, which complicates processes and delays the implementation of the program.

**Main Structures of CBE**

At the six campuses, academic experts designed the course-level competencies and directly aligned them to the course outcomes. In the literature, curriculum alignment with industry is highlighted as one of the main characteristics of CBE programs. However, three out of the six community colleges in this study did not incorporate industry participation in the curriculum development processes. It is important to note
that two of these three colleges are in the design stage of their CBE initiatives, and expressed interest in consulting with industry partners in the future. MarsCC offers standalone CBE courses and SaturnCC is still in the process of defining competencies for its technical certificate program.

Consistent with the literature, the three remaining institutions, MercuryCC, NeptuneCC, and VenusCC, ensured alignment between industry and academic expectations through a transparent process. Curriculum was designed and validated by feedback from industry across the institutions for both general education and CTE programs. These three institutions utilized the similar strategy of linking competencies to course outcomes in the curriculum design stage. However, the terminology and processes used by institutions in defining content and assessment varied across participants and institutions. At all institutions, faculty were informed and engaged in the design and development of the program from start.

The CBE programs across all institutions were designed either in a fully online format or to include an online component in the delivery model. MarsCC, SaturnCC, NeptuneCC, and VenusCC offered their CBE initiatives in a fully online format, similar to WGU, Southern New Hampshire University’s (SNHU) College for America, and Northern Arizona University (NAU). Also MercuryCC and JupiterCC offer alternative modes such as hybrid and on ground, respectively, which is consistent with the delivery model used by SCC.

Inconsistent with literature on poor online performance rates in community colleges, CBE programs have demonstrated satisfactory completion rates. More importantly, the data demonstrated a gradually increasing improvement in the student
success and retention rates. VenusCC reported an 85% graduation rate (over what number of years was unspecified) for the third CBE cohort of its online CBE program. Also, Marco shared data on MarsCC’s online CBE programming credential: “[MarsCC] has more than doubled the output of computer programmers, reduced time to completion, and reported an 89% success rate in placing our students upon graduation.” In comparison, studies that suggest only 10 to 25 percent of students enrolled in credit courses in in community colleges who intend to complete a baccalaureate degree actually complete their degree within six years (Risely, 2014).

Bailey, Jaggars, and Jenkins (2015) listed students encountering technical difficulties and lack of support among the challenges related to the online format delivery model of education. My data suggested extensive support services were available to students enrolled in CBE programs at these six campuses, providing timely technical and academic support. This allowed for a timely response to help students to stay focused on accomplishing their goals. Participants also mentioned that the self-paced and nontraditional environment with no structure does not ensure degree completion for all students. Therefore, at least for some students, the role of the coach or mentor in providing accountability or structure was found essential to timely program completion.

At each campus, academic experts built assessments or worked directly with publishers who built the assessments. Furthermore, the participants frequently cited processes to review whether the assessments were working properly and processes to seek improvement based on data. All participating institutions used rubrics to measure levels of performance that were translated into letter grades on the transcripts. At VenusCC, competencies were assessed at different levels of sophistication, allowing
students to demonstrate mastery at multiple points in the curriculum. The six institutions showed many consistencies in how assessments were developed, reviewed, and utilized as a measurement tools.

To summarize, the gathered data indicate that the majority of colleges chose a course-based approach to CBE. Also, CBE programs can exist in hybrid and on ground modes; however, without an online component, CBE programs cannot take full advantage of the model. The true potential of this new learning model lies in the critical convergence of the right learning model, technologies, and support services provided to the students. Faculty were informed and engaged in the design and development of the program from the beginning.

**Research Question Two: Leadership Strategies in the Design and Implementation of CBE**

The design and delivery of a centralized CBE program represents changes to every aspect of an institution. While procedures, policies, and regulations influence the process of moving toward CBE, effective leadership at the institutional level is crucial in bringing change (Bell, 1986). Given that virtually every process needs to be redesigned to integrate CBE into an existing college structure, the model presents a second-order change to the institution. Consistent with second-order change theory, it is possible for some to see this different approach as inevitably leading to the deconstruction of the public education, and undoubtedly resistance to such dramatic systemic change will continue to exist (Levy & Merry, 1986). Community college leaders face the challenge of responding appropriately and effectively to the needs and challenges of CBE. This
section provides a discussion of the leadership themes discovered in response to the second research question.

As a campus begins to engage in a change process, members of the organization need to first examine why they are about to embark on the process, the degree of change needed, and what is the best approach to adopt (Kezar, 2001). Therefore, communication to internal and external stakeholders is essential in managing the change.

In this study, internal communication was critical in developing support for a new and different type of academic program. All participants emphasized improving the quality of education while reducing the cost for students and improving employment opportunities for the graduates as the main intentions for their CBE initiatives. The leaders at all six colleges had engaged the faculty from the beginning of the change process by successfully communicating the new vision.

External communication was critical in ensuring that employers and students understood the nature of the program and curriculum. At MercuryCC, leaders utilized program resources to align the program requirements with industry requirements, and to make the industry involvement and presence explicit by organizing industry related activities such as job fairs on campus. Marco emphasized, “The system needs to work for both sides, for the students obviously, for the college, but also for the industry partners because they use our resources to prepare students for jobs.”

As described by Bolman and Deal (2003), the ultimate role of the senior administrators in transformational leadership theory is to cultivate an environment of collaboration and learning and guide the college toward the change. Across all institutions, data strongly supported the importance of senior administrators’ support in
launching the CBE program. In all cases, senior leadership support was necessary for CBE to become a reality in a reasonable time frame. It provided the right opportunities for the campus to explore new knowledge and attitudes in designing and implementing the CBE initiative, which aligns with Astin and Astin’s (2000) transformational leadership theory. Evidence of collaborative leadership emerged either through general efforts to align faculty and administration through the work of committees with campus-wide representation.

A transformational leadership strategy at all institutions was developing faculty internally, while other fundamental learning about CBE occurred externally through attending conferences or working with consultants. All colleges viewed allocating resources for learning by faculty and staff as an integral and very important part of the implementation process. Leaders in this study employed transformational leadership characteristics by providing the incentive for people to change their practices (Bass, 1985).

The leadership experienced faculty opposition to CBE implementation. Faculty training was crucial in enabling faculty to engage in the change process and successfully fulfill roles that had been redefined in the CBE programs. Cultivating a collaborative culture where constituents are motivated and empowered to ponder the unfamiliar territory is a strategy used by transformative leaders to implement a second-order change.

Simply having the intention to move from traditional model to CBE is not enough. Effective leadership is required to overcome the challenges before it is possible to start implementing it in any institution. In this study, the leaders clearly communicated the importance of CBE initiatives for their student success, and by making participation
voluntary, allowed stakeholders choose to commit to the CBE initiative’s success. The leaders created a collaborative environment and motivated followers to be more proactive in addressing the issues by a practicing transformational approach (Astin & Astin, 2000; Bass & Avolio, 1994).

