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**IMPLEMENTATION OF A COMPETENCY-BASED EDUCATION MODEL IN
A COMMUNITY COLLEGE SYSTEM: A CASE STUDY OF A MOUNTAIN
WEST REGION COMMUNITY COLLEGE'S OPEN-ENTRY, CLOSED-EXIT
MODEL**

By Kathleen (Kassie) M Silvas

A dissertation presented to the Department of Education Administration
submitted in partial fulfillment
of the requirements for the degree of
Doctor of Education in Educational Leadership
IDAHO STATE UNIVERSITY

Spring 2019

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RE: regarding study number IRB-FY2018-277: IMPLEMENTATION OF A COMPETENCY-BASED EDUCATION MODEL IN A COMMUNITY COLLEGE SYSTEM: A CASE STUDY OF A MOUNTAIN WEST REGION COMMUNITY COLLEGE'S OPEN-ENTRY, CLOSED-EXIT MODEL

Dear Ms. Silvas:

I agree that this study qualifies as exempt from review under the following guideline: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

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Sincerely,

Ralph Baergen, PhD, MPH, CIP
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Dedication

This dissertation is dedicated to my father, David Lemm, and my husband, Daniel Silvas.

My father has been my pillar of strength and role model ever since I could walk and hold his hand. I have grown up striving to mimic his work ethic, grit, and dedication, and to face every challenge head on. He is the person I have always strived to be. I owe all my strength, self-esteem, and passion for success to my father, my hero.

My husband Daniel was an angel sent to rescue me many years ago. He provides me with the unconditional love, support, and strength I need to take on life's challenges. He is a devoted husband and father, and my best friend. Thank you for loving me and helping me to achieve my dream of getting a doctorate.

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Implementation of a Competency-Based Education Model in a Community College
System: A Case Study of a Mountain West Region Community College's Open-Entry,
Close-Exit Model

Dissertation Abstract—Idaho State University (2019)

The cost of a college degree has caused students, higher education institutions, and government representatives to investigate alternative education designs that are advertised as cheaper, more flexible, and based on skills rather than classroom seat time. Students question the rising cost of tuition, increased time to degree completion, and the value of a degree with traditional educational designs. This has created an increase in interest by students to enroll in competency-based education (CBE) programs due to their affordability and flexibility. Students see the advantage of faster progress towards their academic goal through CBE and therefore, a lower cost of a college education (Kelchen, 2015; Klein-Collins, 2013).

Higher education institutions are under pressure from lawmakers, industry, and students to more closely examine implementation of competency-based programs but are challenged by the perceived limitations and restrictions of an adoption. Colleges struggle to implement a CBE program and seek guidance to address the existing organizational constraints and hurdles such as students' financial aid and assistance, accreditation requirements, transcribing credit, and faculty workloads (Garret & Lurie, 2016; Kelchen, 2015; Klein-Collins, 2013).

This qualitative study examined and described the strategies used to overcome identified obstacles to implement a CBE model, referred to as *open-entry*, *closed-exit*, at

a mountain west region community college. This study also provides recommendations for the implementation of an open-entry, closed-exit model.

The findings suggest that based on the CBE model implemented for this case study, accreditation and financial aid were not obstacles. The added workload in the admissions registration department, student management systems, and faculty were found to be obstacles for which the college created solutions. Other factors that appeared to influence the open-entry, closed-exit model was the exclusion of the accreditation, veterans, and advising departments in any design or implementation strategies.

Additional considerations that appeared to influence program design were the resources available from the college's Trades Adjustment Assistance Community College and Career Training (TAACCCT) grant to fund the design, purchase curriculum, and pay for additional staffing. Additionally, the strategy of visiting a similar program at another college was very useful in creating a shared vision for those departments who sent representation. (Finally), this case study found CBE programs were uniquely designed to serve the needs of their college.

Key Words: competency-based education, community college, higher education, leadership, faculty role.

Chapter I: Introduction

Competency-based education (CBE) is broadly defined as a form of higher education in which credit is awarded based on demonstration of competency and student learning rather than credit or clock hours. The U.S. Department of Education (USDOE) described CBE as:

Transitioning away from seat time, in favor of a structure that creates flexibility, allows students to progress as they demonstrate mastery of academic content, regardless of time, place, or pace of learning. Competency-based strategies provide flexibility in the way that credit can be earned or awarded and provide students with personalized learning opportunities. These strategies include online and blended learning, dual enrollment and early college high schools, project-based and community-based learning, and credit recovery, among others.

(USDOE, 2019, para 1)

This is not a new concept; however, it has caught the attention of federal and state policymakers, colleges, and students due to its potential to lower costs, shorten time to degree or certificate completion, and serve adults in need of flexibility. The interest in CBE is viewed as a disruptive innovation, which is welcomed by some institutes of higher education and rejected by others (Baime, 2017; Soares, 2012). “It is clear from our examples that postsecondary institutions, policymakers, employers, and philanthropies are trying to build the infrastructure necessary for competency-based education to take off” (Soares, 2012, p. 11).

Considering recent media and public policy attention, CBE and training is not a new concept. CBE has evolved over the past 60 years from early vocational education

models to more robust and complex approaches to learning in higher education. Recently, the Trump administration has pressed for alternative education models in the new version of the Higher Education Act. There is an intense focus on meeting the needs of business and industry through innovative delivery models as compared to the typical college experience. The business and industry are focused on preparing a workforce to fill high-demand, high-skilled, vacant jobs. More often, students are looking for a flexible, affordable, accessible education delivery model that allows them to enter the workforce on their timetable, not one primarily controlled by the higher education institution. One of the key components in a newly proposed federal legislation calls for colleges and universities to loosen the rules that require schools to use credit hours to determine degree requirements and financial aid. Accordingly, “the credit hour rule is an unnecessary federal regulation that gets in the way of innovation. Without the credit hour rule, schools have more flexibility to use nontraditional models, such as competency-based programs” (Fay, 2018, para. 12). Colleges that have previously been reluctant to explore and implement a CBE program now have more latitude with the Department of Education’s new credit rule regulations to pilot a model (Bamford, Doyle, Klein-Collins, & Wertheim, 2012; Competency-Based Education Network [C-BEN], 2016a; Fay, 2018; Klein-Collins, 2013, USDOE, 2016).

CBE is also generating an increased awareness in higher education. According to the C-BEN (2016a), increasingly, institutions of higher education are exploring competency-based programs. The traditional academic instructional program’s success has been primarily measured by the accumulation of credit hours, the achievement of minimum grade-point averages, and completion. Many colleges and universities see the

potential to better plan, organize, and deliver educational opportunities designed with the individual student in mind. Competency-based learning models in higher education provide students with an opportunity to shorten time-to-degree by acknowledging prior experience, or competency, and removing required seat time (C-BEN, 2016b); Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a).

Higher education is feeling the pressure from lawmakers, industry, and students to take a closer look at implementing competency-based programs but is challenged by implementation in institutional systems that are not supportive of these delivery models. (Hendrix, 2015; Soares, 2012; Wax, 2015a). Additionally, students request to have flexible and affordable access to higher education that includes multiple entry and exit times to technical programs. Students are seeking employment and employers are seeking workers throughout the year, not just during May commencement. Community college deans are regularly in conversations with business and industry leaders regarding their need for a talent pipeline throughout the year and what colleges are doing to solve this issue. “Businesses are starting not to care about degrees at all. They care about what their workers know and can do” (Bamford et al., (2012), p. 8). Employers are becoming more concerned with competencies and availability, and less concerned with degree completion (Bamford et al., 2012; C-BEN, 2016b Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015b).

According to the C-BEN (2016b) Year 2 report, “Increasingly, educators and policymakers are recognizing the challenge of improving completion rates for post-secondary credentials and reducing student debt while improving graduates’ competency alignment to the needs of employers, communities, and our national goals” (p. 4). Rising

tuition costs and increasing uncertainty about the value of a college degree are causing students, higher education leadership, and government representatives to investigate alternative education designs that are broadcasted as cheaper, more flexible, and based on skills rather than classroom seat time (C-BEN, 2016c ; Klein-Collins, 2013).

CBE models are becoming drivers for institutional accountability and workforce alignment. Students have become navigators of their own destinations. Competency expectations have increased significantly across all sectors of the economy and the abilities employers are expecting from new college graduates as employees has been elevated. Competencies can provide students with a clear map and the navigational tools they need to determine their workplace readiness. The advantage of competency-based learning is the transparency of the competencies. All students clearly understand what is expected regarding goals and outcomes. Students understand the definition of workplace readiness and the application of their knowledge, skills, and abilities. (Bamford et al., 2012; C-BEN, 2016b; Eaton, 2016; Fain, 2015; Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a).

Kelchen (2015) indicated there was an increase of interest by students to enroll in CBE programs due to their affordability and flexibility. Students can progress more quickly and directly towards their academic goals and, therefore, lower the costs of a college education. Kelchen (2015) stated that there were only 34 colleges who were identified as having an active competency-based program. With thousands of community colleges in the United States, only a slim percentage are engaged in CBE models. There is literature indicating some exploration has been done regarding the design of an effective CBE model, especially regarding effective assessment, but there has been little

guidance on how to assist colleges and universities to overcome the implementation obstacles resulting from oversight by state governmental organizations, accreditation agencies, faculty unions, and the USDOE (Bamford et al., 2012; Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a).

CBE could be the key to providing post-secondary education to millions of students across American at a lower cost and with multiple completion times, supporting their ability to join the workforce earlier and the employer's ongoing need to resolve a workforce shortage issue. Institutional leader are afraid to implement a CBE model that could potentially disrupt their organization. College administrators interested in implementing a CBE model might find systematic hurdles such as financial aid and tuition assistance guidelines, accreditation requirements, credit transcription, and faculty workloads difficult to address. Higher education leaders and other stakeholders who have interest in designing and implementing a CBE model for their institution are seeking guidance in developing and implementing a CBE model that respects the strength of the traditional college and university model, yet offers students the flexibility to progress faster at a lower cost; thus, accelerating the preparation of students for the workforce (Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a).

Statement of the Problem

There appears to be inadequate literature and information for leaders in higher education to support informed decision making on whether to pilot a CBE model. However, there is some literature that addresses some specific systematic obstacles to organizations but does not speak specifically to community colleges nor to any potential solutions or strategies employed when designing and implementing a CBE model. This

problem has led higher education leaders to be hesitant to implement a competency-based delivery model in a college setting due to the potential organization costs. This research could identify strategies that may overcome organizational obstacles for other community college administrators interested in implementing a CBE program on their campus and changing their educational landscape (Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a)

CBE has been hailed as a way to help students earn their degree faster and reduce cost for the both the student and the institution. However, current evidence to this seems largely anecdotal. What appears clear is that the development and redesign of educational programs around competency and qualification frameworks represent a complex undertaking, one that requires significant institutional transparency, collaborative constituent groups, alignment of stakeholder goals and interests around student-centered learning, and effective integration of assessments into curriculum (C-BEN, 2016a; Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a).

According to Fain (2015), while reliable numbers about actual competency-based programs that are fully operating are hard to confirm, approximately 600 U.S.-based institutions are attempting to engage in the process of designing CBE programs in some way. Eaton (2016) discussed the results of a study where the majority of the institutions who participated in an email survey indicated they were ready to take a fresh approach to teaching and learning that awarded credit on the basis of mastery of clearly defined competencies. There exists momentum, interest, and excitement to examine the research and literature pertaining to successful CBE models in higher education (Eaton, 2016; Fain, 2015).

Purpose of the Study

The purpose of this study was to examine and describe the strategies used to overcome identified obstacles to the implementation of a CBE model at a mountain west region community college. This study sought to interpret the main steps involved, lessons learned, and recommendations that emerged from implementing CBE for credential and/or technical degree programs. This qualitative descriptive case study examined barriers to the development and implementation of an open-entry, closed-exit education model in two career and technical science programs. This community college was reaffirmed their accreditation status in January 2016 by the Northwest Commission on Colleges and Universities (NWCCU) and has an active CBE model for which students are receiving federal financial aid.

Research Questions

This study used five research questions to analyze the multiple perspectives considered by individuals interviewed in the implementation of the CBE model at a mountain west region community college and to identify strategies employed, steps taken, obstacles, strengths, and solutions to problems as they arose. The five research questions that guided this study were

1. What role did participants play in the design and implementation steps of the open-entry, closed-exit CBE program?
2. What were the obstacles identified before, during, or after, in the design and implementation of the open-entry, closed-exit CBE program?
3. What strategies were used in the design and implementation of the open-entry, closed-exit CBE program?

4. What strengths were identified during the design and implementation of the open-entry, closed-exit CBE program?
5. What solutions to problems arose?

Research Context

The researcher's experience as a college educator and administrator in the career, technical, and workforce education program at two-year community colleges served as the impetus for interest in studying CBE delivery models and researching strategies in address systemic obstacles confronting successful implementation. The researcher has been an educator for 30 years, an administrator for 25 years, and in career, technical, and workforce education for 12 years. This experience includes serving as a career, technical, and workforce dean at two comprehensive community colleges. These experiences have allowed the researcher to engage with industry professionals, state officials, higher education leadership, and students to gain a broader insight into some of the challenges faced by students when attending a traditionally delivered technical program. As such, finding solutions and innovative approaches to addressing the needs of industry and non-traditional students provided strong rationale to support the purpose of this study. Current educational trends have identified the CBE model as a potential approach to addressing these needs (Bamford et al., 2012; Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a).

A high-quality CBE model that encompasses flexibility, clearly defined outcomes and competencies, incorporates technology and instructional design, and is sustainable offers a possible solution for students, industry, and the future of program delivery for higher education. CBE models offer an exciting new approach to teaching and learning.

The CBE model gives college administration, faculty, and staff the opportunity to design innovative learning approaches and assessment protocols to address emerging needs. Finally, industry will benefit from timely training of students, and students will benefit from the cost savings and flexibility of progressing at their own pace (Bamford et al., 2012; Hendrix, 2015; Klein-Collins, 2013; Soares, 2012; Wax, 2015a).

According to Garret and Lurie (2016), CBE is not simply a delivery mode because it challenges curricula design, instructional delivery, and assessment protocols and outcomes. The report went on to state, “CBE raises critical questions about how institutions could be organized and financed and what roles faculty and other instructional support providers might play” (Garret & Lurie, 2016, p. 5). These can be challenging questions for higher education administrators and, thus, may not become part of an institution’s strategic plan.

To answer the research questions, a descriptive case study design was used. Through a combination of interviews and evaluations of artifacts and documents, the study provided insight into the issues of designing and implementing a competency-based technical education program. Seven participant units were evaluated as part of the single case study, while the overall focus remained on the open-entry, closed-exit program project and execution strategies. According to Maxwell (2013), “the primary concern of a case study is not with generalization, but with developing an adequate description, interpretation, and explanation of the case” (p. 79).

The nine participant units selected for the study were college department administration, program administrators, and program faculty. The participant units represented admissions and registration, advising, accreditation, apprenticeship,

instructional programs, student information systems, veterans, and faculty from two technical CBE programs.

Interview questions were specifically designed to be open-ended. The purpose of the open-ended questions was to gain a detailed perspective of strategies used, obstacles and solutions found, and best practices employed in the designing and implementation of the CBE program. The open-ended questions were designed to encourage full, meaningful answers using the participant's own knowledge and/or feelings.

The goal of the study was to gain an in-depth understanding of the open-entry, closed-exit program being delivered at a mountain west region community college and to explore the strategies the college used to design and implement this model. Analysis was conducted following Patton's (2002) "substantive significance" criteria, which included solid evidence in support of findings, how the findings increase the understanding of the case, and the usefulness of the findings (p. 467).

Clarification of Commonly Used Terms

Career and technical education (CTE). Also referred to as professional technical education (PTE), CTE has evolved from early vocational education programs into a broad system of encompassing a variety of career paths and subject areas which are constantly evolving due to the changes in industry demand and the job market. According to the Association of Career and Technical Education (ACTE), CTE provides students with

- academic subject matter taught with relevance to the real world
- employability skills, from job-related skills to workplace ethics
- career pathways that link secondary and post-secondary education

- second-chance education and training and
- education for additional training and degrees, especially related to workplace training, skills upgrades, and career advancement. (ACTE, 2019, para 2.)

For the purpose of this study and when referencing literature, the terms career and technical education (CTE) is used but may be referenced as career, technical, and workforce education (CTWE), professional technical education (PTE), and vocational technological education.

Comprehensive community college. A comprehensive community college typically offers five facets of education: transfer education to a four-year institute, career and technical education, developmental education, continuing education, and industry training. Comprehensive community colleges are distinct in nature by their mission and governing boards (Jenkins, 2019).

The Northwest Commission on Colleges and Universities (NWCCU). NWCCU is one of seven regional organizations recognized by the USDOE to accredit post-secondary institutions within the United States. NWCCU's region includes Alaska, Idaho, Montana, Nevada, Oregon, Utah, and Washington. The NWCCU has authority over educational quality and institutional effectiveness for the 162 colleges and universities it serves (NWCCU, 2016).

Trades Adjustment Assistance Community College and Career Training (TAACCCT) Grant. The TAACCCT grant program through the U.S. Department of Labor (USDOL) increases the ability of community colleges to address the challenge of today's workforce (USDOL, 2013).

Delimitations

The study was focused on a single, comprehensive community college's open-entry, closed-exit CBE program that is accredited by the NWCCU. The results of this study will not be immediately generalizable to other institutions because the study was limited to a single community college. Including only specific departments of the college was another delimitation in the study as the perspectives presented are not representative of respondents in all departments at the college. This study was delimited to purposefully selected community college administrators and faculty engaged in the development and implementation of the two technical programs delivered as an open-entry, closed-exit CBE model. Industry was not included as a potential interview subject in order to support the institution's administration, faculty, and staff perspective. Additionally, students were not included in this study to keep the views and perspectives of best practices and strategies from a leadership, faculty, and staff view.

Data was collected from the selected interview participants and public access documents. The delimitations of the present study were that the study only captured one point in time and the perspectives of the participants involved with the design and implementation of the open-entry, closed-exit model was only captured at that one point in time. The embedded descriptive case study is bound to the study of a single community college located in the mountain west region of the United States.

Limitations

This study sought to describe the strategies used by one community college to overcome identified obstacles faced when implementing a CBE program. The research attempted to explain solutions implemented to overcome any identified emerging threats

during the implementation. This study did not look directly at curriculum design or assessment but instead looked at strategies and steps employed within administrative systems to create and implement an open-entry, closed-exit CBE program. Findings from this research cannot be generalized to all community colleges that do not share the same unique characteristics and accrediting body as the subject of this study.

An additional limitation of the study was the ability to secure responses from all desired participants during the timeframe of the study. The timing became an issue because the academic term was ending at a time when interviews were conducted. Some of the participants had difficulty in committing to the interview time schedule due to pending vacation schedules. Of the 27 participants invited, only 11 face-to-face interviews were conducted, representing 12 college departments. There was an additional interview captured over the telephone after the visit to the campus.

The 27 participants who were invited represented executive leadership, accreditation, admissions and registration, advising, apprenticeship, financial aid, student information systems, veterans, instructional program administration, and program faculty. The total number of participants who agreed to be part of the study was 12. The total number of interviews which took place was 14. Two of the participants were interviewed twice because they were able to bring a perspective from two different departments. One participant was the former director of the CBE program and one was formerly in the advising department. Therefore, the total individuals interviewed was 12. One participant was unexpectedly ill during the week of the interviews and agreed to a telephone interview the following week. The remaining 11 interviews occurred face to face on the campus (see Table 1.1).

Delimiting this case study to a single institution, two technical CBE programs, and selected participants introduced a key limitation in that the results will not be immediately generalizable to other institutions; however, identifying the design and implementation steps, promote transferability to other settings.

Assumptions

Implementing a competency-based program within a college or university can be a very challenging decision to leaders in higher education. There are many major

Table 1.1

Number of Participants Representing College Departments' Perspectives

College Department	Total No. Invitations	Position Level	Interview Style	Final No. Participants
Executive Office	1	Executive instructional administrator	None	0
Accreditation	1	Director	Face to Face	1
Admissions	2	Director	Face to Face	1
Advising	2	Director	Face to Face	1
Apprenticeship	1	Director	Face to Face	1
Financial Aid	2	Director	Face to Face	1
CBE Instructional Program /Division	6	Dean(s), Director(s), Division Chair(s)	Face to Face & Telephone	3
Program Faculty	6	Faculty	Face to Face	3
Registration	2	Director(s)	Face to Face	1
Student Information System	2	Director(s)	Face to Face	1
Veterans	2	Director(s)	Face to Face	1

operational challenges administration must explore before implementing a CBE model.

College leaders are faced with many challenges in the development of administrative,

regulatory, and technological systems, in addition to managing decisions pertaining to academic programs. Presenting a case study of an institution's strategies, steps, obstacles, threats and solutions as they navigate these decisions is valuable to higher education leaders. Finding an effective way to help educational leaders implement an open-entry, closed-exit CBE delivery model is critical for higher education leadership.

Increasingly, educators and policymakers are recognizing the challenge of improving completion rates for post-secondary credentials and reducing student debt while improving graduates' competency aligned to program outcomes and the needs of employers, communities, and national goals. There is growing consensus across ideological and partisan lines that high-quality, scalable models must emerge if we are to have success with CBE models (Fay, 2018). Based on the literature reviewed for this study, the implementation of CBE models could be an effective option used to address these concerns. However, there are many varieties of CBE models being implemented in higher education institutions across the country, which is causing a high level of uncertainty. A recent report stated, "There is considerable confusion about what CBE is or can be" (Garret & Lurie, 2016, p. 34). The report indicated that many institutions have false starts, abandon the model, or combine CBE components with traditional models to create their own unique approach to education.

This case study intends to provide guidance on strategies for the effective implementation of CBE. It is expected the results of this research will provide guidance and direction to the systemic challenges faced by community colleges interested in the implementation of a CBE model. The focus of this study is to inform college administrators, faculty, and employer advisory boards about potential threats, possible

solutions, and appropriate strategies for successful CBE implementation. The results of this study may also benefit state education governing bodies by examining ways to support the implementation of statewide competency-based delivery models through the lens of college administration, faculty, staff, and employers.

Summary

A CBE delivery model allows institutions the opportunity to provide students with a flexible, affordable option to the traditional college credit hour program delivery model. Additionally, industry may benefit from timely training of students, and students may benefit from the cost savings and flexibility of progressing at their own pace (Wax, 2015a).

Higher education administration and government agencies may choose to examine the implications and return-on-investment of a CBE model adoption. College and universities are challenged to define an approach and adjust their institutional systems to adopt and support a CBE model. The literature reviewed for this study also suggested that CBE is a complex model, which is not always popular with all leaders in higher education. CBE models can challenge the traditional culture of instruction delivery, curriculum design, assessment techniques, and faculty roles (C-BEN, 2016c; Fain, 2015; Lurie & Garrett, 2017).

The researcher's 30 years of instructional and education administrative experience has suggested that adult students enter higher education institutions with a set of competencies that are not recognized by the college's system, faculty, or programs. Additionally, students prefer to shorten their time to degree or certificate completion,

save money, and enter into the workforce earlier. This case study provided an opportunity to examine the elements of design and implementation of a CBE program model.

The chapters that follow explore the literature relevant to this study, explain the methodology for approaching this research, and describe the results and conclusions of the study. Chapter II provides an overview of CBE, definitions of CBE, and the complications identified in the literature regarding CBE program models, accreditation and federal financial aid, faculty involvement, and business operations. Chapter III presents the methodology used to conduct the study. It begins with the research questions, followed by the methodology used to address these questions and the rationale for the qualitative case study research design. Chapter III also provides details to participant selection, data collection and analysis methods, and the role of the researcher as a research instrument. Lastly, Chapter III includes delimitations and limitations of the study and credibility concerns. Chapter IV presents the findings of the study from the perspectives of the participants. Chapter V presents the conclusion and recommendations for further research.

Chapter II: Review of Literature

The literature on Competency Based Education (CBE) is diverse and can be drawn from a multitude of fields: scientific, political, economic, technical, and educational. Due to the complexity of the topic and the extensiveness of the literature on the subject, it is not reasonable to cover its entire history or impact. Instead, to inform the research questions of this study more accurately, the following is a review of the current sustainability literature addressing the topics of the historical perspective, definitions of CBE, CBE academic models, accrediting agencies and the USDOE, and faculty involvement.

The exploration of the historical perspective establishes the history of CBE and its evolution into the current model. The second topic sheds light on the multiple definitions of CBE and define the current standing of CBE. The third topic discusses current models of delivery to help the researcher understand the challenges an institutional system would face when implementing the CBE model. The fourth topic provides background into the major challenges facing today's college leaders in adopting a CBE model. The final area of the literature review focuses on engaging faculty in the development of a CBE program.

Historical perspective of competency-based education

According to Brown, Patrick, Tate, and Wright (1994), modern CBE and training movements began with United States efforts to reform teacher education and training in the 1960's. They authored a collection of readings related to competency-based training (CBT), which this researcher refers to as CBE. They suggested five models emerged during the 1980s and early 1990s.

The first generation was the application of scientific management principles to the workplace. This type of training was developed to support World War I; to provide rural farm workers with the skills needed to support the machinery and equipment for our military branches.

The second generation addressed the development of mastery-learning competency models in the United States during the 1920s and 1930s. This approach “emphasized achievement of success or mastery of preset content and separated this achievement from timetabling or scheduling, thus making it independent of time spent on task” (Brown et al., 1994, p. 18).

The third generation was primarily concerned with formative vocational education and training that started during the 1940’s and continued to the early 2000’s. This generation was created in response to World War II and applied psychology to the design and implementation of the vocational education and training programs. The approach was highly formative, included programmed instruction, and the use of teaching machines (Brown et al., 1994).

The teacher education movement in the United States represented the fourth generation, moving beyond vocational training to education. It is during this time period that the word *competency* began to be widely used in association with the CBE models of instruction and learning. Behavioral objectives were introduced and were written in a very specific component form; performance the learner would be able to demonstrate, standard specific to the acceptable level of the performance, and conditions under which the training was to occur. These conditions created a systematic approach to the design of

instruction and became the concepts we associate today with modern CBE (Brown et al., 1994).

The fifth generation includes the underlying the transition from one generation of competency-based approaches to the next, with an increased focus on outcomes versus process. Brown et al. (1994) noted the focus on “outcomes are always derived from an analysis of the work role desired” (p.18). The fifth generation describes the need to have a conversation with industry to help establish the competency standards for the work role or occupational skillset required or in demand. Twenty-five years ago, higher education recognized the need to discuss the pressure to compete globally and the need to provide the workforce with opportunities to learn new skills as our industrialized countries continue to seek and require higher-level skills in our workers. They referenced the response to this global demand being the fifth generation of CBE.

Jones and Voorhees (2002) examined the fourth and fifth generations of competency-based programs targeting adult learners in the United States. They found most programs in postsecondary education focused on the development and transferability of competency or outcome-based curricula in specific disciplines and to a lesser extent, specific workplace skills and institutional effectiveness. An example of the fifth generation is Western Governor’s University (WGU). WGU is an incorporated private, non-profit institution dedicated to developing and delivering a fully online CBE system primarily designed for working adults. WGU awards credit to student for their existing knowledge and skills that are directly related to the mastery-based competencies required in their program of study.

Klein-Collins (2013) documented the rise of CBE programs in the United States, noting that the commonalities with the all generations of CBE was “an intensive focus on what students know and can do rather than on what is taught, for instance, is a hallmark of CBE programs going back at least four decades” (p. 4). A 2016 report for the Council for Adult and Experiential Learning (CAEL) on competency-based degree programs in the United States stated there was an increase in the expansion of higher education opportunities to working adults in the 1970s that led to the development of several well-known outcomes and or competency-based degree programs at institutions such as Alverno College, DePaul University’s School for New Learning, Empire State College, Excelsior College (previously Regents College), and Thomas Edison State College. A key distinguishing feature of these early programs was their emphasis on learning outcomes and the assessment of these learning outcomes. Typically, competencies were embedded in the curriculum, through early advancements in prior learning assessments via portfolios and standardized tests accompanied these outcome efforts (Klein-Collins, 2013).

A 2012 report described the distinguishing feature of CBE programs: the increased emphasis on direct assessment of competencies rather than instructor-led courses. (Klein-Collins, 2012) Although some of the more recently developed CBE programs follow a more traditional approach of positioning competency frameworks within course-based programs designed around credit hours, other programs offered by institutions, such as WGU and Westminster College, do not. Rather, students earn their degrees by successfully completing a series of project-based assessments that enable them to demonstrate whether they have mastered the required competencies. Students are

assisted by coaches and mentors, who are responsible for designing content that students need to master a given competency. Additionally, tuition for these types of programs is typically based on a six-month, flat-rate subscription model, which enables some students to advance faster than a traditional semester or time-based model (Klein-Collins, 2012).

Defining competency-based education

The need for a definition pertaining to CBE was determined a priority in the late 1970's. Spady (1977) stated academic programs that were part of CBE were a “bandwagon in need of a definition” (p. 9). While CBE is relatively new to higher education, it has been around for years in the military, secondary and special education, and particularly the medical fields. Recently, there has been an increase in movement towards consensus for a central definition of CBE from all disciplines (CBEN, 2016a; Garret & Lurie, 2016).

CBE in the United States has evolved over the decades from early behaviorist vocational training models to higher education degree programs with curricula that emphasize demonstrable workforce-relevant outcomes or the application of acquired knowledge. Until recently, CBE programs existed primarily as niche offerings at a handful of higher education institutions serving non-traditional students, mostly working adults. Advances in educational delivery systems, such as the development of asynchronous online learning has enabled more adults to pursue higher education opportunities. The interest of employers and working adults has sparked the interest of leaders in higher education to look closer at CBE programs. Additionally, government and industry has been calling for increased accountability and demonstration of

employable outcomes from higher education (Downs, 2017; Fain, 2015; Kelchen, 2015; Klein-Collins, 2013)

The competency-based learning model's basic framework relies on the assumptions of Knowles' (1980) basic tenants of andragogy: (a) the adult learner wants to self-direct his or her own learning, (b) the adult learner wants to call upon life experiences as an asset to learning, (c) the adult learner wants to align their learning needs to their roles in society, (d) the adult learner wants to apply knowledge immediately, and the adult learner is internally motivated. Knowles, Holton, and Swanson (2005) conducted research about adult learning, which they refer to as the *andragogy*, and discussed adult learners needing to be mature and self-directed to align their work experiences to learning in order to be academically successful. McIntyre-Hite (2016) stated, "Self-direction and being able to apply experience in learning are key tenets of competency-based learning models" (p. 16); implying that students who were truly self-directed when they were no longer confined by deadlines and could work as much or little as they want. Klein-Collins (2013) felt that a hallmark of a competency-based model was that "students can set the pace, taking more time on material that is challenging and unfamiliar or less time on material they have already mastered" (p. 8).

A major premise of CBE is that students apply their prior experience to demonstrate competency and set their own pace for degree or certificate completion. Self-direction, prior experiences, and knowledge comprise the theory of andragogy and is the foundation of CBE models. CBE learning models acknowledge that students bring learning from work and life experiences. Furthermore, learning can result in moving

competencies more quickly than a traditional course-based and or time-bound programs (Klein-Collins, 2013; Weise & Christensen, 2014).

The concept of curriculum mapping appears repeatedly in the CBE literature and underscores the need for alignment at all levels of CBE from conception and design through assessment and reporting. Today, there are various frameworks available to aid in the development of competencies outlining the outcomes that graduates should know and be able to demonstrate as they achieve their educational goals. Klein-Collins (2012, 2013) outlined several recent initiatives aimed at articulating the knowledge, skills, and competencies that college-level learners must develop and demonstrate to graduate. At the institution and program level, these frameworks are broad statements of learning objectives and serve as the standard against which specific outcomes are assessed and measured.

The field has been able to explain the benefits of CBE but has struggled to come to a consensus on a definition. Weise and Christensen (2014) believed CBE models in higher education provided students with an opportunity to shorten their time to degree by providing evidence of prior experience, competency attainment, and the removal of seat time from the equation. They argued that CBE was a personalized learning experience that required the “critical convergence of multiple vectors: the right learning model, the right technologies, the right customers, and the right business model” (2014, p. iv). The USDOE (2013) complemented Weise and Christensen by stating:

Competency-based approaches to education have the potential for assuring the quality and extent of learning, shortening the time to degree/certificate completion, developing stackable credentials that ease student transitions between

school and work, and reducing the overall cost of education for both career-technical and degree programs. (para. 7).

The C-BEN worked collaboratively to find consensus and has released a revised formal definition that has quickly been adopted nationwide. In March of 2014, the C-BEN, released a revised formal definition of CBE:

Competency-based education combines an intentional and transparent approach to curricular design with an academic model in which the time it takes to demonstrate competencies varies and the expectations about learning are held constant. Students acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities, and experiences that align with clearly defined programmatic outcomes. Students receive proactive guidance and support from faculty and staff. Learners earn credentials by demonstrating mastery through multiple forms of assessment, often at a personalized pace. (para. 1)

Although there is a formal definition of CBE provided by C-BEN, there is still confusion in a definition or description of a CBE model. In 2016, a report was produced based on the responses from 251 higher education institutions. One of the findings in the report was that there is not a single dominant version of CBE; “It was abundantly clear that CBE does not reflect a single learning modality, nor should it be considered simply a delivery mode” (Garret & Lurie, 2016, p. 5). It also stated, “There is considerable confusion about what CBE is or can be” (Garret & Lurie, 2016, p. 34). The report indicated that although some CBE models are getting more attention than others, some institutions combine CBE elements with traditional models to create their own unique approach to education. Though according to Kelchen (2015), in the landscape of CBE,

there is still no consensus definition of CBE, even among the institutions that currently provide it. Instead, he described CBE through two distinct forms: prior learning assessments, which grant credit for content that a student has previously mastered, and competency-based coursework, where a student progresses towards a degree as they demonstrate mastery of the content. Educators across the country are also now stating CBE in terms of time as the variable. Essentially competency-based programs do not measure the time spent on task, instead competencies mastered; “Learning is fixed, time is variable, pacing is flexible” (Weise & Christensen, 2014, p. 12).

Dr. Eric Heiser, a member of the C-BEN, successfully led the design and implementation of a CBE model at Salt Lake Community College (SLCC), which was funded by a United States Department of Labor (USDOL), Trades Adjustment Act Community College Career Training (TAACCCT) grant. The definition provided leaders in higher education exploring a CBE model with clarification and a standard to work towards in their design. Heiser discussed the importance of having a clear definition when designing a program for approval from an institution’s accrediting body. “Simply put, CBE removed time as the constant in learning and made it a variable” (Heiser, personal communication, 2016). What Heiser meant by this statement was the time students spent to achieve a competency in a course is not set by the Carnegie credit hour requirements, instead students are given the time they needed to master the competencies and learning outcomes. Students are allowed flexibility in time; however, outcomes remain the same.

A slightly loose definition of a credit hour in higher education normally refers to an hour of faculty instruction and two hours of homework, on a weekly basis, over a 15-

week semester. The idea of replacing the credit hour with a competency-based standard was considered by a 27-member committee from the Carnegie Foundation for the Advancement of Learning. The committee concluded that although the credit hour was an inadequate unit for measuring student learning, getting rid of it would be difficult because of the way colleges use it to organize the work of students and faculty, and most problematic, financial aid has been awarded based on credit hour (Fain, 2015). Even with a clear definition of CBE by the C-BEN, the CBE model at SLCC is uniquely designed to serve student and industry needs in that area. According to Council for Adult and Experiential Learning [CAEL] (2016, p. 6) case study of SLCC's CBE model:

with national attention focused on SAT (School of Applied Technology) as a leader in CBE, many faculty members have begun to envision new models for their own disciplines and new approaches to help meet the institution's mission as a public, open-access, comprehensive community college committed to serving the broader community.

There might be a few college front runners using popular CBE models, but there is no single design being modeled or implemented nationally and yet are hundreds of institutions of higher education interested in implementing or who are actively engaged in a CBE model; however, it remains a "complex territory" (Garret & Lurie, 2016, p. 5). One potential reason for some leaders in higher education choosing not to engage in CBE could be a culture of tradition at the college; "CBE is not simply a delivery mode. It challenges long-held conventions regarding how curricula are created, instruction is designed and delivered, and skills and knowledge are assessed" (Garret & Lurie, 2016, p. 33).

Competency-based education academic models

Professional learning competencies are well known and used to inform programs such as health professions and other career and technical program's curriculum development. Typically, the development of the program's competencies occurs in the confines of traditional course-based model of instruction. The development of the competencies and how they inform curriculum development may be helpful and applied to a competency-based learning model within the career technical and workforce professions. Competencies may also arise from conversations with industry and employers, as well as college advisory boards with program oversight.

Healthcare programs with national assessments, which are driven by program accreditation standards, typically begin the design of CBE curriculum with a conversation between industry and the partnering academic institution. The design of competency-based curricula starts by gathering employer input regarding the skills and competencies needed for new graduates to be successful in the workplace. There could be a risk of educating students too narrowly if these conversations do not keep up with the rapidly shifting skills needed in the workforce. Ongoing conversations and program review need to occur as often as possible to assure the necessary competencies are being taught and measured (Baughman, Brumm, & Mickelson, 2012; Cydis, 2014).

Integrative learning experiences may result in competencies where skills, abilities, and knowledge weave to form what is referred to as *learning bundles* (Baughman et al. (2012). The value of a competency or skillset is determined by the value of the desired task, and this seems to be consistent throughout the world. Baughman et al. (2012) evaluated the ways in which competency models are viewed.

First, competencies were usually discussed from the employment and workforce-demand perspective with consideration given primarily to the needs of employers. Job stability can be obtained by acquiring competencies and, therefore, can be viewed as part of the labor market by learners, students, incumbent workers, or new employees. Competencies can shift the focus from an instructional delivery to a student-performance model, which can redefine classrooms and programs (Baughman et al., 2012).