**Recommendations for Community College Leaders**

The purpose of this qualitative study was to fill a gap in the research literature and to gather data extending our knowledge about designing and implementing a new learning model in higher education. CBE leaders’ insights nationwide are instrumental to the growth of the new model in higher education. This study aimed to share effective and efficient services and practices with the public. Interview participants admitted to basing their programs on “already existing practices” used by other community colleges.

Mary explained how MarsCC benefited from attending a national conference, “[The conference] made us realize, ‘oh okay we can do this in a course based model’ that will fit in with our current Legacy Systems and Collective Bargaining Agreement. We really benefited from that conference.” Program leaders were able to reach out to a network they built at the conference via email or phone call to find out information whenever necessary during the design process. Mary also mentioned, “The folks that convened the conference are conducting monthly webinars for community colleges that are developing CBE programs.” All participating colleges joined four-year institutions and/or national CBE networks to learn about existing approaches to competency-based education.

Participants in the implementation stage overwhelmingly agreed there was no point in “re-inventing the wheel.” Vince commented, “Figure out who is doing what, how
they are doing it, and adapt it on your campus.” Vanessa commented, “Gradually, community colleges are developing the toolkit for CBE practices.” She suggested that the toolkit would make it easier to have their questions answered during the design and implementation.

This study urges all community college leaders involved in a CBE initiative to consider sharing their practices and solutions to the challenges in the design and implementation of their program(s) with other colleges nationwide. This study aimed to gather and share such information from community colleges nationwide.

Integration in the Academic Structure

Centralized vs. decentralized. One of the important decisions that CBE leaders need to make is the degree of integration of the CBE program into existing campus structure. All of the participating institutions used the traditional services of the institution such as the admissions office, the registrar, and student services, which required the direct involvement of campus administrators in the planning of the CBE initiative.

Decentralizing the CBE program from the institution’s structure would likely minimize the time needed to develop and implement the program but would be costly. In fact, all six participating colleges were able to launch their CBE program successfully in a timely manner by making use of existing operational systems, course development, and student support services. Even if the decision is to create a separate department for CBE, as did VenusCC, some type of integration with traditional programs is necessary to address the accreditation and finances of the program. Thus, making the changes in the
existing processes and structure of the institution within a reasonable time frame is critical to ensure program’s progress.

**Clear communication with internal and external stakeholders.** According to interview participants, respecting culture of the institution is critical for successful change. If faculty and administration view CBE as a natural extension of what they currently do or in alignment with vision of the institution, the design and implementation of the program occur within a reasonable time frame. However, CBE is an unfamiliar academic model to the majority of the stakeholders in higher education. As a second-order change, the vision needs to be clearly communicated across the campus, if it is to succeed (Bass, 1985). The participating leaders raised faculty and staff to a greater awareness about the benefits of CBE model, provided rigorous professional development, and empowered them to engage in the process.

CBE leaders need a strategy for communication with accrediting agencies and the federal government. The issue with the federal government is determining student eligibility for financial aid when no credit hour standard is available for measuring progress toward completion. Community colleges in this study have solved this problem by translating competencies into credit hour courses and creating a curriculum that allows students to earn credit by completing and accumulating competencies. However, leaders should challenge the federal government to provide more flexible policies to support CBE flourish at its full capacity.

**Recommendations for Campus Leaders**

The following section provides recommendations for community college leaders currently involved or interested in involvement with a CBE initiative on their campus.
Drawn from the data in this study, the recommendations provide insights to leaders in addressing the challenges in the design and implementation processes of the CBE initiatives on their campuses.

**Attend CBE national conferences.** All participating colleges joined four-year institutions and/or national CBE networks to learn about existing approaches to competency-based education.

**Do not re-invent the wheel.** Participants in the implementation stage recommended adapting already-existing processes and strategies used by other successful colleges.

**Integrate into the existing college structure.** Data suggested that some type of integration with a campus’ traditional programs is necessary to address the accreditation and finances of the programs.

**Clearly communicate with internal and external stakeholders.** CBE leaders need to adapt a clear communication strategy with both internal and external stakeholders to make progress toward the design and implementation of CBE programs. Leaders need to make sure faculty and administration view CBE as a natural extension of what the institution currently does. Also, clear communication proved to be effective in addressing issues with the federal government and accrediting agencies in this study.

**Share practices and solutions to the challenges.** This study urges all community college leaders involved in a CBE initiative to consider sharing their practices and solutions to the challenges in the design and implementation of their program(s) with other colleges nationwide.
Future of CBE in Higher Education

All the CBE implementers who participated in this study foresee future growth for CBE in higher education. Victoria iterated:

CBE has the potential of becoming the new normal in higher education and our challenge is going to be identifying competencies, designing assessment and then following up with the results, being accountable in the workforce and further education endeavors, answering questions such as, did students really have the competencies we thought they had to succeed?

Study participants foresee CBE becoming the new wave in higher education. I believe CBE is much like online education, which was introduced 20 years ago. Most educators believed that it would not take root in higher education. We didn’t quite understand the impact that online education would have on how we do things until recently. CBE is another chance. Even though it may not fully replace the traditional higher education model, I predict it will play an instrumental role in providing access to higher education at lower cost on a global scale.

Study Limitations

As is inherent in all research, there are limitations to this study. Even though I was able to collect survey responses from 14 out of 17 community colleges currently involved in a CBE initiative, only six community colleges were represented in the interview data. Therefore, the findings generated from the interview data may not accurately represent all community colleges engaged in a CBE initiative. The survey respondents may have overstated their program and college effectiveness, because they may have wanted to publically appear highly effective in their progress. Or they may...
have wanted to help me, the researcher, by overstating their progress. Because participation was voluntary, there may have been sampling biases.

A program director, a completion coach, an academic coach, two program chairs, two deans, an associate vice president, a vice president for academic affairs, and a college president were interviewed for this study. Although the interview participants were proactive leaders of the CBE initiatives at the respective community colleges, they did not share the same positions or titles. Thus, the participants might have, intentionally or not, shared popular, position-accepted views as opposed to practices that they experienced to be effective on their campuses. For instance, the participants may have misrepresented an advisory meeting with faculty from a department as a curriculum-development meeting where faculty and industry partners collaboratively designed the curriculum, even though in reality the curriculum had already been developed by faculty.

The colleges selected for this study are members of Competency-Based Education Network (CBEN); therefore, the participants might have cited generalizations and theories learned from CBEN, instead of reporting specific knowledge and experience about their own campuses.

Except for VenusCC, where five different individuals involved in the CBE program participated in the study, only one person was interviewed from each of the remaining five campuses. Even though I did not discover any inconsistencies in the data collected from different individuals from VenusCC, if I had been able to collect data from different constituents at all colleges, inconsistencies or misrepresentations could have been discovered. The authenticity and trustworthiness of the data was dependent on the study participants.
Also, all of the CBE initiatives studied are grant funded; therefore, the data
gathered in the survey and interviews may not fully reflect some aspects of institutional
approaches to implementation and facilitation of a program. Grant funded projects limit
the authority of college leaders in making decisions in the design and implementation
process. For instance, there might be other campuses that are not grant funded utilizing
different approaches to CBE that were not included in this study.

Theoretical, purposeful, snowball, and non-probability sampling was used to
select the interview participants to guarantee the data were relevant to purpose of the
study. Two of six colleges had not begun the implementation phase at the time the
interviews were conducted. Thus, once these two colleges begin their implementation
processes, their experiences might not match the four colleges that were interviewed in
this study. The experiences and practices of the two colleges might differ resulting in
different outcomes and implications for the CBE practices.

**Recommendations for Future Research**

Opportunities for future research are extensive as this study is the start of the type
of rigorous research needed to assist a growing number of institutions considering the
CBE model. The results of this study could be utilized to conduct a more focused
qualitative study of a particular design or implementation aspects of CBE such as faculty
perspective and role at an institution.

Future research could concentrate on a particular aspect of my research questions.
The results of this study could be utilized to conduct a more focused qualitative study on
particular aspects of curriculum and assessment development such as faculty roles and
professional development. Various faculty roles and their effectiveness in promoting
student success could be investigated. Also, the effectiveness of different professional
development opportunities provided to faculty for their new roles could be studied.

Alternatively, research could examine the effect of the institutional structure on the implementation process, the role of senior leadership, and the long-run sustainability of the CBE program. Research could focus on how the institutional structure and culture evolves over time in response to the changes influenced by CBE initiative. Regarding resistance to change, future research could focus on sources of resistance and perspectives of both supporters and resistors of the initiative. This could help leaders better understand the potential for resistance and also suggest strategies for collaboration in implementing the changes required for CBE.

Future research could use qualitative or quantitative methods to explore the CBE model from student and industry partners’ perspectives. While interview participants provided their reasons for considering the model, this topic could be explored more thoroughly with a larger number of participants. Currently, the number of community colleges nationwide engaged with the CBE model is not large; expanding the stakeholders’ participation could produce more accurate results on the effectiveness and efficiency of the model. A new investigation might evaluate the actual impact of CBE initiative on student success and completion. Research might focus on students’ performance in the workplace or their next educational endeavor after completing a CBE program to study the effectiveness of the CBE. Considerable amount of federal funds are being invested in this model, and if it is not effective, the funds should be redirected elsewhere. If the model proves effective, the practices being used should be shared with other colleges.
Moreover, interview participants spoke about utilizing technology and distance education programs to deliver programs. Yet, they indicated concerns about traditional students not being ready for an online model of delivering curriculum. A future study focused on effective strategies in introducing online education to all students may further inform CBE implementers. Future study could be focused on the effectiveness of student support services in online classes.

Additionally, further research might focus on how financial aid is addressed in both course-based and direct assessment approaches to CBE. The result of such study focused on financial aid could inform the policy makers who work with institutions of higher education and the federal government to develop more effective policies to address some of the issues around this topic.

With the rise in the growth and interest in CBE model, pursuit of these research opportunities could help inform current and future institutional leaders.

Conclusion

In this chapter, I have expanded on the findings described in Chapter 4, shared key approaches to CBE, presented recommendations for community college leaders of CBE in higher education according to the participants in the study, elaborated on the study’s limitations, and proposed my recommendations for future research.

The purpose of this quantitative study was to explore the current Competency-Based Education (CBE) initiatives at community colleges in the United States and how the leaders at community colleges addressed challenges in the design and implementation processes. The study used second-order change and transformational leadership as conceptual frameworks to focus on the key elements essential to the design and
implementation of CBE initiatives at community colleges. The most significant findings were as follows: (a) community colleges are following a similar trend to each other in the curriculum development and delivery of their CBE programs, (b) in the beginning stages of the design process, the CBE leaders focused on professional development internally, while learning about CBE best practices externally, (c) allocating resources for professional development for all stakeholders is considered critical to the CBE progress, and (d) senior administrators’, specifically the college President’s, support is essential to the success of the CBE initiative.

Academic preparation is still a core function of community colleges. Today, their mission is more comprehensive, due to the growth of technical education and job training programs (Schmit, 2013; Thomas, 2014). However, the current way community colleges function, with their roots grounded in outdated management practices, instructional delivery systems, and approaches to student and institutional support services, will not work for institutions that are charged with being the economic engines for a changing population, a changing world and a rapidly evolving future (Weise, 2014). As part of the higher education system, community colleges resist change in many ways, looking to small solutions to try and solve large problems, they muddle through tough times and use tactics that only get them through from one crisis to the next (Baldridge, Ecker, Curtis, & Riley, 1978). Our colleges have developed into institutions of complacency that reward status quo thinking, where stability and bureaucracy are clearly valued over risk taking and transformational change.

Our community colleges must undergo significant change to effectively respond to their missions. These changes must be purposeful, well planned, and strongly executed
by capable leaders. This study confirmed that one of the ways that community colleges can change is to place a greater emphasis on the critical role and responsibility leaders have in providing the necessary resources to improve and strengthen the academic culture of the college. In this study, the leaders nurtured the academic culture by focusing their leadership actions on engaging internal and external stakeholders in all stages of the design and development of CBE programs. The CBE leaders focused on improving individual and collective problem-solving abilities in institutional change processes, leading to successful design and implementation of their CBE initiatives. More specifically, the CBE leaders adopted and adapted practices that produced results based on their environmental conditions in both design and implementation stages.

The results of this study provide overview of leadership practices by community college leaders to introduce CBE on their campuses. The leaders’ practices had significant impact on accomplishing the changes needed at the institutional level to design and launch their CBE initiatives. By cultivating individuals’ commitment to change, the leaders build institutional capacity that embraced the change processes. Leaders in this study shared a vision with their followers and trained them to promote team spirit within the institution (Bass, 1990; Bass & Riggio, 2006). The leaders’ strategies shared in this study proved effective in accomplishing the academic transformations in the context of CBE initiative. Considering that procedures and operations to accomplish any task within a community college structure must be made through shared governance, the conclusions may be useful and effective in any other curricular decision-making and planning situations that require shifts in the academic culture and changes at the core of the institution.
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Dear Colleague,

I am writing to request your participation in a study being conducted through California State University, Northridge (CSUN) regarding competency-based education (CBE) programs at community colleges in the United States. I am a faculty member at Pasadena City College, but I am conducting this study in my role as a doctoral candidate, to fulfill the Ed.D. degree requirements.