Kerdijk, Snoek, van Hell, and Cohen-Schotanus (2013) conducted a comparative study between a competency-based curriculum and active learning curriculum in an undergraduate medical course. They found no significant differences between the two models in terms of the final assessment. However, students in the CBE program reported feeling better prepared to put a patient problem in a broad context—which was the primary outcome of the program. Students in the CBE model were frequently informed of the expectations and were explicitly asked to reflect on their performance, remedy their deficiencies, and formulate ways to improve. Kerdijk, Snoek, Van Hell, and Cohen-Schotanus (2013) reported that the CBE students were more aware of their competencies and competency deficiencies.

Not everyone is convinced a CBE model is best for students. According to Slaton (2013), CBE is an industrial approach to efficiency in our educational system, but ultimately short changes the less-affluent student and contributes to social indifferences between students. It is questioned whether the perceived efficiencies by advocates for CBE models are beneficial to students. Not everyone is convinced that lower tuition, lower wages, and lower institutional expenditures are worth the price paid by students. Instead, outcomes-focused college curriculum is stripped of unnecessary instruction,

open-ended discussion, and liberal learning. “Learning is poorly served by supposed efficiencies” and “the saving of money supposedly in the interest of affordability and inclusion that in actuality achieves only social demarcation” (Slaton, 2013, para.6). There was concern the distance between those who can afford a traditional university education and those who need to save money will continue to widen with a variety of CBE models.

Cohen, Brawer, and Kisker (2014) warned readers that, “There is no room for the ideal when we ask, ‘What is a competent person?’” (p. 189). Cohen et al. noted that CBE models focused on teaching the job-related skills students were coming to school to get:

If education teaches for jobs, ignoring what the person is, it runs the risk of creating a corps of dissatisfied graduates when they find that a job is not enough for a satisfactory life; not to mention the issue of whether they find jobs at a level for which they were trained. (p. 189)

Accreditation and financial aid

Although CBE has been around for decades, the current efforts resulting in institutional and program restructuring of curriculum to accurately assess mastery of competencies, retraining of faculty, and the reframing of student learning outcomes are cause for accreditors to view these modifications as substantive changes (Eaton, 2016). Accrediting agencies view any major alterations within an institution, such as change in mission, legal status, degree level, program offerings, and delivery methods, as a substantive change, which is cause for review. Implementing a competency-based model “would be considered a significant shift in delivery method and perhaps program offerings and thus constitutes a substantive change that accreditors must review” (Eaton, 2016, p. 12).

Accreditors today look for outcome-based evidence as an approach for program approval. There is need for CBE to be notable, yet distinctly different from outcomes-based learning. Both models are about the “skills that students gain as the decisive factor in organizing teaching and learning” (Eaton, 2016, p. 14). The difference between the two models involves structural and political characteristics. Structurally, the CBE model replaces the traditional time-based, clock-hour education. Politically, CBE is rapidly emerging as shifts in federal policy addresses access to student grants and loans for students enrolled in CBE programs. According to Eaton (2016), “to date, outcomes-based education has not been singled out for this purpose” (p. 14).

College leaders looking to implement a CBE model on their campus may face some unique challenges in obtaining approval from their accrediting body. According to the NWCCU (2016), the institution must have prior approval from the commission the first time a credit-based CBE program is offered. The NWCCU considered:

a program to be competency-based when all of the courses (for the program, for general education, for the major) have learning goals expressed as competencies, expressed approved at the program level, and each student is required to demonstrate mastery of every competency in a course to earn credit for such a course. (p. 5)

In addition to approval, the NWCCU has adopted a fee schedule that is charged to institutions for any changes to programs; especially substantive changes, which CBE is considered to be.

There are three general categories of program listed under regional accreditation agencies; credit hours, direct assessment, and hybrid; combining credit hours with direct

assessment. The first time an institution offers a credit-based CBE program, it must be approved by its regional accreditor for a substantive change. The accreditor will then provide guidance regarding the submission of future CBE programs for approval. The accreditor will examine the institution's proposal for learning goals expressed as competencies at the program level and student-level mastery for each course in order to earn credit for the course. Direct assessment pertains to a degree or certificate which is awarded based on the attainment of competencies and not credit hours. There are no set academic term or grade level assigned to the program; such as freshman or second year. Academic progress is measured based on learning outcomes students meet and can demonstrate in terms of the body of knowledge constituting the educational program. The hybrid program is applied when a program contains 50% or more of direct assessment (NWCCU, 2016; USDOE, 2011; USDOE, 2013; USDOE 2016).

When an institution's administration chooses direct assessment and awards a degree or certificate only on the basis on competencies and not credit hours, the institution needs prior approval by their accrediting agency. According to the NWCCU, institutions are required to submit an in-depth detailed program proposal to their accrediting agency when choosing the direct assessment route. When an institution's administration chooses a credit hour approach for their programs, competencies must be equated back to the credit hour. Regardless of whether the college is seeking approval for a direct assessment or credit hour instructional program, the institution must demonstrate in its proposal the faculty to student interaction, method of assessments, and validity of assessments. Most accrediting agencies require extensive documentation that the accrediting agency use to evaluate the institution based on their methodology for

determining the credit hour equivalence of the direct assessment measures (NWCCU, 2016; USDOE, 2011; USDOE, 2013; USDOE 2016).

The USDOE (2013; 2016) announced the Federal Direct Assessment Experimental Sites Initiative as an opportunity for institutions to make their CBE programs eligible for student aid funds under Title IV of the Higher Education Act (Eaton, 2016). To participate in this initiative, the colleges must have their program's clock hour equivalencies and direct assessments approved by their accrediting agencies: "As of April 2015, 45 institutions were identified on the preliminary list of participants in the Direct Assessment program. To date, four institutions are participating, involving three regional accreditors" (Eaton, 2016, p. 13).

Decisions on how to best align CBE programs with accreditor requirements must be strongly considered as part of the program development process. The Dear Colleague letter of 2011 (USDOE, 2011) detailed how competencies would need to be mapped back to clock hours in a course to qualify for accreditation. "Equating clock hours as part of the CBE modality for CBE programs created prior to 2013 later caused several constraints in the design elements of the CBE programs that had already launched at universities such as Western Governors University (WGU)" (Cunnington, Key, & Capron, 2016, para.4). The traditional model of calculating learning has always included fixed seat time. Institutions and agencies calculate credit hours using academic calendars and student per class workload as the standard measurement. As part of the Experiential Sites Initiative (ESI), colleges approved to participate in the ESI may charge tuition based on a subscription rate rather than the clock hours required to achieve a credit while working on competency mastery (USDOE, 2016). Cunningham et al. (2016) suggested

decisions to adopt a CBE model need to be made from the perspective of the regulatory environment:

Competency-based programs are not all the same because each college decides the format, language, and worth of the competency. It may present a challenge for accreditors to translate an individual school's model because there is not a standard format requirement between colleges. (para. 6)

SLCC's school of applied technology (SAT) recognized an increase in regional workforce needs and the need to shorten the time it took SAT students to complete programs and enter the workforce. The SAT changed their short-term workforce training from clock-hour programs to CBE. According to the Council for Adult and Experiential Learning [CAEL], (2016), Salt Lake Community College's School of Applied Technology program was approved to become a USDOE experimental site. During the experimental period, the USDOE granted the SAT and other institutional participants a waiver from certain rules that govern federal financial aid. SLCC offered students the option of enrolling in traditional classroom programs, therefore becoming eligible for federal financial aid, or forgoing the aid and enrolling in one of the accelerated CBE programs (CAEL, 2106; USDOE, 2016).

The students at SLCC were given the entire academic year to demonstrate mastery of their program's competencies. Students could enter a program on any Monday of the year and progress as fast or slow as they wished through a program. Students paid a subscription style tuition that allowed them access to the curriculum, faculty and staff support, and assessments during the duration of their tuition block and annual term. Students who were residents of the state of Utah also enjoyed the benefit of a subsidized

clock-hour cost. This low cost, flexible program made the SLCC's CBE model affordable and a great choice for students (E. Heiser, personal communication, April 10, 2016).

Title IV regulations required mapping competencies to credit or clock hours. It has been difficult to obtain financial aid approval for a non-course based, direct assessment CBE model. The US Department of Education has granted exceptions for experimental sites that serve as pilot programs, such as SLCC's CBE model. According to the resource guide on financial aid, when determining a program's eligibility, the eligible program must result in a degree, certificate, or other recognized credential to be Title IV eligible (CBEN, 2016c).

The CAEL representatives met with USDOE staff to discuss the CBE Jumpstart training program. Jumpstart is CAEL's Lumina Foundation funded initiative to help colleges and universities understand the basics of CBE and the changes that may be needed at their institutions if college leadership choose to pursue CBE programs (Wax, 2015a). Issues related to Title IV funding were discussed and the importance for college leadership to involve their financial aid team in the development of a CBE program was recommended. The USDOE representatives made it clear to the attendees there were many statutory issues pertaining to CBE that they cannot control. The USDOE representatives clarified their priority and responsibility was to "protect both the taxpayer and the student, especially given expansion of Pell grants in 2010 which was not universally popular politically" (Wax, 2015a, para. 7).

Faculty

The role faculty play in the design, adoption, and implementation of CBE instructional programs are critical. When college leadership is trying to implement a new

model of program delivery, such as CBE, “successful faculty support will only occur through the use of intentional strategies aimed at inspiring support and encouraging lasting involvement” (Cooper, 2016, p. 31). College leadership needs the support and buy-in from faculty from the CBE model conception to the implementation. Faculty play a vital role in curriculum design, competency mastery, program offerings, policy and procedures, as well as implementation. Faculty need to be part of short-term wins to sustain long-term success. (Cooper (2016)

With most large-scale changes, there are challenges due to a shift in culture. Cooper (2015) discussed the need to establish early in the process the way to appropriately compensate faculty for their contributions to the process, which may vary widely from curriculum development and course design to training on the new technologies and the development of assessments. From the onset, it was felt that communicating,

the vision in a way that moved faculty to action, to empowering them to make decisions and contribute actively, managing the development of the CBE program as a large-scale change initiative proved to be the most beneficial and productive action for the institution. (Cooper, 2016, p. 35)

In 2012, Texas A&M University-Commerce and South Texas College collaborated and received an EDUCAUSE Next Generation Learning Challenges grant to establish the first competency-based baccalaureate degree offered by a public university in the state of Texas. Hendrix (2015) identified the need to involve faculty from the beginning of the process and concluded that this action was the most critical factor to the success of the CBE program. Faculty led the discussions and designed the student

outcomes. From there, faculty were able to design the instructional methods and assessment processes of the CBE program (Hendrix, 2015).

Faculty were part of the decision to deliver the CBE online, through competency modules within their existing learning management system. The institution was able to operate within their existing framework because of faculty support. Students received course grades on transcripts in the same manner as traditional courses. Rather than noting competencies on transcripts or starting with a direct assessment program, the guiding team of administrators and faculty felt it was best to mirror the traditional higher education system as much as possible, so that students could receive financial aid, transfer to other degree programs, and pursue graduate education (Hendrix, 2015).

Garret and Lurie (2016) revealed faculty training for CBE programs may not be consistent with the roles that faculty members play in their respective programs; which could lead to a lack of faculty buy in. “There is a tension between the logic of CBE, which pushes a more standardized approach to establishing competencies, curricula, and course content, and the decentralized culture of higher education” (Garret & Lurie, 2016, p. 35). The report discussed a duplication of effort when each department and faculty member worked to write their own competencies and content and did not recognize a duplication of work and diluted impact. The report found a large minority of faculty who were actively engaged in CBE did not appear to work with directly with employers to shape competencies and curriculum. “These tensions and differences may hint at the early-stage development of much CBE in colleges and universities, but also the complexities of definition and attempts to marry the old and the new” (Garret & Lurie,

2016, p. 19). They argued faculty are less likely to support a CBE program when they are torn between their traditional conventions and their new roles.

Summary

CBE programs have existed for decades; however, there has been a recent surge of interest in CBE models across the nation. CBE is now seen as a way to affect everything from more rigorous assessment of student learning to enhance student employment, reduced time to degree or certificate completion, and lower tuition. The C-BEN has been actively advocating for program adoption and guidance. The C-BEN seeks to specify learning outcomes at the course and program level. They have also been working to rigorously and transparently assess student performance against those outcomes. As Dr. Heiser stated, “time is the variable in CBE” (personal communication, April 10, 2017). The C-BEN has published a definition of CBE that seems to have taken hold in many arenas including the political arena. There has been an increase in discussions and pressure from political representatives to encourage the USDOE to take a new look at CBE and adopt policies which support providing financial aid to students who participate in CBE programs. However, Garret and Lurie (2016) indicated institutions of higher education use the term CBE to identify a wide range of practices and use other terms to describe what some schools call innovative programs and other schools call CBE models. “This complexity reflects the richness of the CBE palette, and its potential to enhance higher education. At the same time, it may also risk chaos as hundreds of schools and thousands of leaders and practitioners grapple with implementation” (2016, p. 34).

The related literature has revealed faculty involvement in the design, adoption, and implementation of a CBE program is critical to a successful launch and program sustainability. A senior policy analyst for the National Governors Association shared their perspective as a panelist for the 2014 WICHE Cooperative for Educational Technologies (WCET) Frontier summit. When asked “how do you start to move the perceptions of what ‘college’ is?” the reply specifically addressed faculty perceptions; [an] “unbundled faculty role can be scary for faculty who have no idea what it will look like, what it will mean for them” (WCET, 2014).

While CBE is stronger than ever before, it remains a complex, disruptive innovation for leaders in higher education to adopt. CBE is not simply a delivery mode, it has a systemic impact on an institution:

Finally, while several established institutions may continue to grow their CBE programs, the diversity and complexity of CBE will require most institutions to opt for customized implementation. Near-term opportunities to accelerate the growth and expand the scale of CBE, beyond a set of innovative early adopters, may be limited. Expanded scale and deeper impact will require institutions to carefully assess their needs and align them to specific CBE components, tools, and practices. This complexity emphasizes the merits of a richer array of CBE implementation examples. (Lurie & Garrett, 2017, p. 5)

The chapters that follow discuss the research methodology, findings, and recommendations. Chapter III begins with the research questions, followed by the methodology used to address these questions and the rationale for the qualitative case study research design. Additionally, Chapter III provides details to participant selection,

data collection and analysis methods, and the role of the researcher as a research instrument, as well as the delimitations and limitations of the study and credibility concerns. Chapter IV presents the findings of the study from the perspectives of the participants. Chapter V presents the conclusion, implications, and recommendations for further research.

Chapter III: Methodology

This chapter reviews the purpose of this study, the research questions addressed, rationale for using a qualitative case study research design, data collection and analysis, ethical issues, and credibility. According to Creswell (2013), when conducting an instrumental case study, the researcher focuses on an issue or concern and then selects one bounded case to illustrate this issue. Creswell also addressed an instrumental case study with the intent to better understand a specific issues, problem, or concern. A specific case was chosen to provide for an in-depth understanding.

Merriam (1998) said, “A descriptive case study in education is one that presents a detailed account of the phenomenon under study” (p. 38). The purpose of this study was to gain an extensive and in-depth perspective from administrators and faculty that describe the strategies used to overcome identified obstacles to the implementation of an open-entry, closed-exit Competency-Based Education (CBE) program at a mountain west region community college. This qualitative case study examined a comprehensive community college that recently implemented open-entry, closed-exit CBE programs. This comprehensive community college located in the mountain west region of the United States, and was reaffirmed their accreditation status in January 2016, by the NWCCU. The college’s open-entry, close-exit model met the required parameters set by the NWCCU and students were actively receiving federal financial aid while enrolled in qualifying degree and certificate technical programs.

This study determined the main steps involved, lessons learned, and recommendations that emerged from implementing a CBE model for credential and/or technical degree programs. This qualitative case study examined barriers to the

development and implementation of an open-entry, closed-exit, CBE model in two career and technical science programs.

The central research problem and focus of this study was to examine the steps followed at a comprehensive community college that implemented two technical open-entry, closed-exit CBE programs and identify the key strategies that were used to overcome institutional obstacles. This study used five research questions to analyze the multiple perspectives considered by individuals interviewed regarding the implementation of the CBE model at a mountain region community college and to identify strategies employed, steps taken, obstacles encountered, strengths, and solutions to problems as they arose:

1. What role did participants play in the design and implementation steps of the open-entry, closed-exit CBE program?
2. What were the obstacles identified before, during, or after, in the design and implementation of the open-entry, closed-exit CBE program?
3. What strategies were used in the design and implementation of the open-entry, closed-exit CBE program?
4. What strengths were identified during the design and implementation of the open-entry, closed-exit CBE program?
5. What solutions to problems arose?

The remaining sections of this chapter provide details to the research design, description of participants, ethical issues, instruments, procedures, data collection, and analysis of the data.

Research design

A case study design is chosen when there is little research about a topic, and performing a qualitative study is an attempt to understand an issue better. Additionally, qualitative research methods are used to better understand the historical and cultural meaning from the participant's perspective. Qualitative methods were used for this case study because the researcher, as the inquirer, sought to understand the strategies used by leadership to overcome systematic operational challenges during the implementation of a CBE program. This case study was designed to interpret data gathered from participant's perceptions and personal views of events. Creswell (2013) believed philosophical assumptions were rooted within a social theoretical lens called "interpretive frameworks" (p. 22).

Perspectives presented through interviews with the community college's administration and faculty were used to understand the strategies employed in the institution. Faculty's perspective added insight to the research questions because the decisions and steps taken by the college's department leaders had an impact and an influence on instruction and faculty. A qualitative method design was used for this research to understand the perspective of the stakeholders involved in the implementation of a CBE model; faculty being one those groups. Qualitative research methods assume meaning is embedded in the experiences being described by people since "[q]ualitative researchers are interested in understanding the meanings people have constructed, that is, how they make sense of their world and the experiences they have in the world" (Merriam, 1998, p. 6).

For the purposes of this case study, the researcher gathered all data. The strategies used for data collection were interviews and a document review. The primary source of interviews for this study took place on site with the community college's senior level administrators. The participants interviewed were directly involved with the approval, design, and implementation of the CBE model including, but not limited to, the following departments or functions: financial aid, credit transcription, admissions, registrar, accreditation, advising, student information systems, veteran services, and instruction. Participants involved in the management of competency-based career and technical instructional programs were interviewed, along with faculty members assigned to instruct in the two programs.

The interview questions were designed to support process theory:

Qualitative researchers tend to focus on three kinds of questions that are much better suited to process theory than variance theory: (1) questions about the meaning of events and activities to the people involved in these, (2) questions about the influence of the physical and social context on these events and activities, and (3) questions about the processes by which these events and activities and their outcomes occurred. (Maxwell, 2013, p. 83)

The interview questions were open-ended, designed to elicit broad responses centered on respondent's perception of their roles in the design and implementation of the CBE model, and their perception of strategies, obstacles, solutions, and best practices used. Open-ended questions were chosen and designed to encourage a full, meaningful answer from the participant (see Appendix A). Using the participant's own knowledge and feelings about the topic allowed for a rich and meaningful conversation. For those

participants who were unavailable to interview on site, secondary interviews by interactive internet web conference or telephone were conducted. During the interviews, the participants were also asked for any supporting documentation pertaining to the discussion (Maxwell, 2013).