The purpose of my dissertation study is to impart a sense of scope of CBE initiatives in the United States and how the leaders at community colleges address the challenges in design and implementation processes. This study will add knowledge to existing information regarding CBE programs and how the programs are being led to most effectively bring about its adoption.

I am requesting that you participate in one 10-minute, online survey. At the end of the survey, you will be asked about your willingness to participate further in the study, via a 45-minute individual interview by phone or Skype. Even if you are unable or unwilling to participate in an interview, I would greatly appreciate you completing the 10-minute online survey. Please, be assured no personally identifiable characteristics, such as your name or school, will appear in the study.

Your investment of time in this study will be invaluable and greatly appreciated. If you are willing to participate, please click on this link [INSERT SURVEYMONKEY LINK].

If you have questions regarding your rights as a participant, please contact The Office of Research and Sponsored Projects by telephone at 818-677-2901 or by email at irb@csun.edu. If you have any questions regarding the details of this study, or any other concerns please contact Arineh Arzoumanian by telephone at 818-568-6265 or by email at arineh.arzoumanian@gmail.com.

Best,

Arineh Arzoumanian
Appendix B

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE
COMPETENCY-BASED EDUCATION WITHIN A COMMUNITY COLLEGE
CONTEXT
SURVEY INSTRUMENT

I. Survey Introduction
Thank you for taking the time to complete this survey today.

Any information you share on this survey will be used for research purposes only. Personally identifiable characteristics, such as your name and school, will not be used in any report or document. Only the researcher will have access to SurveyMonkey account. You may withdraw from this survey at any time and discontinue participation without penalty.

Your participation is voluntary, and the only alternative is to not participate in the survey. Note that you may not skip any questions. If you do not wish to answer any of the questions, please exit the survey.

Your identity will remain anonymous unless you indicate willingness to participate in a personal interview at the end of the survey. If you chose to provide your contact information, it will ONLY be used to contact you for a possible interview.

If you want to participate in this study, click the Next button to begin the survey.

II. Survey Questions
* Indicates answers that are required for a complete and usable survey.

1*. Which of the following best describes your institution’s current level of involvement with competency-based education (CBE)?)

☐ Considering offering CBE program (do not offer yet)
☐ Beginning stages of design and implementation (do not offer yet)
☐ Offering stand-alone CBE program(s)
☐ CBE embedded into many departments within the college
☐ All programs across the institution are competency based

2*. Which of the following best describes the model for the CBE program in your institution?

☐ Course-based with credit equivalency
☐ Direct assessment

3*. Which kind of education does your CBE program(s) mainly serve? (Select all that apply)
☐ Career-technical education (CTE)
☐ General Education
☐ Both

4*. Which of the following best describes the delivery model for the CBE program(s) in your institution?

☐ Fully online
☐ Fully resident (on campus)
☐ Hybrid (both online and resident)

5*. Which of the following best describes the role of faculty in the CBE program at your institution?

☐ Coach/Mentor role
☐ Traditional faculty role (delivering instruction)

6*. Is your CBE program part of a certificate or associate degree program?

☐ Yes
☐ No

7*. Is your CBE program restricted to a certain group of students? Does your CBE program serve a particular group of students?

☐ Yes
☐ No, all students on our campus are eligible to participate in a CBE program.
   If yes, please describe the group(s) of students eligible for your CBE program(s).

8*. How would you best describe your institution’s operational approach to your CBE program?

☐ Centralized – CBE program is embedded into institution’s operation system
☐ Decentralized – CBE program functions as a separate department
☐ Combination

9*. The following are common challenges of initiating and designing CBE. Please rank them in order of most challenging (1) to least challenging (5) to reflect your perspective on the challenges your campus experiences in the BEGINNING STAGES of CBE.

☐ Engaging faculty
10*. The following are common challenges of implementing and maintaining CBE. Please rank them in order of most challenging (1) to least challenging (5) to reflect your perspective on the challenges your campus is CURRENTLY EXPERIENCING TODAY as you implement and maintain CBE.

- Engaging faculty
- Engaging student support services
- Ensuring administrative support
- Designing curriculum and effective assessment
- Building supportive data collection systems

11*. If you can recall the person who initially introduced the idea of CBE on your campus, please indicate which of the following best describes that person’s role at your institution.

- President
- Vice President
- Academic dean
- Faculty member
- Staff member
- Don’t recall
- Other
  If other, please specify:

12*. How did the individual specified in the previous question first introduce the idea of CBE on your campus?

- Informal conversations
- Professional development activities for faculty and administrators
- Sending key faculty members or administrators to CBE conferences
- Placing CBE on the agendas of meetings
- Other
  If other, please specify:

13*. What is your job title at your institution?

---

14*. Is your institution public or private?

- Public
15*. What is the student enrollment at your institution?

- □ <1000
- □ 1,001 – 10,000
- □ 10,001 – 30,000
- □ 30,001+

16*. How many years has your institution been involved in CBE discussion, design, and implementation phases?

- □ 0
- □ 1-2
- □ 3-4
- □ 5+

17*. Approximately what percent of full-time/tenure-line employees are currently involved in your CBE initiatives?

- □ 0%
- □ 1 – 10%
- □ 11 – 25%
- □ 26 – 50%
- □ More than 50%

18*. Approximately what percent of part-time/adjunct employees are currently involved in your CBE initiatives?

- □ 0%
- □ 1 – 10%
- □ 11 – 25%
- □ 26 – 50%
- □ More than 50%

19*. Approximately what percent of students at your institution participate in the CBE program?

- □ 0%
- □ Less than 10%
- □ 10 – 25%
- □ 26 – 50%
- □ More than 50%

20*. In order to more deeply understand the challenges of implementing CBE in
community colleges and the leadership needed, I would like to interview a subset of survey respondents. If you are willing to be interviewed for approximately 45 minutes by telephone or Skype, please check “yes” below. If you check “yes” I may contact you by telephone or email. The contact information that you provide below will ONLY be used to contact you for a possible interview. All interviews are confidential.

☐ Yes
☐ No

21. Contact Information:

First & Last Name:  
Best way to contact you:  
☐ Email:  
☐ Phone:

III. Survey Closing:  
I greatly appreciate your time and willingness to share about your CBE program with me. Again, your responses and identity will remain confidential. No part of this survey that includes your name or other identifiable characteristics will be used in any report or document.
Appendix C

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE
COMPETENCY-BASED EDUCATION WITHIN A COMMUNITY COLLEGE CONTEXT
INTERVIEW INSTRUMENT

I. Pre-interview Session: Introduction/Background

Welcome and introduction:
Good morning/afternoon/evening. Thank you for taking the time to talk with me today. Before we begin the interview session, I’d like to thank you for completing the consent form ahead of time. Do you have any related questions or concerns at this time?

Purpose of the interview:
During this interview, we will talk about the CBE program at your institution, your approach, preparation, and leadership in the design and implementation of the program.

Timing:
Today’s interview will last about 45 minutes, and the audio will be recorded as discussed in the consent form. Are there any questions before we get started?

II. Interview Session
Main Questions:

1. Describe the current CBE initiative at your institution.

2. Can you tell the story of how the CBE program came to be on your campus?

3. What problems were hoped to be solved by CBE initiative on your campus?

4. Could you please provide some details on how certain decisions were made that guided your institution towards its design and implementation approach to CBE?

5. What were the big structural or organizational changes that had to take place in the design and implementation processes of the CBE program?

6. What were the big challenges along the way? And how did your institution overcome the challenges?

   [ASK Q. 6, IF IT WASN’T BROUGHT UP IN THE ANSWER TO Q. 5]

7. What strategies did your campus employ to deal with its attachment to the credit hour in the design and implementation processes of the CBE program?

8. Who were the leaders in the design and implementation processes of the CBE program on your campus? And what role did they play in the process as a leader?
9. What advice would you have for leaders on other community colleges who may wish to design and implement CBE program(s) on their campuses?

Closing Questions:
Before I end the interview, is there anything that I missed? Do you have anything else to add at this time? Have you said everything that you wanted to say? Have you shared everything that is significant about your experience in the context of CBE with me? If there is anything else that you recall after our interview session, I invite you to share it by contacting me in coming days.

III. Post-Interview Session: Debriefing and Closing

Thank you for participating in today’s interview session. I greatly appreciate your time in sharing your ideas with me. I also want to restate that what you have shared is confidential. No part of our discussion, including your names or other identifiable characteristics will be used in any report or document. Would you be willing to answer any brief clarification or follow-up questions by email? Finally, I want to provide you with a chance to ask any questions that you might have about this interview. Do you have any questions for me?
You are being asked to participate in a research study. Competency-Based Education
within a Community College Context, a study conducted by Arineh Arzoumanian as part
of the requirements for the Ed.D. degree in the Michael D. Eisner College of Education.
Participation in this study is completely voluntary. Please read the information below
and ask questions about anything that you do not understand before deciding if you want
to participate. A researcher listed below will be available to answer your questions.

RESEARCH TEAM
Researcher:
Arineh Arzoumanian
Department of Education
18111 Nordhoff St.
Northridge, CA 91330-8265
(818) 568-6265
axarzoumanian@pasadena.edu

Faculty Advisor:
Dr. Julie Gainsburg
Department of Education
18111 Nordhoff St.
Northridge, CA 91330-8265
(818) 677-2580
julie.gainsburg@csun.edu

PURPOSE OF STUDY
The purpose of this research study is to impart a sense of scope of Competency-Based
Education (CBE) initiatives in the United States and how the leaders at community
colleges address the challenges in design and implementation processes.

SUBJECTS
Inclusion Requirements
You are eligible to participate in this study if you are a community college leader that is
involved in a CBE initiative.

Time Commitment
This study will involve approximately 45 minute of your time in one day.
PROCEDURES
The following procedures will occur: You will be asked to complete one 45-minute one-on-one interview. Also, you will be asked to participate in a follow-up email exchange if additional clarifications are needed after the interview. The interviews will be conducted either by phone or Skype based on your preference. In addition, the interviews will be audio recorded.

RISKS AND DISCOMFORTS
The possible risks and/or discomforts associated with the procedures described in this study include mild emotional discomfort. Given the purpose of the study is to focus on institutional change, you may feel uneasy about answering some of the interview questions fearing to reveal too much information about your institution and eventually be identified. You may elect not to answer any of the questions which make you feel uneasy and still remain as a participant in the study. In the study report, there may be risk to you or your institution being identified, but I will make every reasonable effort to prevent it. Procedures for maintaining confidentiality is assigning a pseudonym to protect you. Any identifying features of your institution and/or program will be disguised in any published report. There are no known harms or discomforts associated with this study beyond those encountered in normal daily life.

BENEFITS
Subject Benefits
You may not benefit personally from your participation in this study. You may develop a greater sense of awareness of institutional issues in implementing a new program at community college.

Benefits to Others or Society
This study may benefit leaders interested in initiating pedagogical change at their institutions.

ALTERNATIVES TO PARTICIPATION
The only alternative to participation in this study is not to participate.

COMPENSATION, COSTS AND REIMBURSEMENT
Compensation for Participation
You will not be paid for your participation in this research study.

Costs
There is no cost to you for participation in this study beyond approximately 45 minutes of your time.

WITHDRAWAL OR TERMINATION FROM THE STUDY AND CONSEQUENCES
You are free to withdraw from this study at any time. Withdrawing from the study or opting out of particular interview questions will have no consequences for you.
CONFIDENTIALITY
Subject Identifiable Data
Names will not be used in the reporting of findings. Every effort will be taken to ensure your confidentiality as a participant in this study. If you consent to participate, you will be assigned a pseudonym to protect you. Any identifying features of your institution and/or program will be disguised in any published report.

Data Storage
All identifiable research data such as the consent form and audio recording will be stored in a locked box and the electronic version of them will be destroyed right away. The coded data will be stored on a laptop computer that is password protected. Identifiable data i.e. the consent form and audio recording and the de-identifiable data i.e. coded data will be kept for seven years. All data will be destroyed after seven years.

Data Access
The researcher and faculty advisor named on the first page of this form will have access to your study records. Any information derived from this research project that personally identifies you will not be voluntarily released or disclosed without your separate consent, except as specifically required by law. Publications and/or presentations that result from this study will not include identifiable information about you or your institution.

Data Retention
The researcher intends to keep the identifiable data i.e. the consent form and audio recording and the de-identifiable data i.e. coded data will be kept for seven years after the data collection.

Mandated Reporting
Under California law, the researcher is required to report 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, she may be required to report it to the authorities.

IF YOU HAVE QUESTIONS
If you have any comments, concerns, or questions regarding the conduct of this research please contact the research team listed on the first page of this form.

If you have concerns or complaints about the research study, research team, or questions about your rights as a research participant, please contact Research and Sponsored Projects, 18111 Nordhoff Street, California State University, Northridge, Northridge, CA 91330-8232, or phone 818-677-2901.