The potential risk for participants in this study was minimal. The name of the college was not identified, and no titles or names were used in this study. The individuals interviewed were all working adults for the college studied in roles directly relating to the investigation topic. Participation in this case study was voluntary and prior to the start of each interview, each respondent was read either the informed script or script for a telephone call prior to the interview (see Appendices B & C). The form contained the information on the purpose of the study, confidentiality, risks, and contact information.

During the interviews, participants were reminded about their right not to answer any questions they did not want to answer. After the interviews concluded, participants were given the researcher's contact information and offered a digital copy of their interview transcript for review and comment.

Participants

After gaining approval from the college's executive leadership to conduct this study, 27 individuals were invited to participate. The 27 participants who were invited represented executive leadership, accreditation, admissions and registration, advising, apprenticeship, financial aid, student information systems, veterans, instructional program administration, and program faculty. The total number of participants who agreed to be part of the study was 12. The total number of interviews which took place was 14, Two of the participants were interviewed twice because they were able to bring a

perspective from two different departments. One participant was the former director of the CBE program and one was formerly in the advising department. Therefore, the total individuals interviewed was 12. One participant was unexpectedly ill during the week of the interviews and agreed to a telephone interview the following week. The remaining 11 interviews occurred face to face on the campus (see Table 1.1).

Researcher as an instrument

Because the researcher functions as the primary instrument for data collection and analysis in a case study, background information about the researcher is pertinent to the credibility of this research design (Merriam, 1998, Merriam & Associates, 2002). Having spent over 30 years as an educator with 14 of those as a community college dean for career and technical education programs, the researcher has had extensive experience in the education field. The researcher may not have been a neutral party since the researcher brought her own ideas, values, and prior experiences to the study (Patton, 2002).

The researcher contributed a keen understanding and awareness of developing and implementing community college instructional programs. The researcher was very familiar with CBE delivery models, experiential teaching methods, mastery concepts, assessment methods, and the leadership skills required to implement best practices. The researcher had broad experience bridging conversations between education and industry to solve workforce needs. The researcher also held deeply the value of CBE and the mission of CTE in support of student's academic and career goals. The researcher believed that alternate approaches, such as CBE delivery models, are important to the future of higher education and intended to seek innovative, collaborative, effective strategies and solutions for college leaders to consider implementing CBE models.

Delimitations

The study was focused on a single comprehensive community college's open-entry, closed-exit competency-based education program that is regionally accredited by the NWCCU. The results of this study are not immediately generalizable to other institutions because it was limited to a single community college. Including only specific departments of the college was another delimitation in the study as the perspectives presented are not representative of all departments at the college. This study was delimited to purposefully selected community college administrators and faculty engaged in the development and implementation of the two technical programs delivered as an open-entry, closed-exit CBE model. Industry was not included as potential interview subject in order to support the institution's administration, staff, and faculty perspective. Additionally, students were not included in this research in order to keep the views and perspectives of best practices and strategies from a leadership, faculty, and staff point of view.

Data was collected from the selected interview participants and public access documents. The delimitations of the present study were that the study only captured one point in time, and the perspectives of the participants involved with the design and implementation of the open-entry, closed-exit model were only captured at that one point in time. The embedded descriptive case study is bound to the study of a single community college located in the mountain west region of the United States.

Limitations

This study sought to describe the strategies used by one community college to overcome identified obstacles faced when implementing a CBE program. The research

attempted to explain solutions implemented to overcome any identified emerging threats during the implementation. This study did not look directly at curriculum design or assessment, but instead looked at strategies and steps employed within administrative systems to create and implement an open-entry, closed-exit CBE program. Findings from this research cannot be generalized to all community colleges that do not share the same unique characteristics and accrediting body as the subject of this study.

An additional limitation of the study was the ability to secure all desired participants pertained to the timeframe of the study. The timing became an issue because the academic term was ending when it was time to conduct the interviews. Some of the participants indicated difficulty in committing to the interview time schedule due to their upcoming vacation schedules. Of the 27 participants invited, only 11 face-to-face interviews were conducted, representing 12 college departments. There was an additional interview captured over the telephone after the visit to the campus.

The 27 participants who were invited represented executive leadership, accreditation, admissions and registration, advising, apprenticeship, financial aid, student information systems, veterans, instructional program administration, and program faculty. The total number of participants who agreed to be part of the study was 12. The total number of interviews which took place was 14. Two of the participants were interviewed twice because they were able to bring a perspective from two different departments. One participant was the former director of the CBE program and one was formerly in the advising department. Therefore, the total individuals interviewed was 12. One participant was unexpectedly ill during the week of the interviews and agreed to a

telephone interview the following week. The remaining 11 interviews occurred face to face on the campus (see Table 1.1).

Limiting this case study to a single institution, two technical CBE programs, and selected participants introduced a key limitation in that the results will not be generalizable to other institutions, however, identifying the design and implementation steps, support transferability to other settings.

Data collection

Interview participants were recorded electronically with oral permission from each participant granted prior to beginning the interview. The interview participants were not identified by name, only by their role in the design and implementation of the CBE model. The recordings are stored electronically and will be destroyed one year after the study is published.

Interviews followed Creswell's (2013) guidance on interviewing strategies. The research questions were addressed through interviews based on specifically designed open-ended questions focused on answering and understanding the central research question of this study. The researcher served as an interviewer to address the processes of the interaction. The interview protocol used a direct-access format on the community college campus site. As the alternate interview format for the participant who was unavailable to speak in person, the interview was conducted through a telephone call. The researcher secured verbal consent from interview participants, as required by the Idaho State University Human Subjects Institutional Review Board, prior to any questions being asked. Prior to start of each interview, each respondent was read the informed script or script for a telephone call prior to the interview (see Appendices B & C).

Interviews were recorded after the participant verbally granted their permission to participate. All recorded interviews were transcribed by a professional service and secured electronically.

The researcher analyzed the interview responses to prepared, open-ended questions (see Appendix A). The researcher interviewed senior-level administrators in the following areas: accreditation, admissions and registration, advising, apprenticeship, financial aid, grants, student information system, veteran services, and instructional program administration. Additionally, the researcher interviewed instructors currently teaching in the two career and technical open-entry, closed-exit CBE programs.

During the interviews, the researcher requested documentation and access to documentation referenced in the participants' answers. These documents were examined and provided as evidence to support the research. Documents from the NWCCU regarding program approval or the USDOE pertaining to financial aid eligibility are examples of supporting documentation collected and analyzed for this study (see Appendix B).

Data analysis

During this study, two data analysis perspectives were applied: descriptive and interpretive. The researcher used descriptive data to introduce the college and the open-entry, close-exit program to the reader. During data analysis, the researcher attempted to answer the overarching research question, *How did a comprehensive community college implement an open-entry, closed-exit CBE program and identify key strategies used to overcome institutionally systematic obstacles?* The descriptive portion of this study described the data gathered during the interviews to provide an institutional context and

illuminate the impediments and best practices identified by respondents during the CBE program's development and implementation. The documents collected and analyzed were associated with strategies, obstacles, strengths, and solutions identified during the interviews. The documents specifically identified and reviewed are specifically identified can be found in Appendix B.

Analysis was conducted following Patton's (2002) "substantive significance" criteria, which included solid evidence in support of findings, how the findings increase the understanding of the case, and the usefulness of the findings (p. 467). The interviews were transcribed by a professional service and returned for review by the researcher. After reading the transcripts in their entirety several times, the researcher immersed into the details to get a sense of the whole before breaking the data down into parts. During the interviews, notes were taken by the researcher to provide a deeper perspective for further investigation and analysis. Memos were made regarding key concepts identified while reading the transcripts. Notes were made to review multiple forms of evidence to support categories that emerged.

The data pertaining to the steps involved for the design and implementation of the programs were organized chronologically. Each participant was asked to explain in their own words, their understanding and involvement in any steps or events regarding the design or implementation of the CBE model in the two programs. A key piece of the analysis was to link the research questions to steps and strategies in the design process and implementation of the CBE program.

Data were placed into broad descriptive categorical headings that provided evidence for the central and secondary research questions. The broad units of information

were referred to as sub-categories for this case study. The sub-categories were aggregated into larger categories to form a common idea and to provide evidence for the research questions. The common ideas were referred to as themes in this case study. This study gave equal emphasis to all data collected regardless of frequency. Word counts were not used; therefore, equal weight was given to all data for this study collected from the interviews and document analysis (Creswell, 2013; Patton, 2002).

Before the data was analyzed, all interviews, observations, and field notes were transcribed. The process of transcribing allowed the researcher to become intimately familiar with the data, to recognize patterns emerging from the responses, and note potential themes for coding. According to Marshall and Rossman (2006), combining the transcription with early analysis of the data increased the efficiency of the data analysis. After combining the transcription, the researcher reduced the data from the sub-categories and keywords into identified common themes (see Table 3.1; Creswell, 2013; Marshall & Rossman, 2006).

After a thorough review, the data were coded and placed into sub-categories. The researcher noted silences. For example, when a participant chose not to answer a question or when they appeared to avoid further discussion pertaining to a subject. The attention to disruptions and contradictions were noted. The use of metaphors used by the participants were carefully noted. The group-specific themes were separated from general sources to identify sub-categories, themes within specific departments, and themes throughout the participants.

The transcripts were coded using priori (descriptive) codes based on keywords from interview questions and from the theoretical frameworks of the study. Participants

Table 3.1

Keywords and Response Words

Keyword	Response Word Indicators
Role	<ul style="list-style-type: none"> Part, title, responsibility, authority, team, individual, leader, group, member
Obstacle	<ul style="list-style-type: none"> Barrier, problem, difficulty, complication, hurdle, issue, trouble, drawback, disadvantage Work, work load, effort
Strategy	<ul style="list-style-type: none"> Plan, policy, approach, tactic, method Design, outline, map, plot, diagram, model, proposal Reactionary, no plan, no proactive Steps, timeline, stages, phases, pace Vision, idea, inspiration, perception, awareness, foresight, insight
Strength	<ul style="list-style-type: none"> Effectiveness, greatness, good, successful Work, work load, effort
Solution	<ul style="list-style-type: none"> lessons, learn, gain understanding, comprehend, grasp Work, work load, effort
Understand	<ul style="list-style-type: none"> Lack of understanding, perception, thought, recognize, become aware of, belief Communication, lack of communication, convey Perspective, attitude, viewpoint, view (point of view), approach, interpretation, stance Conflict, disagreement, difference in opinion Agreement, consensus
Recommend	<ul style="list-style-type: none"> Advice, guidance, direction
Implement	<ul style="list-style-type: none"> Implementation, execution, carrying out, follow thru Consideration, responsibility, authority, lack of authority, complex no easy fix

were chosen for the interviews to help the researcher best form the theory (Creswell, 2013). For example, the researcher used keywords such as; *role*, *strategy*, *obstacle*,

strength, solution, understand, recommend, and implement to assist in categorizing the data. The researcher also looked for phrases that connected to these keywords such as *point of view* and *work load*. Additional codes were added using open coding; “coding the data for its major categories of information” (Creswell, 2013, p. 86). More specifically, the researcher used journal notes to identify specific keywords or phrases that stood out from the participant’s responses during the interviews, including *how would it impact my job, winging it, additional work load, lack of communication, reactionary approach, did not have a choice, good for the students, good for the college, working well, and had to figure it out*. The coded data were arranged by each department’s interview responses. Labels or codes were assigned to the interview notes but using a word or short phrase taken from a section of the data. These codes helped identify in-context words or notes that enabled the researcher to see additional patterns in the individual participant’s responses.

The data analysis consisted of reviewing the transcripts, notes, and memos for coded response words that belonged to a category of keywords. For example, during the discussion if the respondent mentioned the word *communication*, it would be coded to the keyword *understand*. Table 3.1 shows the word categories relating to the keywords that were collected, noted, or memorialized during interviews and document review.

After the transcripts were coded, axial coding was used to group the coded words and passages into sets that matched the theoretical framework and the key themes of the research question. According to Patton (2002), “In interpreting for meaning, the researcher goes beyond explanations to attaching significance to the findings or results as explained and drawing conclusions therefrom” (p. 337). The analysis of the keywords

transcended the reality of the data into thematic, conceptual, and a theoretical framework. Once the relationships between the data, research problem, literature review, and the theoretical framework were examined, the researcher started the data reduction.

To interpret the findings and arrive at a level of analysis, conclusions were drawn from the participant's responses. The theoretical framework was used as a lens from which the findings were viewed.

By using various forms of collected data (i.e., interviews, documents, field notes), checking for consistency through themes in the data, and having the data reviewed informally by a peer; triangulation occurred. Creswell (2013) described *triangulation* as using different sources and methods allowing researchers to establish corroborating evidence. This was important because the researcher comes with individual attitudes and beliefs about the case.

For the purpose of this study, generalizations were made from analyzing the data. The researcher had experience and prior knowledge in this area of study and made assertions from the generalization found in the data. The role of the research was to identify a range of interpretations for future consumers of this research. Case studies allow for secondhand experiences (Stake, 1995), permitting researchers to draw experiential understanding from those involved in the study.

The analysis for this case study included direct interpretation and naturalistic generalizations of the data. The researcher looked at single instances and interpreted meaning without counting multiple instances. To be objective, the researcher accepted that multiple sources of data existed and together it defined itself as evidence. According to Creswell (2013), "this is because counting conveys quantitative orientation to

magnitude and frequency contrary to qualitative research. In addition, a count conveys that all codes should be given equal emphasis, and it disregards that the passages coded may actually represent contradictory views” (p. 185).

Credibility

Credibility for this case study was achieved by using multiple data sources and developing a generous description of the case. In order to present a trustworthy study, informal peer debriefing of the data, triangulation, and thick rich description was used. A peer and colleague of the researcher reviewed the data collection techniques, reviewed the notes and memos, and cross checked the major themes. The peer has over thirty years’ experience in higher education, holds an executive administrative position at a community college, and has completed doctoral course work. My colleague offered his perspective, which was important because he had no bias with the topic of CBE. His involvement helped to promote a neutral perspective.

To be objective requires one to accept that multiple sources of data exists and together these data are defined as evidence. Published information available through reliable and credible online sources, such as pages on the USDOE website, was examined. Materials available from the list of public resources such as the Northwest Commission on Colleges and Universities (NWCCU) website was also reviewed. During the interviews, participants were asked to corroborate any information brought up during the discussion and to provide additional resources and documentation. For example, one of the participants was requested to provide a copy of the letter received from the NWCCU pertaining to their current accreditation status.

Based on the information gathered in interviews, documentation, and public resources, a thick and rich description of the college's open-entry, closed-exit program was crafted. After drafting the description of the college's CBE programs, a participant representing instructional leadership, who has a deep history with the conception, design, and implementation of the program, was contacted to request their review of the comprehensive description.

Lastly, the data gathered for this case study will be stored for up to one year after publishing this study. Coded data was organized, secured electronically, and kept in hardcopy form in binders locked in cabinet with the additional documents and artifacts collected as part of the process.

Summary

The attentiveness to this case study stems from the researcher's personal interest in designing and implementing a CBE program at her home institution. The researcher has designed this embedded case study to be both descriptive and interpretive. The researcher applied these two perspectives throughout the data analysis. This study did not include the personal identities of those interviewed for the study, the name of the college, or any other participants in the study. The documents reviewed did not reveal the name of the institution or their author; only the information it provided in terms of the study's central research question.

This chapter presented the rationale for the selection of the case study method to explore the perspectives of participants in the design and implementation of a CBE model. The specifics of data collection methods for this particular study have been

discussed in the form of a detailed narrative. Credibility and trustworthiness were also discussed in this section.

The next chapter discusses the interpretation and analysis of the data. Specifically, the rich and thick descriptions of the strategies employed, steps taken, obstacles, strengths, and solutions to problems as they arose when designing and implementing a CBE model will be presented.

In Chapter 5, the present study's primary research questions will be answered and major conclusions from the study will be discussed as well as recommendations will be made for further research.

Chapter IV: Presentation of the Case and Findings

The purpose of this study was to gain an extensive and in-depth perspective and describe the strategies used to overcome identified obstacles to implementing an open-entry, closed-exit CBE program at a mountain west region community college. This qualitative case study examined a comprehensive community college that recently implemented open-entry, closed-exit Competency-Based Education (CBE) programs. This comprehensive community college located in the mountain west region of the United States was reaffirmed their accreditation status in January 2016 by the North West Commission on Colleges and Universities (NWCCU). The college's open-entry, close exit model has met the required parameters set by the NWCCU, and students are actively receiving federal financial aid while enrolled in qualifying degree and certificate programs.

This study sought to interpret the main steps involved, lessons learned, and recommendations that emerged from implementing CBE for credential and/or technical degree programs. This qualitative case study examined barriers to the development and implementation of an open-entry, closed-exit CBE model in two career and technical science programs. The central research problem and focus of this study was to examine the steps followed by a comprehensive community college that implemented two technical open-entry, closed-exit CBE programs and identify the key strategies that were used to overcome institutional obstacles. The background of the study provided information regarding the complexities associated with the central research question. To narrow down these complexities, five research questions were utilized to analyze the multiple perspectives considered by individuals interviewed in the implementation of the

CBE model at a mountain region community college and to identify strategies employed, steps taken, obstacles, strengths, and solutions to problems as they arose. These five questions were:

1. What role did participants play in the design and implementation steps of the open-entry, closed-exit CBE program?
2. What were the obstacles identified before, during, or after, in the design and implementation of the open-entry, closed-exit CBE program?
3. What strategies were used in the design and implementation of the open-entry, closed-exit CBE program?
4. What strengths were identified during the design and implementation of the open-entry, closed-exit CBE program?
5. What solutions to problems arose?

In this chapter, rich and thick descriptions will be presented for each of the five research questions selected for this study as expressed by the college's administrators and faculty participants, representing twelve units of the college; to explain the strategies used to overcome institutional obstacles in the design and implementation of their two career and technical, open-entry, closed-exit CBE programs.

In following the nature of the embedded case study methodology, a description of the college's the open-entry, closed-exit CBE model will be provided. According to the literature, there are a variety of active CBE models identified in the United States. Because of the diversity and complexity of CBE, many institutions are opting for a customized model and implementation (Garret & Lurie, 2016). The steps taken by the college to design and implement their unique CBE program will also be discussed. Using

excerpts from the interviews to bring the participant's voices into the description, the participant's perspectives on their role in the process, strategies and timeline, perceived obstacles and solutions, and strengths of the CBE model implemented will be provided. One of the lessons learned by Salt Lake Community College's (SLCC) School of Applied Technology (SAT) when developing and implementing a new CBE model was that it required the support and encouragement from administrators throughout the process (CAEL, 2016). For the present study, it was important to learn the administrative and faculty participant's points of view about the development, and implementation of the CBE model at the study location. Before discussing the findings, a brief overview on the research methodology will be provided, which is an embedded case study model.

Qualitative methods were used for this research study because the researcher wanted to understand the strategies used by leadership to overcome systematic operational challenges in the implementation of a CBE program. Merriam (1998) said, "A descriptive case study in education is one that presents a detailed account of the phenomenon under study" (p. 38).