VOLUNTARY PARTICIPATION STATEMENT
You should not sign this form unless you have read it and been given a copy of it to retain. Participation in this study is voluntary. You may refuse to answer any question or discontinue your involvement at any time without penalty or loss of benefits to which you might otherwise be entitled. Your decision will not affect your relationship with
California State University, Northridge. Your signature below indicates that you have read the information in this consent form and have had a chance to ask any questions that you have about the study.

I agree to participate in the study.

___ I agree to be audio recorded
___ I do not wish to be audio recorded

___________________________________________________  __________________
Participant Signature  Date

___________________________________________________
Printed Name of Participant

___________________________________________________  __________________
Researcher Signature  Date

___________________________________________________
Printed Name of Researcher
### Appendix E

**List of Categories for Programs and Leadership in Survey**

<table>
<thead>
<tr>
<th>Programmatic</th>
<th></th>
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</table>
| **Level of Involvement** | Considering offering CBE program (do not offer yet)  
Beginning stages of design and implementation (do not offer yet)  
Offering stand-alone CBE program(s)  
CBE embedded into many departments within the college  
All programs across the institution are competency based |
| **Program model** | Course-based with credit equivalency  
Direct assessment |
| **Delivery model** | Fully online  
Fully resident (on campus)  
Hybrid (both online and resident) |
| **Education model** | Career-technical education (CTE)  
General Education  
Both |
| **Faculty role** | Coach/Mentor role  
Traditional faculty role (delivering instruction) |
| **Credential** | Certificate |
| **Eligibility requirement** | Yes  
No |
| **Leadership** |  |
| **Institutional Operations** | Decentralized  
Centralized  
Combination |
| **Challenges** |  |
| **Most** | Engaging faculty  
Engaging student support services  
Ensuring administrative support  
Designing curriculum and effective assessment  
Building supportive data collection systems |
| **Least** | Engaging faculty  
Engaging student support services  
Ensuring administrative support  
Designing curriculum and effective assessment  
Building supportive data collection systems |
| **Initial Individual involvement** | President  
Vice President  
Academic dean  
Faculty member  
Staff member  
Others |
Appendix F

Sample Coding of Interview Transcript

Marco: We have a student support specialist who facilitates [student services/learner support], you know, when you’re ending one course, what your next course is going to be, and enrolls you in that course, uh, gets it all set, ready to go. And so, anyway, it has increased our completion rate, and reduced our time to completion, which, of course, that is a problem that is ubiquitous among all community colleges nationally. [05:40]

AA: Hmm hmm

Code: LEARNER SUPPORT: Program design to increase completion rate to help enroll in next course and in crease time to completion.

Marco: We’re running through some HR issues this fiscal year, because they just changed some things. I’ve so far be able to smoke it through, but I anticipate a last [chuckles], some sort of showdown [referring to organizational/systemic challenge] with HR. [14:17]

AA: Right.

Code: CHALLENGE: Organizational change that introduces a programmatic and leadership challenge in the process.

AA: You mentioned in the survey, your program is course based with credit equivalency. Can you talk more about the program and the courses?

Marco: These are credit hour courses [program model], and this is something we are going to be working on over the next year is breaking out the competencies individually so that we can give credit for prior learning for each competency. But we don’t have that in place yet. Right now, we just converted a typical 3 credit hour course to competency based [course-based]. And a typical course will have about five competencies. And so, you complete a competency, move to the next, next, next, next, and then when you are finished with the fifth one you are done with the course. Did that answer that? [allows for follow up] [16:25]

Code: PROGRAM DESCRIPTION – Course-based with credit equivalency

AA: Do you think the fact that the decision was made on top had a positive influence on the progress?

Mary: Yes, well yes, everybody knows that the Vice President [senior leadership] wants this to happen and people are cooperative [collaboration]. Because we have to work with the Registrar to figure out how do we have rolling registration, then we’ll have to work with Advising to make sure the Advisors have the appropriate information to advise students [effective teamwork]. [18:33]
Code: SENIOR ADMINISTRATIVE SUPPORT – crucial in addressing the operational needs and collaboration across campus.
Appendix G

Case Descriptions of Each Campus

Mars Community College

**Program description.** Mary, Dean of Academic Innovations participated in a phone interview to discuss the development of CBE initiative at Mars Community College (MarsCC). Mary was hired to begin the CBE project at MarsCC a year prior to the interview. MarsCC is expected to offer ten competency-based courses in math, English, and arts as a part of technical certificate degree in Fall 2016.

**Contextual factors.** In an effort to regain its adult student population, the senior administration began the CBE initiative at MarsCC. Mary explained that MarsCC have lost about 30% of its adult students over the past ten years or so, and providing an alternative was expected to attract adult students who want to utilize their prior college or work experience to complete a degree. She also mentioned the CBE efforts of a neighboring high school about five years into implementation as another reason that attracted MarsCC to begin exploring the new model. The leaders became aware of both monetary and technical support services the college could benefit from by engaging in a Department of Labor Grant project by attending national conferences after beginning the development processes.

**Curriculum development and delivery.** The college initially planned on engaging in direct assessment model to design and deliver its CBE project; however, leaders decided to switch to course-based approach model after attending a national conference on CBE. Mary commented on direct assessment approach:
We would have to start a whole new college…. We learned from other college… it’s essentially an online course where you strip the due dates. It is going to have the same number of students, faculty gets paid the same, and faculty workload is the same. Everything will be the same as an online course.

Mary described the difference between a traditional online course vs. a CBE course, “Student is able to set their personalized schedule for when they are going to complete the work knowing everything needs to be done by the end of seven-week term.”

Although MarsCC is utilizing the course-based approach to get their initiative “off the ground”, leaders expressed interest in further exploring the benefits of the direct assessment to the institution and students in long term in the future.

Faculty members who have expressed “interest” and “excitement” in introducing a new model of teaching and learning continued to lead the curriculum development efforts at MarsCC. The assistant dean who works directly with the faculty, appointed a faculty lead who works with other faculty members, an instructional designer, and a faculty fellow in developing the content and assessment of the courses. The instructional designer’s role is to provide assistance in setting up the courses in competency-based format of delivery. College is planning to utilize blackboard shell to deliver the curriculum online. Faculty fellow’s role is to meet one-on-one with instructor who will be teaching the CBE courses to provide support in the development process.

**Learner support.** MarsCC’s plans to utilize Academic Coach model to support the students and faculty in the program. Academic coach will also assess student readiness to participate in online courses prior to beginning of each course.
Industry and workforce engagement. External partnership discussion was not addressed because the current initiative consists of stand-alone courses in CBE format.

Saturn Community College System

Program description. In the interview with Vice Chancellor of Saturn Community College System (SaturnCC), Sandra, the design approach, processes and challenges of CBE initiative was discussed. Sandra explained that SaturnCC is participating in a Department of Education experimental site initiative program, “A grant program with no significant dollars attached to it”. Two one-year technical certificate programs is being developed in CBE format. SaturnCC anticipates to begin offering its CBE programs in Fall 2016. One of the certificates will be fully competency-based for students who prove to be “program-ready”. Sandra explained, “[Students] must be college ready, [students] must not require any remediation.” The main focus of the program is to meet the demands of the industry in terms of employability rather than being focused on transferability.

The courses in the second certificate program, except for Liberal Arts courses, are designed in competency-based format. A committee of full-time faculty leads the course and content development. A committee of administrators and staff are establishing the business processes around CBE including financial aid, registration, records, administration, IT systems, coaching, student mentoring, and advising.

Contextual factors. The main focus of the CBE initiative at SaturnCC is to meet the high demands of the industry sector in terms of employability by helping students complete certificate degree. Sandra explained, “That particular program is employer and
employment driven. It was a bottom up top down kind of everybody met in the middle and said, ‘yeah this is exactly what we should do’”.

Curriculum development and delivery. The curriculum design strategy was lead by faculty from the beginning. Initially, a faculty member was chosen to lead the initiative. He generated interest among his colleagues resulting in a committee of full-time faculty who lead the course and content development of the CBE program. Sandra added, “There is a lot of sharing among colleagues in the content development process”. Constituents involved in the program design process are starting to discuss the details about how the program will be delivered online.

Learner support. SaturnCC is encountering challenges in the process of planning the operational details of its CBE activities including admission, registration, enrollment, and financial aid. Sandra noted, “Decisions are being made on daily bases.”

SaturnCC is building a student-coaching program by leveraging institutional student support systems to foster student relationships with faculty, coaches, and staff to engage students more deeply in their learning. Sandra believes such relationships are critical in student success.

Industry and workforce engagement. Although the impetus of the CBE initiative was the demand from specific industry in the Saturn region, Sandra did not discuss the capacity on industry partners involvement in the design process.

Mercury Community College

Program description. The CBE program leader, Marco, was interviewed over the phone to discuss the design and implementation approaches to CBE initiative at Mercury Community College (MercuryCC).
Under a Department of Labor grant, MercuryCC developed an Accelerated Program (AP) program as CBE pilot program. Marco explained, “It is a guided pathway designed to facilitate getting a certificate as quickly as possible, so there are no General Ed Electives that students can get distracted with”. Housed in an academic department, the program is fully online and designed to lead into seven college certificates as well as courses that prepare students for several additional industry certificates. MercuryCC now is expanding its CBE initiative to two additional academies, one for high school students and one for low-income adults, which are offered in hybrid format.

**Contextual factors.** When the grant proposal was being developed, college and departmental leaders believed the CBE initiative would align well with regional labor market needs. The demand for the program was raised from the members of Chamber of Commerce requesting for more skilled college students for local businesses. Vice President was informed about the grant opportunity that was appropriate fit for the college and assigned grant writing personnel along with the Dean and Department Chair and support faculty of the appropriate academic department to apply for the grant. Grant elaborated:

CBE pilot was launched about three years ago, and it has been remarkably successful. We have more than doubled the number of completers in the program, we have reduced time to completion, and we have developed a large industry partner program that has enabled us to have about an 89% success rate in placing our students upon graduation. We originally thought we’d have 350 students, now we’ve over 700, during the course of the grant.
Curriculum development and delivery. AP curriculum development involves a team of faculty working with an instructional designer, guided by the AP Course Development Guidelines, established for the CBE program. Instructional designer with extensive experience in online education was very proactive in researching relevant methodology to assist faculty overcome any obstacles in the design process. Marco explained the iterative and ongoing process of the design cycle which occurs in four months periods at MercuryCC. Generally a certificate consists of eight courses. Based on the certificate, certain number of courses is developed in each design cycle. Department chair consults the faculty to select the courses for each cycle. At the end of each cycle, faculty team along with the department’s industry committee review and provide feedback on the curriculum, Marco added, “We also conduct Quality Matters as a separate review process.” Faculty members involved in curriculum design are compensated for their time and effort.

MercuryCC converted a typical three-credit hour course to competency-based course. Each course has about five competencies. Once students complete all five competencies they receive credit for the course. AP curriculum delivery is fully online; however, for high school students and low-income students who are in essence at risk, a hybrid model has been developed. Grant explained, “At risk students just don’t have the level of academic discipline that is needed. MercuryCC offers its CBE program in hybrid model to its at risk students. Grant continued, “A large parts of the course is online, but they have a faculty member who is there who can function as both a tutor, a guide, can stop the class, say, ‘Okay everybody seems to be having a problem here. Let’s go through this.’” Every class at MercuryCC has a faculty member assigned to it who
addresses assessments and is available for conversations, whether it’s email, Skype, telephone or in person.

**Learner supports.** The AP learner support model originally focused on recruitment, but once the program gained momentum, Marco described, “With our advertisement efforts, the help of our industry partners and internal MercuryCC advisors, the word got out and people started coming to us.” After the first year, the advertising budget was eliminated and invested towards course development by the director of the program. A student support specialist was hired to facilitate enrollment management, making sure students enroll in the proper sequence of courses for their particular pathway, and encouraging them to stay enrolled. Career supports are offered as students approach the end of their program to help students obtain internship and jobs.

MercuryCC hosted recruiting sessions at its main administrative building, where students received assistance with registration, financial aid, and were able to conduct their initial readiness assessments. Marco added, “The goal was to get [students] in front of the Department Chair for advisement, and once they met with the department chair, the student support specialist actually enrolled them in courses.”

**Industry and workforce engagement.** AP leaders always placed heavy emphasis on employer partners, especially to support student recruiting and transition to jobs. Marco mentioned, “The impetus for the program actually came externally, Mercury is a thriving tech hub, but we were not producing enough computer programmers. That’s why we developed the accelerate program as our CBE pilot for the college.
Neptune Community College

**Program description.** In a phone interview with the program chair, Nancy, she described NeptuneCC’s CBE initiative as an applied science degree with 42 semester credit hour core curriculum that is designed in CBE fully online format. The program targets students with some college credit hours but unfinished degrees who are able to utilize prior learning and knowledge to accelerate through the program.

**Contextual factors.** The college was approached by the Neptune’s Higher Education Coordinating Board to participate in the Competency-based method in collaboration with a four-year institution on a two-year grant project. The CBE initiative degree was considered for the grant project because of the educational and business needs in the community. Lowering the cost for non-traditional students was the main issue the state of Neptune was looking to address with this grant project.