The researcher gathered all data for the case study. The strategies used for data collection were interviews and document review. The primary source of interviews for this study took place on-site with the community college's senior level administration. The interview questions were open ended, designed to elicit broad responses centered on the respondent's roles in the design and implementation of the CBE model and their perceptions of strategies, obstacles, solutions, and best practices used during this process. Using the participant's own knowledge and feelings about the topic allowed for a rich

and meaningful conversations (Creswell, 2013). Open-ended questions were chosen and designed to encourage a full, meaningful answer from the participant (see Appendix A).

The 27 participants who were invited represented executive leadership, accreditation, admissions and registration, advising, apprenticeship, financial aid, student information systems, veterans, instructional program administration, and program faculty. The total number of participants who agreed to be part of the study was 12. The total number of interviews which took place was 14, Two of the participants were interviewed twice because they were able to bring a perspective from two different departments. One participant was the former director of the CBE program and one was formerly in the advising department. Therefore, the total individuals interviewed was 12. One participant was unexpectedly ill during the week of the interviews and agreed to a telephone interview the following week. The remaining 11 interviews occurred face to face on the campus (see Table 1.1).

The name of the college was not identified, and no titles or names were used in this study. Participation in this case study was voluntary and, prior to start of each interview, each respondent was read either the informed script or the script for a telephone call prior to the interview (see Appendices B & C).

Analysis of research questions

Open-entry, closed-exit program.

The comprehensive community college used for this case study college was awarded a United States Department of Labor (USDOL), Trades Adjustment Act Community College Career Training (TAACCCT) grant (USDOL, 2013). The college's grant proposal identified means to student build capacity and provided an innovative

model education program to meet the high demand needs for a skilled workforce. The college's grant objective was to increase the numbers of workers who attain certificates, degrees, and other industry-recognized credentials. The USDOL (2013) released the TAACCCT grant proposal requiring three goals:

- (1) increase attainment of degrees, certificates, diplomas, and other industry-recognized credentials that match the skills needed by employers to better prepare workers eligible for training under the Trade Adjustment Assistance (TAA) for Workers Program ('TAA-eligible workers') of chapter 2 of title II of the Trade Act of 1974, 19 U.S.C. 2271-2323, and other adults for high-wage, high-skill employment or re-employment in growth industry sectors; (2) introduce or replicate innovative and effective methods for designing and delivering instruction that address specific industry needs and lead to improved learning, completion, and other outcomes for TAA-eligible workers and other adults; and (3) demonstrate improved employment outcomes. (USDOL, 2013) Not in references

The community college responded to their grant award by designing a unique CBE program to meet their student's and employer's needs. The new model was delivered in a non-traditional format, which was described as an open-entry, closed-exit CBE model. The CBE model was designed to meet the needs of nontraditional students, who benefit from self-paced modules, flexible lab hours, and financial aid eligible programs. The program offered flexible scheduling, online delivery, and a modular format. Students were able to enter the program at any time during the term and required to complete the courses by the end of the term.

The CBE program consisted of written lecture components and physical lab work. Students were required to achieve the minimum score 90 percent for all written components and 100 percent for all physical lab work to pass the course. Students worked at their own pace to complete online assignments and to demonstrate competencies in a lab environment. Students could enroll in additional courses during the term. Upon completion of the program, students earned an industry-recognized, one-year credential, Occupational Safety and Health Administration (OSHA) completion card, and a certified-technician designation. Students could also continue with their course work to earn an associate degree by taking the required general education courses at the college. The general education courses were not modularized nor offered via the open-entry, closed-exit design.

Role

Examination of research question 1: What role did participants play in the design and implementation steps of the open-entry, closed-exit CBE program? For this case study, the word *step* referred to the stages or phases the college departments took or perceived in their role towards the design and implementation of the open-entry, closed-exit CBE model. Upon evaluating the responses from the participants regarding each department's steps taken in the design and implementation of the open-entry, closed-exit CBE program, it was clear there were very few steps that were taken as a collaborative college group; instead most work was completed by independent college units. All department participants indicated they were aware of the TAACCCT grant and the intention to develop an innovative approach through the implementation of a CBE model. Most of the departments and faculty could recall when the grant was received and had

knowledge of the two teams that were assembled to visit a similar college program in the Eastern United States. The researcher was told by a member of the grant department that the team visit was being paid for through their TAACCCT grant and the program examination was intended to create a shared vision of what a CBE model could look like at their institution. Not all of the college departments were represented during the two trips and three departments were not invited to visit the identified model program. Beyond those two initial steps as a collaborative group approach, each department expressed a different set of steps and priorities they tackled as separate units to help with the implementation of the CBE program.

Upon further investigation, each department proceeded with their own next steps to aid in the design and implementation of the CBE model. The instructional department was able to recall many steps taken and expressed their perceived communication and collaboration with all the college departments, except advising, veteran services, and accreditation (see Table 4.1). All the participants understood there would be steps necessary for the implementation of the CBE model and all the participants were ready to respond and contribute to the implementation effort when asked. Additionally, there was a perceived lack of communication pertaining to next steps or anticipated next steps among all departments interviewed, except for the instructional leadership. Interviewee B from the admissions department noted:

We were excited that we got the grant, but knew we were going to be challenged with the next steps. We pretty much waited for the department to contact us. We knew we would have to figure this out to support them.

Table 4.1

Steps Taken as Perceived by Participant Groups

Participant groups by college department	Summary of Participant Responses
Accreditation	<ul style="list-style-type: none"> • Not included in the conversations pertaining to design of new programs. • Prescribed steps for new programs and substantive changes with accrediting agency.
Admissions	<ul style="list-style-type: none"> • Included early in the steps to design open-entry admissions. • Collaborated with CBE division for admissions process and informing students. • Did not change much from our currently procedure. • Award of the TAACCCT grant
Advising	<ul style="list-style-type: none"> • Not aware of any steps. • Department was not involved until program was approved.
Apprenticeship	<ul style="list-style-type: none"> • Worked hand in hand with instructional faculty and administration add on apprenticeship opportunities.
Financial Aid	<ul style="list-style-type: none"> • Instructional leadership brought in FA early. • Visited similar program. • Collaborated with Program administrators to align with FA rules making program eligible. • No new steps for department.
Program Administrators	<ul style="list-style-type: none"> • Curriculum redesign; curriculum council approval. • Add apprenticeship opportunities. • Work with industry on competencies • Work with Accreditation department to get approval for program. • Work with financial aid to stay in compliance for aid eligibility. • Work with admissions and registration on courses and transcribing. • Work with student information systems to code courses and track enrollment.

Table 4.1 continued

	<ul style="list-style-type: none"> • Recalculation of faculty pay, and contracts based on hours not credit. • Scheduling of open lab time. • Train advisors • Communicate with marketing. • Keep executive leadership informed. • Receiving the TAACCCT grant. •
Program Faculty	<ul style="list-style-type: none"> • Worked on modularizing curriculum. • Designed competencies with industry. • Create assessments and tools.
Registration	<ul style="list-style-type: none"> • Brought in early to help design and implement transcripts. • Steps to transcribe multiple grades. • Steps to calculate grade point average for partially completed modules.
Student Information System	<ul style="list-style-type: none"> • Brought in early. • Had to develop coding for modular courses. • Communication with program administration was frequent.
Veterans	<ul style="list-style-type: none"> • Not included in the conversations pertaining to design of new programs. • Prescribed laws for • Veterans to receive funding and courses must meet criteria. • Steps occurred when veterans were unable to take modular courses. • Steps to develop courses to comply with VA rules.

Additionally, participant C from advising stated, “I knew the college received the grant but didn’t understand why we were not asked to be involved. We were wondering how they were going to advise students. We knew the day was coming, so we got ourselves prepared”.

According to Kotter and Rathgeber's (2005), eight-step process for leading change, the first three steps for managing change include (a) creating a sense of urgency, (b) putting a comprehensive and diverse guiding team together to lead the effort, and (c) deciding what to do next through the creation of a strategy. According to the data collected for this case study, the instructional, apprenticeship, and grant leadership created a sense of urgency through the receipt of the TAACCCT grant. Additionally, a team representing instruction was formed to work through the steps to design and implement the new open-entry, closed-exit CBE model. However, Kotter and Rathgeber's (2005) third step, deciding what to do next, was unaddressed with the remaining college leadership and therefore left to individual departments to figure out.

The participants who were involved in writing and acquiring the college's TAACCCT grant were instrumental in the design and description of the program objectives. For better explanation to the reader of this study, this researcher referred to the *grant team* as those who were part of the vision and submission of the college's TAACCCT grant application. The term grant team was not used by the participants interviewed. The grant team consisted of leadership participants from the following college departments: apprenticeship, executive leadership, program administration, and program faculty. After the grant was awarded to the college, the participants of the grant team changed to form a new team that included leadership from admissions and registration, financial aid, and student management systems. The researcher of this study referred to the newly formed team as the *program design team*. According the data, the

program design team did not include any leadership from accreditation, advising, or veterans in design or implementation conversations.

While conducting this case study, there was no documented evidence found of any timeline or steps that were followed or any evidence of steps purposefully created with the intention of distributing them to other college departments to be transparent and collaborative. Each department took proactive steps in anticipation of their role and responsibility in the design and implementation of the new CBE model.

Strategies

Examination of research question 3: What strategies were used in the design and implementation of the open-entry, closed-exit CBE program? Downs (2107)

discussed Texas A& M University's CBE program and how they knew their system was ready for a CBE model. Downs offered the following advice:

[G]et key stakeholders involved early in the process and let them have a voice.

Remember, you are going to be asking folks who have probably been doing the same operations for the past decade, to adapt to a completely different model.

(2017, para. 10)

Figure 4.1 illustrates the key stakeholders that should be involved early in the development and implementation of a CBE program (Downs, 2017).

The word *strategy* in this case study has a different meaning than the word *step*. The word strategy or strategic refers to *approach, plan, policy, or tactic*. For this case study, evidence was documented through the interview process that indicated a deliberate and calculated strategy or lack of the same used by each college unit's leadership in the design and implementation of the model. Table 4.2 is a summary of comments made by

the participants pertaining to their perception of strategies or lack of strategies used during the design, development, or implementation of the CBE model at the study site. Kotter and Rathgeber's (2005) fourth step in managing change is to communicate understanding to create buy-in, which included making certain as many others as possible understand and accept the vision and strategy. Any words collected during the interviews



Figure 4.1. Every academic and operational unit included in planning for CBE. Adapted from “System(s) for CBE readiness: Enabling student affordability and success” by L. R. Downs, 2017, WCET Frontiers, para. 9. Copyright 2017 by WCET Frontiers.

that related to deliberate *communication* were considered strategic (see Table 4.2).

Additionally, a perceived lack of strategy was also coded to Tables 4.2.

From the participants' expressed comments for this case study, all departments interviewed indicated most of the college's department leadership were either aware of or participated in a strategic decision to visit to another college's CBE model. Those

participants who were able to visit another college's model similar to the proposed open-entry, closed-exit design gained a better perspective of the changes their departments would need to make in order to help the college implement this new model. Participant J, a faculty member commented, "When I visited the *other college's* program, it really helped me understand what we were trying to do. I was able to come back and explain to other faculty". A registration administrator, participant L, said "I was able to ask tons of questions and get the answers I needed. I knew it would a challenge to transcribe the modules but talking *to the other college* help tremendously."

For this study, none of the participants indicated knowledge of any strategies used for the implementation of the open-entry, closed-exit CBE model. Participants were, however, aware of the pressure to create and implement a CBE model as a response to external circumstances and the new political environment faced by the organization. The college's TAACCCT grant identified regional industry partners who were eager to capitalize on a rapidly trained workforce as an outcome of this grant. The grant objective fueled political interest from the state's governor to executive college leadership. The TAACCCT grant was perceived by the participants as a strategy because it funded additional positions necessary to meet the increased work load in admissions, registration, and financial aid. Additionally, the grant funded the necessary and additional hours to adjust the student management system to meet the needs of the CBE design.

Responses from the participants indicated no shared or documented strategy; only department specific strategies. The data indicated a strategy used was pulling together a team to visit a similar program. The participants who were able to attend indicated this

strategy to be of great value. Participant H stated, “I really did not understand what we were trying to do until I went to the *other college* to see their program”.

Table 4.2

Strategies Perceived by Participant Groups by College Department

College Department	Summary of Participant Responses
Accreditation	<ul style="list-style-type: none"> • Some key members went to visit a similar program back east. • Was not in our strategic plan. • The implementation team did not anticipate the length of time for program approval from the accrediting agency and financial aid. • Lack of strategy. • Not part of the college’s current strategic plan. • Governor, state legislators, and executive leadership pressures.
Admissions	<ul style="list-style-type: none"> • Department was able to visit a similar college program and ask questions. • Not in our college’s strategic plan. • Requirements of grant commitment. • Included in the beginning conversations. • Grant funding positions.
Advising	<ul style="list-style-type: none"> • Department was not involved in any strategy. • Department had to be reactionary.
Apprenticeship	<ul style="list-style-type: none"> • Department was part of writing the grant. • Department went to visit a similar program and had many conversations to help with the design. • A strategy was to include all key stakeholders.
Financial Aid	<ul style="list-style-type: none"> • Department was able to visit another similar program. • Department was included in the initial and ongoing conversations. • Not part of the strategy. • Saw no problem since design fit our requirements. • Grant funding position.

Table 4.2 continued

Program Administrators	<ul style="list-style-type: none"> • Kept entire department and faculty informed every step of the way. • Hired a director with experience in a CBE program. • Paid for two teams to visit college with program we wanted to adopt. • Included two key executive administrators in the site visit of a similar program. • Kept up communication with all departments, executive leadership, and faculty. • Fulfilled department's strategic plan. • Receiving grant was part of the strategy so we had the resources to design and implement the model. • Hired additional personnel to relieve the work load in an operation unit of the college. • Communicated with students and employers. • Began aggressive student recruitment campaign. • Political pressures by the state to implement as quick as possible to meet employer's needs. •
Program Faculty	<ul style="list-style-type: none"> • Administration paid for faculty of the programs to visit a similar program at another college. • Kept in the loop as part of the design team and implementation. • Had regular department meetings with division's faculty and administration to discuss issues. • Kept students informed. • Communicated with business and industry.
Registration	<ul style="list-style-type: none"> • Department was able to visit a similar program. • Department was part of the initial design discussion. • Felt we were informed along the way. • Grant paid for additional staff in our department due to increased work load. • Grant funding a position.
Student Information System	<ul style="list-style-type: none"> • Department was able to visit similar program. • Did not strategize around our SIS versus the one being used by the program we were replicating. • We were kept in the communication loop.

Table 4.2 continued

Veterans	<ul style="list-style-type: none"> • Executive leadership were highly supportive. • Grant funding necessary changes. • Department was not kept in loop. • Department was no consulted on the design. • Had to be reactionary. • Cannot change the VA funding laws.
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After visiting a CBE program that the college was looking to replicate, the program design team met on a regular basis to create and implement the two career and technical CBE programs. The accreditation leadership participant A indicated disappointment by stating, “It would have been much easier if I had been brought in during the curriculum design process. We could have avoided delays.”

The veteran’s leadership participant N expressed similar frustrations to being left out of discussions during the design phase, “Implementing this program without speaking to us first, forced the veteran’s services department to have to be reactive instead of proactive. We could avoid unnecessary extra work to fix things.”

Participant C from the advising department indicated they were never part of any conversation or strategy. “Only after the program was up and running did, we finally have a conversation because students were showing up asking about the program and we did not have any answers,” stated by one advising administrator.

The researcher concluded that the strategy to build a guiding team and visit a similar program was effective. However, it appeared that once the program design team returned, three vital college departments, accreditation, advising, and veterans, were left out of conversations regarding the design. These three departments were included in discussions with the program design team once the program was ready to launch.

Obstacles and solutions

Examination of research questions 2 and 5: What were the obstacles identified before, during, or after, in the design and implementation of the open-entry, closed-exit CBE program? What solutions to problems arose? The data collected and analyzed for the two research questions posed above were presented in a summary table for each college department with both obstacles and solutions.

The study, conducted by Garret and Lurie (2016) and titled *Deconstructing CBE: As Assessment of Institutional Activity, Goals, and Challenges in Higher Education*, included a survey of a sub-group of 65 institutions of higher education who had indicated they were interested in a CBE model but did not currently offer it. Most of the respondents to the survey (63%) indicated they were unsure where their interest in CBE might take them in five years, and 37% expected to be offering all or components of CBE model in the next five years. That same study asked the same sub-group what their perceived barriers were to the development of a CBE model at their institution. Figure 4.2 illustrates the categories of *Federal Financial Aid* and *Not a Priority* were the most substantial perceived barriers with categories *Lack of Resources* and *Faculty Skepticism* also noted several times by respondents. Student information systems were high on list as well.

Adapting existing systems to a new model can be difficult and expensive. Student demand, student fit, and leadership skepticism were the items cited as the least significant barriers. “There were no clear associations between rationales for CBE and perceived barriers (Garret & Lurie, 2016, p. 29).

Figure 21. Many Questions; Little Time
(N= 65 institutions that indicated interest in CBE, but no current offerings)

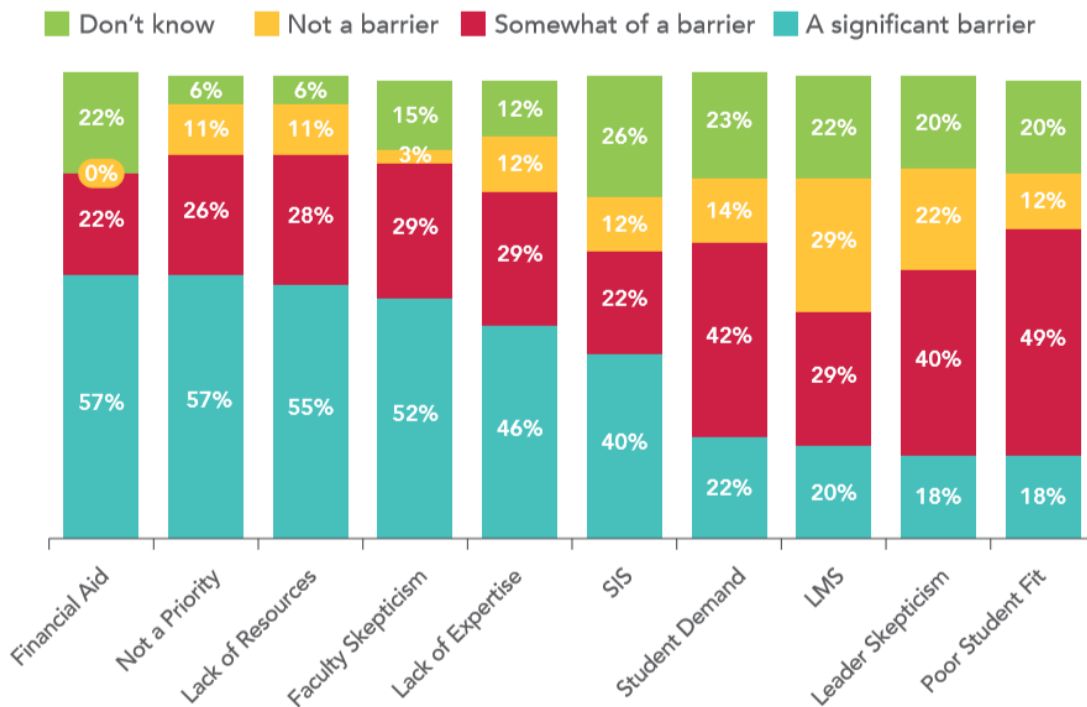


Figure 4.2. Highlights many perceived barriers by institutions interested in CBE per department at institutions still at the interest stage. (Garret & Lurie, 2016, p. 28). Copyright 2016 Ellucian, Eduventures and ACE.

The participants in this case study overwhelmingly indicated a significant obstacle to be the changing roles of student services personnel and faculty. The Council for Adult and Experiential Learning (CAEL, 2016) case study of SLCC stated, “The burden on financial aid and advising personnel will increase, as there are different systems and processes in place for those enrolled in CBE as opposed to those in traditional academic activities” (CAEL, 2016, p. 6). It went on to explain that there was uncertainty as to whether or not the new model would take hold and faculty and staff were unwilling to make a commitment to the change in case the college planned to revert back to the

traditional model. There were barriers perceived by every participant interviewed for this study (see Figure 4.2.).

The central research objective for this case study was to interpret the main steps involved and examine the barriers to the development and implementation of an open-entry, closed-exit education model in two career and technical science programs. The participants interviewed identified few purposeful steps and mostly department specific strategies. It was not surprising that the obstacles identified through this study were mostly department specific barriers and challenges. The tables represent summaries of participant responses referring to solutions to obstacles as they arose.

Accreditation

Participant A from the accreditation department mentioned during the interviews that the program must be called an open-entry, closed-exit program to comply with the college's accreditation. The design of the two career and technical open-entry, closed-exit programs met the NWCCU guidelines in terms of assignment of credit and term limits. Participant A also mentioned that the new model met NWCCU's guidelines for a CBE model and the department's leadership was in the process of preparing a submission to the accrediting agency to seek the approval to call it a CBE program. Obstacles identified by the accreditation department's leadership participants were timing and lack of planning by the instructional department seeking approval for the newly designed open-entry, closed-exit technical programs within a limited timeline. One solution offered by the department's leadership was to bring the accreditation department into the conversation early. Lastly, the accreditation department emphasized working with

Western Governor’s University (WGU), another institution of higher education that has a working CBE program.

Table 4.3

Perceived Obstacles and Solutions by Accreditation Participant Group

Obstacles	Solutions
<ul style="list-style-type: none"> • Program must end on the term and must have credit to qualify for NWCCU • Was not part of initial conversation to adopt this model • Need to be involved early to help with curriculum process • Cannot call it CBE until the accrediting agency is informed • Must keep it as an open-entry, closed-exit program description until approved • Instructional programs did not consult accreditation department to better understand approval timeline and process from NWCCU • Needed expedited process for a program still being developed • Assessment for each module or assessment for each course after you complete the required number of modules as part of each course Program decision and did not consult the accreditation department • Part of CTE division’s strategic goals but not part of college’s strategic goals. • Students job out before completing NWCCU needs explanation for non-completers 	<ul style="list-style-type: none"> • Program remained titled open-entry, closed-exit • Paid expediting fees to NWCCU for faster program approval • Process of getting NWCCU approval for CBE title • Program adopted learning outcomes for modules which were part of the learning outcomes for course to help alignment • More advising recommended to help increase completers • Worked with Western Governor’s University to align our model for accreditation and financial aid

Advising

Participant C from the advising department expressed frustration for not being brought into the initial conversation as soon as the grant was awarded. Participant C expressed students were coming to professional advisors on main campus seeking information pertaining to the CBE program. The advising center professionals had little knowledge of the CBE program and were unable to provide complete and accurate advising to students interested in one of the two technical open-entry, closed-exit programs. Participant C indicated there was no access to advising at the technical center site where the programs were being delivered and poor information available to students on the website and in the catalog therefore students were coming to main campus seeking information from the professional advisors who were not prepared to assist them. Participant C expressed during the interview that the information available to interested students was confusing and did not present students all the possible choices. The advising department provided a solution to this issue by training a program advisor specifically for the CBE technical programs, who was located on-site with the CBE program's students (see Table 4.4).

Table 4.4

Perceived Obstacles and Solutions by Advising Participant Group

Obstacles	Solutions
<ul style="list-style-type: none">• Not part of the design or implementation.• Lack of professional advising• Students are uninformed about other college programs and transfer options• Students do not understand what their choices are if they do not meet with an advisor	<ul style="list-style-type: none">• Training faculty as advisors• Provide a program advisor on site• Improve information in the catalog and on website for students

<ul style="list-style-type: none"> • Table 4.4 continued 	
<ul style="list-style-type: none"> • Not a clear description of the modular courses and model The course in the catalog is listed as 3 credits and does not indicate it is really 6 half credit course modules that equal 3 credits • Advising employer sponsored students • Location of CBE programs are over thirty minutes from main campus; advising center • Students do not understand, confusion; implications of incompletes and financial aid satisfactory academic progress • Website lacking adequate information 	

Admissions and registration

The obstacles and solutions for the admission and registration department participants were similar in nature; meaning the issues and solutions had a ripple effect between the departments. For this case study, the participant data for both departments were combined into one table because of the intimate relationship between them. The participants in this study from the admission and registration departments revealed an increased workload on their respective departments from the issuing and transcribing of many grades to the multiple entry points for new students. The instructional leadership administrators agreed to fund additional staffing positions to help relieve the workload burden on the admissions department.

The open-entry, closed exit program saw significant growth in a few years' time, which had an impact on the existing staffing in the admissions department. The registrar's office also had a need for additional staffing due to an increased workload. Discussions of whether or not the CBE students would receive a dual transcript to

indicate competencies or provide the traditional transcript indicating credit was a perceived barrier for the department and the instructional programs. The transcription department felt adjusting their existing transcription model to include the CBE competencies was an increased workload. They were advocating for in adapting their traditional transcript to the CBE program and wanted a dual system; one transcript indicated credit awarded and a separate one for competencies. The data collected for this study showed it was agreed by both departments to have a traditional transcript for all students, no transcript indicating competencies, and due to the increased workloads, the instructional department would fund extra staffing positions through their TAACCCT grant funds.

The faculty issued a grade for every half-credit module course. The grades for each module course were summed and averaged to issue the grade for the total course. The instructional administration had agreed to issue a grade of A, B, or F for the online lecture half-credit courses and a grade of A or F for the lab portion of the course. In the college's open-entry, closed-exit competency mastery-based achievement courses students must achieve 80% or higher on the in the lecture portion of the course and 100% mastery in the lab portion of the course. Students enrolled in any of the open-entry, closed-exit career and technical programs had their grades transcribed onto a traditional transcript indicating a grade for each half-credit course. Participant interviews indicated a large workload burden on the admissions and registration staff due to the large number of grades, grade point average scaling, transcript audits, and credit transfers requested by hundreds of students in the new open-entry, closed-exit career and technical programs.

Table 4.5

Perceived Obstacles and Solutions by Admissions and Registration Participant Groups

Obstacles	Solutions
<ul style="list-style-type: none"> • Work load for open-entry, any day of the term • Communication with expectations for department deliverables • Refunding a half credit module • Adapting existing refund policy and timelines to issue a refund • Students cannot find information on the website • Transcription of modules • Manual process to change grades • Grade point average on modules converting to grade for course • Building schedules • Block or allow students to enroll in the half credit modules they are interested that do not add up to a total course credit • Labs are open six days a week, twelve hours a day. Conflict with class times if listed as a course 	<ul style="list-style-type: none"> • Establishing course refund and withdraw schedule and process for open entry programs <ul style="list-style-type: none"> ○ Courses less than six weeks, eligible for full refund first day of class only ○ Courses over six weeks eligible for full refund first week of class • No lab times listed in registration, only notes of times and days open • No more incomplete grades allowed. F grades motivate students to retake the assessment and change the grade • Less work load on staff • Half credit modules are visible to students to enroll in • Learning outcomes build per module and add up to all outcomes for course • Full credit courses are coded and available for students not wanting module model • Veterans have eligible courses they can enroll in

Apprenticeship

According to the findings in this case study, the apprenticeship department leadership had been extensively involved in the writing of the college's TAACCCT grant; thereby creating the vision for the open-entry, closed-exit model for two career and technical programs. The most significant perceived obstacle expressed by these respondents was the need for an experienced director leading the CBE model design and

implementation. The college executive and program leadership administrators agreed and hired a director with prior experience in CBE models. Also expressed was the need to embed apprenticeship opportunities into the program model. The apprenticeship department worked closely with their state's Department of Labor representative and local industry groups to create partnerships which allowed for student apprenticeship opportunities (see Table 4.6).

Table 4.6

Perceived Obstacles and Solutions by Apprenticeship Participant Group

Obstacles	Solutions
<ul style="list-style-type: none"> • Need and experienced leader directing the project • Employers wanted to exclusively decide program competencies • On the job training credit or module credit • Employer buy in to pay apprentice student while participating in CBE program 	<ul style="list-style-type: none"> • Hired a program director with prior experience in CBE models • Work closely with Department of Labor • Work closely with employers • Include faculty and instructional administrators in conversations about competencies

Financial aid

The financial aid department administrative participants were concerned about multiple start times for CBE courses as opposed to the existing traditional model of standard terms. Processing student applications and dispersing aid for multiple start times became a manual process, which was labor intensive for the department's staff. A solution for the increased work burden on the financial aid department was solved by the instructional CBE program administrators funding extra positions for the financial aid department (see Table 4.7).

An additional obstacle was the challenges associated with awarding an incomplete grade. A fulltime student must enroll in six credit hours for financial aid to be disbursed. For example, if a student completed his/her modules and therefore earned credit for the course before the end of the term, the student has the option to accelerate their program by taking additional courses. If the student did not complete the course by the end of term, the student initially was awarded an incomplete despite having successfully completing two-courses in their required load. This incomplete would not allow satisfactory academic progress to be calculated, resulting in the loss of financial aid for the student for the next term even though the student had actually accelerated in the program. One solution to this issue was improving financial aid advising.

Additionally, there was an increased workload to change an incomplete grade to the earned grade. Administrators in the financial aid department worked with the instructional leadership team and agreed to the grade of “F” given to students who did not finish the course instead of granting an incomplete grade. The student was subsequently motivated to improve the “F” grade and qualify for financial aid. If the student was unable to complete the course and thereby change the “F” grade, the work burden on the staff in the financial aid department was eliminated (see Table 4.7).

Table 4.7

Perceived Obstacles and Solutions by Financial Aid Participant Group

Obstacles	Solutions
<ul style="list-style-type: none"> • Satisfactory academic progress • Proportionate financial aid • Multiple distribution times instead of once a semester • Work load increase on department staff 	<ul style="list-style-type: none"> • Increase staff in department to advise students in program • Provide onsite visits • Increase staff to accommodate multiple distribution days for aid • Students will only be awarded based on total number of credits enrolled

Instructional program administrators

Participants F, G, and H interviewed for this study represented instructional leadership members for two career and technical open-entry, closed-exit programs and had been faced with many design and implementation obstacles from the day they found out the college's TAACCCT grant had been funded. The participants had expressed the need to meet aggressive grant implementation deadlines that were being hindered by the college's operational system moving at a much slower pace. According to the data provided, they cited regular collaborative, transparent discussions occurring with apprenticeship, financial aid, admissions, registrations, and the student information system administrative teams. During the data collection and analysis for this study, instructional leadership never mentioned including advising, accreditation, or veterans' leadership. This data was confirmed by each of the respective department's statements concurring that they were not involved in any initial discussions with instructional leadership. Participants F and G told the researcher that ongoing progress was being monitored through regular meetings and conversations in order to help with a smooth start to the CBE model. Participant G stated "We realized we left some key people out of the conversations. We have begun to have regular meetings with other departments to address some of the problems that are still out there".

Changing the faculty's role was the most pressing obstacle for the instructional leadership team in this case study (see Table 4.8). The program leaders removed the lecturing expectations for faculty and replaced it with more active learning pedagogies such as mentoring students through their assignments and competency attainment. The instructional leaders had conversations with faculty who were interested in being a part of

the new model. Those faculty that were not interested in the new model were allowed to continue teaching in their traditional instructional styles. Due to the increasing enrollment, new faculty were ultimately hired to teach the CBE courses. These new employees brought a new excitement, acceptance, perspective, and adherence to their new role as faculty members. Participant F stated “Many of our faculty were just not willing to accept this new model. We tried to work with them. Ultimately, we brought on two new faculty who were excited to try this out. They have been great to work with”.

The participants cited a significant obstacle was the increase in the faculty - student ratio due to the increase in enrollment and the open lab concept. Faculty were assigned up to one hundred students to assess, mentor, and post grades for, as every half-credit module was completed. This was a significant change to the traditional faculty workload. This change in workload prompted administrators to re-examine the compensation provided to faculty teaching in the new CBE model. Instructional leaders interviewed for this study stated that they had worked closely with the faculty and their union representatives to create a new faculty contract that paid faculty by the hour that was equated to their credit-hour pay. Faculty were expected to work the same number of hours per week in a lab setting and by maintain office hours for mentoring, similar to the expectations of their colleagues on a traditional contract. Additional hours were paid as overtime, such as time and a half rather than on an overload contract. This formula was acceptable to faculty teaching in the new CBE model.

In terms of student advising, participants in this study indicated that students initially were not receiving any advising upon entering the new programs in the CBE model. The two technical programs being served by the new model were located at a

technical center over thirty minutes from main campus, however, the advising office was located on main campus. The solution was to have the professional advisors train faculty to become program advisors. This was another new role for faculty. According to the perceptions of instructional program administrators, the newly hired faculty were required to accept this responsibility as a condition of employment. Eventually, the instructional leadership administrators hired a full-time program advisor to support incoming students to the CBE programs. The faculty were assigned students to advise that were already in the program, which also served students looking to be placed in apprenticeships (see Table 4.8).

Garret and Lurie (2016) reported financial concerns and buy-in from other college departments as being at the forefront of administrator's minds when implementing a CBE model.

Other trainees noted how much work would be required to involve registrars, student services, and other important institutional functions. The heavy lifting involved to make financial aid work within the CBE framework is enough, said one trainee, to 'make your brain hurt.' Several trainees were disquieted by whether the institution had the financial resources to make CBE a reality or not.

(p. 9)

The report further explained that finding faculty to participant in the program was not the main concern of college administrators. Funding the implementation costs of student information systems and adaptations needed by other department was of greater concern for campus leaders. The college's TAACCCT grant awarded to this institution helped to fund many obstacles faced by the participants.

Table 4.8

Perceived Obstacles and Solutions by Instructional Program Administrator Participant Group

Obstacles	Solutions
<ul style="list-style-type: none"> • Accreditation agency approval timeline for new programs and substantive changes • Decision on learning outcomes per module or per course • How to work with veteran's restrictions; awarding at completion of all modules equating to a course • Faculty not embracing the model • Faculty work load, more students. Up to a 100 versus a cohort of 20 • Faculty wanting face to face time with students • Faculty wanting to deliver lecture • Faculty contracts. Compensation for time not credit • Lack of advising • Defining class caps • Facility space too small for increased enrollment growth seen with new model • Exponential growth in less than four years 	<ul style="list-style-type: none"> • Learning outcomes build per module and add up to all outcomes for course • Flexible options for students • Half credit modules that earn a grade and are transcribed. When all modules are completed, and requirements are met, certificate is awarded • Or, student may enroll in courses and must complete all modules to receive a grade for the course Veteran's needed this option • Faculty reassigned and/or released • Creation and adoption of new faculty contracts for CBE faculty • Assignment of faculty and program advisors • Exploring options for accelerated student enrollment growth

Faculty

When discussing the CBE Jumpstart Initiative, Garret and Lurie (2016) stated, "Faculty resistance is also related to the change in faculty role from an instructor in a course-based system to a coach/assessor/designer in a CBE program" (p. 8). Additionally, Garret and Lurie reported the roles of faculty in many CBE models were to deliver assessments, build content, and deliver instruction. The faculty participants interviewed for this study represented the two technical programs offered as an open-entry, closed-

exit modularized model who experienced changing roles. Table 4.9 summarizes the obstacles perceived and solutions generated by program faculty who were interviewed for this case study. The faculty participants were not lecturing but were extensively engaged in instructing students in the lab setting.

The faculty in this study worked with industry representative to define competencies required of graduates and to create assessments as part of the lab environment that would provide evidence of having achieved these competencies. Curriculum was reviewed and adopted by a team of faculty and industry advisors. The curriculum was purchased with the college's TAACCCT funds, delivered through online modules, and assessed with test banks. The learning outcomes and assessments were created by faculty, approved by administrators, and were visible to students in each module. The aggregate of the module learning outcomes served as the course outcomes. This may suggest a balance between localized and standardized approach to the development of CBE competencies for this new model.

Faculty participants I, J, and K expressed their excitement for the new CBE model and their willingness to resolve any obstacle to aid in the adoption. Additionally, they expressed a great feeling of support from their instructional administrators and executive leadership of the institution. According to Cooper (2016), "For new modes of delivery like CBE, successful faculty support will only occur through the use of intentional strategies aimed at inspiring support and encouraging lasting involvement" (para. 1). The participant faculty for this case study provided data to suggest that they were supported and encouraged by their instructional administrators. Cooper continued by stating,

“Encouraging involvement, strategically constructing new roles, and celebrating success along the way can all contribute to strong faculty engagement” (para. 5).

This case study examined an open-entry, closed-exit CBE model that did not assign any credit load to faculty, but instead assigned them a schedule of hours. This was a new approach and major change for faculty at the study site, which, based on the data collected for this study, indicated that faculty embraced this new workload approach (see Table 4.8). Additionally, this study identified workload for faculty as an obstacle. The CBE faculty took on additional grading responsibilities, due to the half-credit modules, and increased number of assessments. Faculty were also required to advise up to one hundred students in their program.

The solution proposed by the program’s administrators in collaboration with faculty union representation was to create a new faculty contract for the CBE model. The faculty were paid for the hours they worked in lab and for time spent assessing student performance, grading assignments and advising students. The pay per hour was equivalent to that of traditional faculty and opportunities for overtime were available. Faculty who wanted to be part of the new model embraced the idea. Faculty who did not approve were offered traditional course loads.

The evidence provided from the faculty interview illustrated an innovative approach and a positive solution for the faculty; especially those who wanted to retain their traditional instructional assignment and for those who wanted to be part of the new open-entry, closed-exit model. Faculty participant J commented, “There were countless times we rolled up our sleeves to figure things out. We learned lessons along the way. We were willing to try because we knew our leadership had our backs”. Faculty participant K

commented, “Our leadership was willing to make the hard decisions; to support those of us willing to try and remove those who were not wanting to play nice in the sand box”.