**Curriculum development and delivery.** Curriculum development team included administrators, faculty members from each institution, representative from a high school district, and industry stakeholders met monthly for two year to determine what a student should know and be able to do upon completion of a course. The team worked backwards from competencies to develop the assessments, which then led to content design that met the necessary competencies. Courses were designed to include a set of competencies. In some courses there’s a need for scaffolding the competencies where in some other courses an order was not required.

Nancy explained prior learning credit through assessment as one of the characteristics of NeptuneCC’s CBE initiative:
Students demonstrate mastery through a range of assessment types. In case of prior mastery of competencies, students are able to move to a posttest and if successful, earn the credit immediately. For competencies that have not been mastered, students are provided with a variety of content that they can utilize to facilitate learning.

The program is offered in entirely online format. For the most part, communication between students and instructors occurs through emails or the learning-management system, and sometimes by phone or in person. Students have the opportunity to schedule in-person meetings with instructors and can also visit during regularly scheduled office hours.

**Learners support.** NeptuneCC adapted the academic coach model also referred to as success coach for general academic advising, helping students to overcome their learning barriers, facilitating efforts to find the resources they need to support learning, and counseling students on plans for the future. Students have access to a single success coach through email and phone calls, though occasionally they meet in person.

Students attend an orientation the first week of the seven-week to make sure they have access to all course content material in the learning management system. The content includes videos, powerpoint, lectures, and etc. Students take the pre-assessment on the first week to receive feedback from the instructor of record about what competencies they successfully completed and which ones they still need to conduct additional work to complete. Students spend as much time as they need on the content before completing the post-assessment at some point during the seven-week.
**Industry and workforce engagement.** All programs at NeptuneCC are required to have advisory committees whom were actively involved in the design and developmental process of the CBE initiative. According to Nanacy, Industry partners in the advisory committees provided feedback on what competencies were the most critical or relevant to be included in the curriculum.

**Jupiter Community College**

**Program description.** A Completion Coach, Janet, shared her insights on the evolution of CBE initiative at Jupiter Community College (JupiterCC) during a phone interview. The initiative transformed an academic department by building on the success of piloting a few classes in CBE format. Faculty participants satisfied with the results of the pilot which included a few standalone courses, redesigned all courses within an academic program. The new CBE courses are open to all students across campus. The program includes certificates; however, students do not have to commit to the certificate if they wish to register in a CBE course. An impetus for this change was to offer a flexible option to non-traditional students with jobs and family obligations.

**Contextual factors.** JupiterCC was approached by a nationally known educational foundation in partnership with a leading 4-year university in CBE approach to participate in a project with eleven other community colleges across the nation. The partnership provided professional development and training opportunities for stakeholders at JupiterCC, and also allowed them to share data and information with other colleges. Janet emphasized the critical role of the trainings on the team’s decision-making process. The team began analyzing what CBE would look like at JupiterCC, once they were exposed to different models and approaches to CBE.
Curriculum development and delivery. The development team included the academic dean, department chair, lead faculty, and the completion coach. The courses are developed and offered in online and on ground self-paced formats. For online classes, all content and course resources are available to the students online through the college LMS, canvas. If students need extra assistance, they contact the instructor. For on ground classes, students go into a computer lab and work on their own pace. There are instructors available to provide assistance if needed.

Learner support. Janet described the “Pacing Guides”, the support services at course level she helped create at JupiterCC. Pacing Guides is basically a series of “soft due dates” imposed on the curriculum to assist students to track their progress during the term. Janet added, “It is more of, this is where we recommend you to be to finish up on time.” It also helps instructors to be aware of student pace and to refer them to me if they are not participating in their learning. Janet contacts the students via phone call, text, email to help them “get back on pace.”

The current open-style course model makes it difficult for JupiterCC to track students or offer student orientation for the CBE model. The college plans on offering orientation, if the CBE course offering become more structured. Despite the lack of structure, on average, courses demonstrate 84% success rate. Janet added, “We are happy. Our success rates turned out higher than we expected, especially because a lot of [the classes] are online, and according to history, online students often don’t finish as often as on ground. So we were happy to see an increase.”
Industry and workforce engagement. The curriculum development took place within the academic department that offers the courses at JupiterCC, and there was not much discussion about partnering up with industries.

Venus Community College

Dr. Victoria, Dr. Vanessa, Vice, Victor, and Virginia participated in interview to discuss the CBE program at Venus Community College (VenusCC). The individuals’ titles are: at President, Vice President, Academic Dean, Department Chair, and Academic Coach, respectively.

Program description. In the second year of implementing its CBE initiative, VenusCC offers fully online general education sequence in CBE format. The program was designed to include traditional and nontraditional students. However, the majority of students enrolling in the program are working individuals who attend college part-time. Students are able to attempt as many competencies and course as possible within a seven-week time frame. A flat rate tuition is defined for the CBE academic term which qualifies for federal financial aid.

Contextual factors. Serving a region with low socio-economic status and high educational needs, VenusCC has a reputation of striving to provide the best opportunities for its growing population. The college in a partnership with 4-year university in Venus has received a two-year grant to create an associate program in CBE format leading to 4-year degree. The college leadership excited about the new endeavor planned to create a new model to accelerate degree attainment in the region.

Curriculum development and delivery. Curriculum development team included faculty members from VenusCC and the 4-year university who met regularly to design
the competencies for a general education sequence over one and a half year period. Vince, the academic dean describes, “The process was long and intensive, but faculty from both institutions were fully engaged.” Industry partners were also present in the curriculum design process. Competencies were grouped together to create courses. The number of competencies in each course differs based on the content and level of the course. After the design process was completed, third party publisher was contracted to evaluate the curriculum, attach appropriate educational resources such as lectures, books, assignments to each competency, and create competency and course level assessment. The CBE curriculum is offered to the students through the publisher’s online delivery platform.

Professional development and CBE orientation are provided to faculty who are unfamiliar but interested to teach CBE courses. The instructors assume the roles of facilitator in the online environment assisting students to access educational resources that will maximize their chances of successfully completing the course. Students also have access to the instructors via email or phone calls.

**Learners support.** The CBE program at VenusCC has an academic coach who assumes the role of a liaison between faculty and academic services. Also, provides academic advisement and support to students by monitoring their progress. The existing learning support services including online and lab tutoring on campus are offered to students enrolled in CBE program. A two-hour orientation is offered to students prior to the start of the term. The academic coach, Virginia, conducts the orientation encompassing an overview of CBE model, courses, learning resources, assessment, registration, student email access, and distance learning information.
Industry and workforce engagement. Industry representatives from Venus Economic Development Corporation were directly involved in the CBE curriculum design process providing feedback on the necessary competencies to prepare the next generation workforce in Venus.