Table 4.9

Perceived Obstacles and Solutions by Program Faculty Participant Group

Obstacles	Solutions
<ul style="list-style-type: none"> • New approach to course design based on competencies • No time to create curriculum • Design pathways for students who need full credit courses and those who wish to work at their own pace with half credit modules that when completed in their entirety equal the course requirements • Students not completing courses by end of the term given incomplete grade • Increased work load faculty • Grading work load • Students not incentivized to fix in complete grade • Faculty have open grades for students • Half credit modules grading mean increased work load time for faculty to grade each module instead of each course.\ • Changing role for faculty from content creation and lecturing to mentoring, coaching and assessing • No one-to-one time available with students 	<ul style="list-style-type: none"> • Brought industry in to help create competencies and assessments • Purchased curriculum • No more incomplete grades allowed F grades motivate students to retake the assessment and change the grad • Students required to get passing grade on assessments before being allowed to continue to next module • New contracts paying faculty by the hour equivalent to fulltime faculty load wage. Additional hours spent in lab setting are considered overtime • Administration support to hire new faculty that embraced new model • Incorporated mentor/advising time in new contract • Trained faculty as program advisors

Student information systems

This case study examined a college’s open-entry, closed-exit CBE program which allowed students to enter at any time during the term but required them to complete all initiate coursework by the end of the term. This was a challenge for the student

information systems that was built for standard terms, had limited entry points, and only one end point (see Table 4.10). Adapting the college's current student information system was labor intensive, but ultimately achieved. One modification involved coding the courses differently by using the prefix *M* to identify the CBE modules.

Table 4.10

Perceived Obstacles and Solutions by Program Student Information System Participant Group

Obstacles	Solutions
<ul style="list-style-type: none"> • Not included in the initial conversation • Not made to accommodate the CBE system • Back end coding issues – getting existing system to accommodate • Had to handle multiple starts in term 	<ul style="list-style-type: none"> • Created special code with M for modular courses • Considerable resources used to adapt and adjust existing system to accommodate multiple starts

Veterans

Upon further investigation, the veteran support administrative participants' frustrations with the new open-entry, closed-exit CBE model was documented. The participants interviewed stated they were left out of the initial conversation and were not part of the design. They had many students who had wanted to enroll in the accelerated model, anticipated gaining employment, but were unable fully access funding because the modularized CBE model did not comply with the Veterans Administration regulations. One participant provided documentation outlining the strict regulations veteran students were required to follow to use their veteran's benefits for college (see Table 4.11).

The participants in this study reported that they had worked out a solution with the instructional program faculty and administration. The modular courses were combined and offered as full course sections to meet the regulations. This allowed

veteran students to participate in the career and technical program and still meet veteran financial support requirements. The program faculty were willing to combine curriculum, offer online course sections, and schedule lab times to accommodate the veteran students.

Table 4.11

Perceived Obstacles and Solutions by Veteran's Participant Group

Obstacles	Solutions
<ul style="list-style-type: none"> • Not included in the initial conversation • Veterans guidelines and definitions would not award aid to modular courses • Must have terms with clock hours • Must finish all clock hours by the end of the term • If it is ever called competency-based education, it will never qualify • Strict parameters which CBE models do not meet • Veterans can only enroll in a degree path 	<ul style="list-style-type: none"> • Credit course options for veterans, not modular • Courses are part of a degree path • Increased communication with instructional program

Examination of research questions 2 and 5: What were the obstacles identified before, during, or after, in the design and implementation of the open-entry, closed-exit CBE program? What solutions to problems arose? The data collected and analyzed for the two research questions were presented in a summary table of obstacles and solutions for each college department.

The accreditation department indicated that the program had to carry the name open-entry, closed-exit to stay in compliance with their accrediting agency, NWCCU. The model had credit hours, term limits, and was not based on direct assessment. The accreditation leaders had indicated during the interview for this study that the intention to submit a substantive change proposal to the NWCCU indicating the two career and

technical programs were CBE models. College administrators indicated their confidence in their compliance with NWCCU's guidelines leading to CBE program approval.

Participants from advising that were interviewed for this study expressed lack of communication as their primary obstacle. The CBE program was designed and implemented before any of their members were brought into any discussion with the program's leadership or faculty. Students interested in learning more about the open-entry, closed-exit model were sent to the technical site to meet with faculty. The main campus's professional advisors did not have the relevant CBE information to give to students and were unable to help them make informed academic choices. To address this problem, advising administrators chose to train faculty and program advisors located at the technical center site.

The admissions and registration leadership participants for this study conveyed they were included early and often in discussions with instructional leadership pertaining to possible hurdles and issues which would be encountered when this new design was implemented. Students who had access to enter one of the CBE programs at any time during the term posed the challenge of timelines around course refunds and withdraw dates. The department was able to establish a refund schedule and withdraw timelines based on courses less than and more than six weeks in length. Another challenge addressed were the awarding of incomplete grades by faculty for students who were unable to pass their competencies by the end of the term and yet allowed to continue into the next term. It was agreed by the program faculty, program administrators, and admissions registration department administrators that a failing grade would be given by the faculty member and the student would be responsible for completing and passing

their assessment to warrant a grade change. This cut down on the additional work load for the admissions registration department significantly.

The admissions registration leadership participants spoke of scheduling conflicts with open labs time and scheduled courses. The department created a solution by not scheduling labs, but by footnoting the times the labs were open to all students in the program thus eliminating the scheduling conflict in the system, registration confusion, and providing clarification for the course catalog. Flexible scheduling and small half-credit modules needed to align with larger credit courses taken in a traditional format. Faculty had agreed to establish learning outcomes for each module that the aggregated into the larger course's learning outcomes.

Data gathered from apprenticeship leadership participant interviews revealed no obstacles were encountered in the design and implementation of the CBE model. The apprenticeship leadership participated in the recruitment of a director for the new model who had prior experience with open-entry, closed-exit CBE models. The apprenticeship leadership participant was deeply involved in every step of the CBE design. The apprenticeship portion of the program was not impacted by the introduction of a CBE model.

The data gathered from leadership participants in the financial aid department suggested they were involved early and often in the design of the new model. The instructional leaders for the new model were able to fund an additional position in the financial aid department to handle the increased workload that emerged due to the rapid and significant growth in student enrollment. Advising new and returning students, particularly about half-credit grades, satisfactory academic progress for failing grades

entering a new term, and financial award amounts based on the credit taking behavior of students entering late in a term. The financial aid department leaders indicated they had accommodated the needs of hundreds of students, entering the new programs anytime during a term, through the establishment of multiple dispersing days for financial aid.

The administrative participants interviewed representing the instructional programs in this study were led by an experienced person who had implemented a similar design once prior. The interviews revealed they had identified significant obstacles related to changing faculty roles and workload. Program leaders expressed to the researcher the challenging conversations they had with faculty about the abandonment of lectures and the adoption of individualized instruction and student mentorship. Program leaders offered alternative assignments for tenured faculty who did not embrace the new model and brought on new faculty who were willing to support the new concept.

This study revealed that faculty were not assigned a traditional credit load for teaching, but instead were assigned a time to work with students in the open lab and to assess student's competencies. This obstacle was solved with the creation of new faculty contracts. The new contracts were negotiated with faculty's bargaining representatives to create an equitable pay per hour instead of per credit. The faculty were expected to work the same number of hours per week as their counter parts in similar career and technical programs.

This study interviewed faculty from the two career and technical CBE programs. The faculty had been intimately involved in the design and implementation of the new model. The accelerated start date due to the college's TAACCCT grant placed pressure on faculty to design modularized curricula. This was solved through the purchase of

online curricula that was endorsed by industry representatives. Faculty interviewed seemed pleased with their alternate contract. Faculty participant I stated, “I used to work hours I was not paid for. Now, I am compensated for the time I put in with my students. I can even earn overtime”

Existing faculty interviewed for this study reported that they were not supportive of the new design. They felt the program leadership had made the correct decision to bring on new faculty who embraced the idea of the new model. Faculty indicated advising was part of their load. Additionally, faculty felt the workload issue pertaining the large number of grades they were responsible for submitting, due to half-credit modules, had not yet been adequately addressed.

Participants in this study from the student management system department’s leaders expressed their awareness of the challenges and resources necessary to provide solutions to implement the new CBE model. The college’s existing student management system could be modified to accommodate the multiple start days, multiple grading periods, and half-credit modules, however, they made it very clear that this took extensive time and resources.

Finally, this study examined the responses from administrators in the college’s veteran’s department. This participant group were not included in the design or implementation of the new CBE model. Veteran’s administrative financial aid guidelines do not allow veteran students to participate in modularized courses. A solution to this barrier was developed by offering full-term, full-credit courses. The program instructional leaders and faculty were able to accommodate the needs of the veteran’s

department since the modularized course outcomes aggregated to the full course outcomes. Traditional delivery was made available to this population.

Strengths

Examination of research question 4: What strengths were identified during the design and implementation of the open-entry, closed-exit CBE program? Every participant interviewed for this case study expressed a strength of the new open-entry, closed-exit CBE model was the positive impact these programs had on student enrollment and completion. There was consensus among the participants interviewed for this study that student enrollment grew significantly in the two career and technical programs and the college was making a positive contribution to an identified pipeline of skilled workers for three significant employers in the region. According to instructional administrator participant F, student enrollment grew from 60 students to over 600 in less than four years from the two career and technical CBE programs. Additionally, instructional administrator participants G and H felt the program had brought positive attention, state-wide notoriety, increased pride to their campus, and a “good feeling” for students who were interested in participating in the new model.

The study revealed a strong relationship between the program’s administrators and the faculty. There was a perception of good communication between faculty and the instructional administration. Strategies and timelines were understood by these two groups of participants. The faculty appreciated the support from the campus leaders, particularly as a result of purchasing the necessary curricula.

Lastly, the findings for this study revealed the funding acquired from the TAACCCT grant provided the resources necessary to fund the necessary upgrades to the

student management system and provide for additional staff positions in three of the departments that were most impacted by the increased student enrollment in the two new CBE technical programs.

Summary

This chapter focused on presenting rich and thick descriptions of the findings for the five research questions designed to better understand the strategies used to overcome identified obstacles to the implementation of an open-entry, closed-exit CBE program at a mountain west region community college. The introduction to the chapter provided a description of the research design, data analysis, and participants of this study. The analysis of the data was presented in both a narrative format and accompanying tables that summarized key response concepts and themes evident within the data.

The findings for research question produced wide variety of steps taken by the different departments that worked independent from one another. Instructional program administrators and program faculty worked well as a group to design and implement the new CBE model. There were only two documented purposeful steps taken to design and implement the program; initial communication and a visit to a similar program by key stakeholders.

The findings for research question two and five showed that all college department participants in this study identified various barriers that would have otherwise halted the implementation of the new CBE model for the college. Each of the participating departments were able to establish new processes, guidelines, and modifications to serve the needs of the new CBE program and students. Adjustments in each department were made without compromising the college's compliance with the

terms of the TAACCCT grant, Title IV, Veterans Administration, or NWCCU.

Additionally, this study identified that solutions to obstacles were arrive at collaboratively between faculty union representation and administrators to draft and adopt a new faculty contract specifically designed to meet the needs of open-entry, closed-exit program instructors.

Participants were able to identify a large number of perceived barriers which significantly outnumbered the solutions for the open-entry, closed-exit CBE model. It is important to note that participants indicated the CBE model was relatively new and although they had been able to identify many solutions for some of the more critical barriers, the model was still evolving, and several obstacles were still not addressed.

The findings for research question three identified one particularly effective strategy to the successful implementation of a CBE program; taking a team to visit a college with a similar program. The participants of this study who visited the similar program had developed a shared vision and were able to convey the vision to their colleagues in their respective college departments. No other distinct strategies were identified beyond the visit. The college department participants operated in a reactionary mode, each tending to their own department's needs to meet the college's goal to implement the CBE model.

Finally, the findings for research question four showed that all participants interviewed for this study felt that the new model was achieving the goal of increasing enrollment in two career and technical programs and contributing a greater number of skilled workers to regional industry partners. Instructional program administrators and faculty felt there was a good working relationship and high level of communication that

supported the design and implementation of the new CBE model. The department representatives involved on the design program team commented that regular communication between their respective departments and instructional faculty was important to be able to meet the design and implementation needs.

In Chapter 5, the answers to the primary research questions that guided this study will be provided as well as a discussion of the major conclusions from the study. Finally, recommendations for both practice and further research will be suggested.

Chapter V: Conclusions, Implications, and Recommendations

The literature review for this case study revealed that CBE is not simply a delivery mode, but a complex innovation that requires significant organizational commitment to ensure that appropriate “curriculum is developed, instruction is designed and delivered, and skills and knowledge assessed” (Luria & Garrett, 2017, p. 1). The C-BEN released their formal definition of competency-based education in 2014:

Competency-based education combines an intentional and transparent approach to curricular design with an academic model in which the time it takes to demonstrate competencies varies and the expectations about learning are held constant. Students acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities, and experiences that align with clearly defined programmatic outcomes. Students receive proactive guidance and support from faculty and staff. Learners earn credentials by demonstrating mastery through multiple forms of assessment, often at a personalized pace. (para. 1)

According to Garret and Lurie (2016), there seems to be no dominant version of CBE, but instead a wide variety of models that are uniquely designed to meet the specific needs of each institution. Therefore, institutional leaders have a range of options available to them for the interpretation and design of a CBE model on their campuses. It was suggested that, because there is no single approach to CBE design and implementation, there is a need for “institutions to carefully weigh the pros and cons of CBE implementation, and to proactively select the CBE components that make the most sense for their students and mission” (Garret & Lurie, 2016, p. 3). Leaders in higher education interested in designing their unique CBE model, should consider an intentional and

transparent approach to curriculum design that respects the traditional academic model where the time taken to demonstrate competencies varies and the expectations about learning are held constant. What all CBE models seem to have in common are that students receive proactive guidance, advice, and support from faculty and staff that allow them to earn credentials by demonstrating mastery through multiple forms of assessment often at a personalized pace (Garret & Lurie, 2016).

As a result of the USDOE's Experimental Sites program announcement in 2013, several universities and colleges were given the opportunity to allow students to achieve college credits through competency-based assessments. Sixty-five colleges decided to participate in the experiment (USDOE, 2016), however, there was and remains little research published on those practices that best serve the design and implementation of competency-based program that provides clear answers for college leaders, such as how to best to overcome organizational barriers. The *Experiment Sites Initiative* (USDOE, 2016) was expected to broaden access to higher education by assessing student-based workforce ready skills. The premise that once students demonstrated competency with a program requirement, those students would earn class credit that will lead to a culmination of benefits, such as lower tuition costs, flexible schedules, and shorter time until graduation. During the 2013 State of the Union Address, President Obama (Washington Post, 2013) endorsed CBE and asked educational leaders to bring it into the mainstream. The president emphasized a shared level of responsibility between states and higher education institutions to not only working with the federal government but to also work with other higher education institutions to promote access, affordability, and attainment in higher education by reducing college costs, and provide value for U.S.

families by preparing students with a high quality education to enter and succeed in the workforce (Bamford et al, 2012; Washington Post, 2015). CBE models support program outcomes that align directly with the nation's goals to create a more accessible and lower cost higher education for students.

The purpose of this qualitative case study was to describe the strategies used to overcome obstacles to the implementation an open-entry, closed-exit program at a mountain west region community college. This study examined two career and technical science CBE programs and interpreted the main steps involved, lessons learned, and recommendations that emerged from the implementation of a CBE model for credential and/or technical degree programs.

This study utilized five research questions to analyze the multiple perspectives considered by college leadership participants interviewed from several departments, regarding the implementation of the CBE model at a mountain region community college and to identify strategies employed, steps taken, obstacles encountered, strengths evidenced, and solutions generated to problems as they arose:

1. What role did participants play in the design and implementation steps of the open-entry, closed-exit CBE program?
2. What were the obstacles identified before, during, or after, in the design and implementation of the open-entry, closed-exit CBE program?
3. What strategies were used in the design and implementation of the open-entry, closed-exit CBE program?
4. What strengths were identified during the design and implementation of the open-entry, closed-exit CBE program?

5. What solutions to problems arose?

Methods

The research method chosen was a qualitative case study.

Perspectives were determined through interviews with the community college's administrators and faculty who were involved in the conception and implementation of the CBE model. The interview questions were open-ended and designed to elicit broad responses focused on the participant's role in the design and their perception of strategies, obstacles, solutions, and best practices used.

The 27 participants who were invited represented executive leadership, accreditation, admissions and registration, advising, apprenticeship, financial aid, student information systems, veterans, instructional program administration, and program faculty. The total number of participants who agreed to be part of the study was 12. The total number of interviews which took place was 14. Two of the participants were interviewed twice because they were able to bring a perspective from two different departments. One participant was the former director of the CBE program and one was formerly in the advising department. Therefore, the total individuals interviewed was 12. One participant was unexpectedly ill during the week of the interviews and agreed to a telephone interview the following week. The remaining 11 interviews occurred face to face on the campus (see Table 1.1).

Discussion

The results of this study agreed with the literature findings concerning CBE definitions and provided support there is no uniform CBE model among institutions; they are unique to each college and program. The mountain west region community college

used for this study created a unique CBE model to meet the immediate training needs of a shortage of a skilled workforce in a specific industry. The open-entry, closed-exit design examined for this study aligned with the C-BEN's (2014) definition of CBE by allowing students to work at their own pace while demonstrating competencies and outcomes aligned with the traditional academic program model.

The participants in this study, who were part of the design team were mindful and purposeful when they created the open-entry, closed-exit model to comply with accreditation and financial aid requirements. Students were allowed to begin their course of study in either of the two technical CBE pathways at any time during the college's term. The term did not change to accommodate the model, the model allowed for variable start times. The key elements to compliance with the accrediting agency were the awarding of Carnegie credit, course completion at the end of a term, and faculty student interaction. This was all accomplished with half-credit modules that were required to be completed by the end of the term with a grade awarded and significant faculty-student interaction demonstrated in the lab environment (Eaton, 2016; USDOE, 2016).

This CBE design complied with Title IV financial aid regulations. Students in this study's CBE program had the option to apply for financial aid as full-time or part-time students. The student's financial aid award was pro-rated and awarded based on the number of credits in which they were enrolled and the remaining length of term. For example, a student who wished to begin with only a month left in the term might be advised through an education plan to take a fewer modules so that the required work could be completed by the end of the term. Additionally, the student might wish to be a full-time student beginning the next term. The application to financial aid was for a full-

time award, but since the term might be close to completion, the award amount is pro-rated (Eaton, 2016; USDOE, 2016).

The literature for this case study discussed the importance of including faculty in the design, adoption, and implementation steps through intentional strategies aimed at engagement and sustainable involvement (Cooper, 2016 See reference page). The findings for this case study confirmed that program faculty were involved in the CBE model from the conception to implementation. The faculty who did not wish to engage in the new model were assigned to other classes and new faculty were brought in to take their place. There was a clear communication channel between all of the program administrators for the open-entry, closed-exit model that led to transparent discussions and collaboration within the department and with other external college departments (Bamford et al., 2013; CAEL, 2016; Cunnington et al., 2016; Garrett & Lurie, 2016).

A supportive environment necessary for faculty engagement and buy-in was evident in the literature review, however, addressing the issue of faculty workload was not. The findings disclosed increased workloads for faculty in curriculum design, grading, assigned lab hours, and student advising. One of the benefits of the TAACCCT grant award was the ability to fund the design and purchase of online curricula that met the unique outcomes desired by local employers. Participants indicated during this study their relief in not having to design online curricula in multiple modules. The purchase of the curriculum relieved a significant potential workload issue (Bamford et al., 2013; CAEL, 2016; Cunnington et al., 2016; Garrett & Lurie, 2016).

Due to the rapid growth in student enrollment in the two career and technical CBE programs, the faculty were assigned a student load of approximately one hundred

students. Faculty monitored the student's progress in the online half-credit module course. Once the student achieved a passing score, they could participate in the lab setting where their competencies were assessed. The participants of this study discussed with the researcher the significant increase to their workload due to grading half-credit modules for approximately one hundred students several times during the term. Faculty participant K stated:

I used to grade 20 to 30 students in four classes, which was about 120 grades I had to enter at mid-terms and the end of the semester. Now, I have 100 students taking six half-credit modules for each three-credit course, which is almost impossible to upload the grades in the time we are given. Identify this respondent

At the time of this study, the faculty and administration were still working to resolve the issue of extensive grading of student assignments.

The program administrators realized early in the implementation process that they could no longer pay faculty based on a credit-load assignment since they were not assigned to the online credit course modules, but instead to non-credit lab hours. Faculty were being assigned to open lab hours, six days per week, morning to evening, where students came to practice their skills and have their competencies assessed. Some faculty were working over 40 hours per week to accommodate the student demand. This study found that program administrators worked collaboratively with the faculty bargaining representatives to create a new faculty contract category that addressed the needs of the new model. Faculty were subsequently paid by the hour, which included the possibility of overtime pay for work that took more than 40 hours in a week. Faculty had lab aids assigned so they were always able to meet the needs of students during the lab time.

Faculty expressed their gratitude to their program administrators for quickly addressing and solving the workload issue.

The literature indicated interest in CBE was apparent among college leaders, but many in higher education have been approaching CBE with caution and skepticism. The implementation of CBE is diverse and small in scale making the patterns of adoption unique to each institution and not uniformed across higher education. “Greater awareness of CBE diversity will make wider implementation more realistic and downplay the significance of a small number of CBE institutional pioneers as the only exemplars” (Garret & Lurie, 2016, p. 4). Garret and Lurie (2016) indicted that many institutions investigated the potential adoption of CBE but saw the design and implementation as too much work. This was especially true of faculty workload, because faculty tend to create their own competencies and courses from scratch rather than leverage resources. Lastly, “Despite a variety of perceived barriers many institutions anticipate further exploration and adoption of CBE” (Garret & Lurie, 2016, p. 5).

The study focused on a single comprehensive community college’s open-entry, closed-exit CBE program and the implications to specific departments within the college. This study was delimited to purposefully selected community college administrators and faculty engaged in the development and implementation of the two technical programs delivered as an open-entry, closed-exit CBE model. The delimitations of the study were that the study only captured one point in time.

The results of this study will not be immediately generalizable to other institutions because the researcher limited the study to a single community college. This study did not look directly at curriculum design or assessment, but instead looked at strategies and

steps employed within administrative systems to create and implement an open-entry, closed-exit CBE program.

Conclusions

This study presents rich and thick descriptions of the findings for the five research questions designed to better understand the strategies used to overcome identified obstacles to implementing an open-entry, closed-exit CBE program at a mountain west region community college.

Research question 1

The findings for research question one produced a wide variety of steps used by the different departments involved in the implementation of the CBE model. These departments worked primarily independent of one another. There was no documented evidence of any purposeful steps taken to design and implement the program as a collaborative group of college departments. Many of the college departments worked independently and sometimes in isolation from each other to adjust their internal practices to accommodate the new model. Those departments that were afforded the opportunity to visit a similar CBE program had some direction and motivation to find solutions.

The instructional program administrators and program faculty worked well as a group to design and implement the new CBE model. Both groups were located at the offsite technical campus and had regular access to each other for ongoing conversations. They were able to communicate steps as they occurred in order to create a supportive environment.

The accreditation, advising, and veteran services departments were not included in any pre- or post-design conversations and, therefore, had to be reactive once program implementation was ready. Due to the lack of communication with the accreditation department, the instructional program administrator was unable to get the approval it was seeking in the timeframe intended. The accreditation participants indicated a desire to be included early and often to better assist new programs in the approval process with the college's curriculum council, department of education for their state, and accrediting agency. This research has led to the development of many new programs and advances the need to include members from an institution's accreditation department as a key member to the program approval process. This study's accreditation department provided oversight and assured compliance with the accrediting agency; a key component to the college's accreditation pertaining to an innovative model such as the open-entry, closed exit CBE program.

The advising department had no prior knowledge of the new model until after it was approved and advertised. The department scrambled to create program advising guidelines and train the technical faculty who served as advisors for the new program. Unfortunately, they feel several students were misinformed due to the lack of communication and might have missed an opportunity to enroll in a program because the advisors were not fully aware of the program requirements.

The veteran service's department had students who wished to participate in one of the two technical programs, but due to the modularize design, were unable to use their veteran's financial aid to support taking these courses. The veteran's department informed the design team they could not change federal mandates for veterans' financial

awards. Therefore, the instructional program administration worked to create full non-modularized sections to accommodate the veteran students looking to enroll in the program.

The results of this study suggest a need for college leadership from all college departments in an institution to work together closely to support students' admission into the open-entry, closed-exit CBE programs. These participants need to be included early in the design and implantation phases. Clear, transparent, and frequent communication allowed this institution to avoid delays and redesigns of their new CBE model.

Research questions 2 and 5

The findings for research question two and five indicated that all college department participants in this study identified department specific barriers and were able to establish new processes, guidelines, and modifications to serve the needs of the students in the CBE program. Each department was able to design new processes and identify best practices to meet compliance requirements associated with the TAACCCT grant, Title IV, Veterans Administration, and NWCCU.

For this study, the participants indicated the timeline for the new CBE model from conception to implementation was less than three years. Recognizing faculty were no longer assigned a contract based on credit load and the need to address the increased number of hours that they were spending with students in the lab setting, the instructional program administrators quickly drafted and adopted a new, mutually accepted, faculty contract that was specifically designed to meet the needs of faculty workload in the open-entry, closed-exit program. The new faculty contract was a key finding for this researcher.

Research question 3

Research question three sought to identify the strategies used to design and implement an open-entry, closed-exit model for two career and technical programs. According to Kotter and Rathgeber's (2005) eight-step process for leading change, the first two steps for managing change include (a) creating a sense of urgency and (b) putting a comprehensive and diverse guiding team together to lead the effort.

Kotter and Rathgeber's (2005) third and fourth steps in the change process are to develop the change vision and strategy and to communicate for understanding and buy-in. The study's results indicated one specific, purposeful strategy; taking a team to visit a college with a similar program was particularly important. The department leadership who visited the similar college were instructional program leaders and faculty, apprenticeship, admissions and registration, financial aid, and student management systems employees. The participants of this study who visited a similar program had developed a shared vision and were able to convey the vision to their colleagues in their respective college departments. The admissions and registration, financial aid, and student management systems staff received communication and updates from members of the instructional departments. The participants indicated their departments were aware of the instructional design team plans but were not involved in any strategic planning or timeline development pertaining to the implementation of the CBE programs. The participants representing administration from accreditation, advising, and veteran services were not part of the team that visited a similar program and were not communicated with effectively during the design or implementation phases. These departments and their leadership were unaware of any strategies being employed.

The design team failed to communicate a strategy with other college department leaders about the ongoing strategies being designed and/or adopted. Three departments stated they had no communication until the program was ready to launch. The remaining departments participants indicated they made adjustments and designed internal processes in anticipation of the CBE model.

According to the data collected for this study, the instructional, apprenticeship, and grant leadership representatives created a sense of urgency as a result of being awarded the TAACCCT grant. Additionally, a team representing instruction was formed to work through the steps of designing and implemented the new open-entry, closed-exit CBE model. However, Kotter and Rathgebbers's (2005) third and fourth steps, deciding on a strategy and communicating what to do next, were not addressed with the remaining college leaders and, therefore, were left to individual department personnel to figure out.

Research question 4

The results for Research Question 4 found the resources afforded to the college by way of the TAACCCT grant was a key strength. Participants indicated the need for additional staff to handle increased workloads in their respective departments due to the rapid growth in student enrollment. The resources provided by TAACCCT grant helped to fund necessary positions. Additionally, the TAACCCT grant funded the purchase of curricula for the new programs, reducing some faculty responsibilities.

An additional strength, as indicated by the department participants from admissions and registration, financial aid, and student management systems was the positive working relationship and high level of communication between the instructional program administrators and the program faculty that assisted in the design and

implementation of the new CBE model. Although there had been no strategies evident, the departments that were involved in the design program team commented on regular communication between their respective departments and instruction leaders to meet the design and implementation needs.

The findings for this question show all participants interviewed felt the new model was achieving the goal of increasing enrollment in two career and technical programs and contributing a needed skilled workforce for regional industry partners. Lastly, this case study found CBE programs are uniquely designed to serve the needs of their college.

Key Findings

The key findings in this study were to: (a) include all key college stakeholders in the design and implementation process, (b) create and communicate a shared vision and strategy to the key college departments and leadership, (c) create a CBE model in compliance with the college's accrediting agency, USDOE, Title IV, financial aid, and veteran's regulations, (d) include, accommodate, encourage, and support faculty, and (e) provide access to the fiscal resources necessary to add staff, adjust student management systems, purchase curricula, and adjust faculty compensation. Lastly, this study found that CBE programs are uniquely designed to serve the needs of their college, through programs such as this open-entry, closed-exit model.

Recommendations for Further Research

Following are the recommendations for future research based on the topic of CBE. The recommendations that follow extend beyond the college systems within the NWCCU regional accreditation.

Institutions Sharing Competency-Based Education Best Practices

Bamford et al. (2012) spoke of the need for college leaders to work together and share best practices in order to advance CBE models. Literature references a number of colleges and universities that are engaged in CBE models but reveal little about any institutional partnerships, college districts, multi-campus approaches to CBE design and implementation. There are four community colleges in the state of Idaho who are interested in further exploration of CBE models. Research related to leading a multi-college effort, if it exists, would be of value to the four Idaho community colleges and other college systems.

Idaho Public Colleges and Universities

In 2017, the Idaho Governor assembled a Higher Education Task Force combined with the Workforce Development Task Force to address Idaho's *K-through-Career* education and job training needs beyond high school. The task force was made up of a diverse group of Idaho stakeholders including members from the Idaho State Board of Education (ISBOE), and representatives from colleges and universities, legislators, business leaders, and students with a focus on meeting the goal that 60% of Idahoans between 25 and 34 attaining a postsecondary degree or credential by the year 2020. The task force produced 12 recommendations. Number 10 addressed a CBE system for the Idaho's public colleges. According to the task force report, "We recommend the State Board of Education, public post-secondary educational institutions, State Department of Education, State Workforce Development Council and Industry shift the state's public Career and Technical Education programs to a competency-based model" (ISBOE, 2017, p. 8 Not in references). Furthermore, the report recommended the Idaho public post-

secondary college system explore and issue CBE degrees and include transferability of prior learning between all Idaho colleges, making a seamless and uniform across the system (ISBOE, 2017).

At the time of this study, ISBOE Division of Career Technical Education was engaged in conversations with community college administrators about piloting a CBE model in response to the Governor's Task Force recommendations. This study could serve as a starting place for state and college leadership discussion pertaining to approval of modular courses for CBE programs.

Student Information Systems and Student Management Systems Compatibility

This case study's student management system participants revealed the immense time and resources necessary to align their existing systems to one which could handle multiple start times, half-credit instructional modules, coding of courses, and transcription of competencies. . This researcher recommends that college leaders interested in adopting a CBE model look carefully at the costs associated with the student information and management systems.

Study of the Perspectives of Students

One of the limitations of case study methodology and, specifically of the present study, was that the study captured only a single point in time related to the design and implementation of the open-entry, closed-exit CBE model. One of the delimitations of the study was that the study focused only on administrator and faculty perspectives. The findings of this study reflected a wide range of challenges and solutions, but it did not reflect the student experience. Students participating in modular courses, half-credit grade point averages, having competencies assessed in open labs, bring a uniquely different

perspective to obstacles and solutions. These perceptions need to also be accounted for in future studies.

Study of Leadership Styles

One of the conclusions to this study was lack of effective leadership. The leaders of this project did not successfully create a shared vision, strategy, and communicate direction for each of the steps involved in the process. It would be interesting to research implemented CBE models and look for common leadership styles which were used to affect this type of change. College leaders looking to design and implement a CBE model could benefit from following a leadership guide prepared by leaders who were successful at launching these types of programs.

Summary

This study provided a rich, descriptive analysis of a mountain west region community college's design and implementation of an open-entry, closed-exit, CBE model. By identifying the steps, strategies, obstacles, solutions, and strengths of the CBE model this college faced when designing and implementing their two career and technical programs, other community colleges can benefit from these insights when they attempt to develop similar programs. The participant's in this study purposefully designed a CBE model which would conform to the NWCCU, Title IV Federal Financial Aid, and veteran's benefits regulations and meet their distinctive regional workforce needs.

The results of this study showed that an open-entry, closed-exit model can be an excellent design for Idaho community colleges career and technical programs. The result of this study also showed that a utilizing a specific strategy for the design and

implementation, which actively included all key stakeholders would benefit any college leaders interested in driving organizational change by offering a CBE program.

This study also found that CBE faculty experienced the most radical change to their roles as compared with their traditional faculty counterparts. Colleges must be willing to include, actively engage, accommodate, encourage, and support faculty through the design and implementation of a CBE model. Additionally, colleges must be willing to engage in discussions with faculty and be willing and open to addressing issues associated with increased employee workloads.

An additional key finding to this study was the need for additional resources. Implementing a CBE program had multiple costs associated with it. Fiscal resources are necessary to add staff, adjust student management systems, purchase curricula, and compensating faculty appropriately. Lastly, this study found that rarely are any two CBE programs alike. It is important for colleges to design a model that serves their unique needs such as this open-entry, closed-exit model did for the mountain west community college that served as the site for this study.

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Appendix A - Interview Questions

The following is a list of interview questions asked to participants. The open-ended questions were designed to encourage a full and meaningful answer potentially leading to follow-up questions and discussion. The questions sought the participant's own knowledge and/or feelings, requiring more thought than a simple answer to a closed-end question. Depending on the direction of the conversation and whether the participant jumped ahead and answered an upcoming question, this researcher would select the next question relative to the participant's response to the previous question. Please describe in detail the open-entry, closed-exit programs at this college?

- a. Please take me through the steps you and/or your colleagues took to accommodate the new model.
2. In your opinion, how effective was the design and implementation process?
 - a. What would you do the same and/ or what would you different next time?
3. Can you describe any barriers or problems you or your department encountered prior, during, and/or after designing and/or implementing the open-entry, closed exit programs?
 - a. How did you or your department resolve the problems that arose during the implementation of the CBE program?
 - b. Were there any problems that arose during the design or implementation of the open-entry, closed exit programs?
 - c. How did you solve the problems?
4. According to the literature reviewed for this study, there are contradicting perspectives on competency-based education models. In your opinion, what was

the goal of your college's open-entry, closed-exit program model? Is it working?

Please explain your answer.

- a. Can you explain any benefits or detriments of the open-entry, closed-exit model?

5. Please share any best practices used or discovered in the design and/or implementation of the open-entry, closed-exit programs.
6. Please describe any lessons learned from the design and/implementation of the open-entry, closed-exit programs.
7. Looking to the future, what are some of the challenges for the current open-entry, closed-exit programs, if any, that lie ahead?
8. Are there any other thoughts or inputs you would like to add to the overall discussion??

Appendix B - Informed Consent Statement Prior to Interview

Introduction:

Idaho State University Institutional Review Board has approved this dissertation project on behalf of Kathleen Silvas, who is participating in the Degree of Doctor of Education in Higher Education Administration in the College of Education. You are being invited to participate in this research project to explore your experiences as (role in department) _____ in your institution's competency-based education (CBE) open-entry, closed-exit career and technical program.

Title of Research Project:

Implementation of a Competency-Based Education Model in a Community College System: A Case Study of a Mountain-West Region Community College's Open-Entry, Closed-Exit Model.

Purpose of the Study:

This purpose of this study is to examine and describe the strategies used to overcome identified obstacles to the implementation of a CBE model at a mountain west community college. This study sought to interpret the main steps involved, lessons learned, and recommendations that emerged from implementing competency-based education for credential and/or technical degree programs. This qualitative case study will examine barriers to the development and implementation of an open-entry, closed-exit, education model in two career technical science programs.

Benefits:

The benefits of this study will help to inform higher education administrators who are interested in implementing a competency-based education model for their institution.

Procedures to be followed:

You are being asked to participate in an interview to answer a series of open-ended questions related to your institution's open-entry, closed-exit competency-based education program. Follow-up questions which may come to light during the interview, will occur organically. If you agree to participate, the interviews will occur either in person or on the telephone. The interviews will be recorded and later transcribed, and if follow-up interviews are necessary to clarify or confirm any information, those will be conducted via email. The interview should not take more than an hour.

Risks:

Your participation is completely voluntary. There are no identifiable risks beyond those experienced in normal, everyday life. However, the researcher bears the responsibility of carrying out research that describes innovative higher-education academic models to contribute to the literature in the field.

In order to consent to participate in this study, you must be 18 years of age or older. If you feel uncomfortable at any time during the interview or follow-up process, you are free to refuse to answer any questions or stop the interview at any point. If you choose to withdraw from the research, there will be no penalties associated with the withdrawal.

Statement of Confidentiality:

The interviewer will not ask for information that would identify the participant to the responses other than the general title of your department or role you represent. Your responses will be recorded anonymously, with no mention of your name or the name of

the institution. The title of the study will refer to your institution as a Mountain West Region Community College.

Right to Ask Questions:

The researcher conducting this study is Kathleen Silvas. You may ask any questions you have now or during the interview process. If you later have questions, concerns, or complaints about the research please call me at (XXX) XXX-XXXX, or if you prefer, you may call my advisor for this research, Dr. Paul Watkins, Idaho State University, (208) 282-3273. If you have questions regarding your rights as a research participant, you may contact Idaho State University – Office for Research, Outreach, and Compliance (208)282-2179.

Compensation:

No compensation is awarded for participating in this research project.

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Participation in this interview implies that you have read the information in this form and consent to participate in the research. Please keep this form for your records or future reference.

Appendix C - Script for Telephone Call to Interview Participants

Good (morning, afternoon) title and name of participant

My name is Kathleen Silvas and I am participating in the Degree of Doctor of Education in Higher Education Administration in the College of Education at Idaho State University. Idaho State University Institutional Review Board has approved my dissertation project titled “Implementation of a Competency-Based Education Model in a Community College System: A Case Study of a Mountain West Region Community College’s Open-Entry, Closed-Exit Model”.

This purpose of this study is to examine and describe the strategies used to overcome identified obstacles to the implementation of a CBE model at a mountain west region community college. This study seeks to interpret the main steps involved, lessons learned, and recommendations that emerge from implementing competency-based education for credential and/or technical degree programs. This qualitative case study will examine barriers to the development and implementation of an open-entry, closed-exit, education model in two career technical science programs.

I would be grateful if you participated in this research project, so that I may explore your experiences as (role in department) _____ in your institution’s open-entry, closed-exit competency-based education (CBE) career and technical program.

The benefits of this study will help to inform higher education administrators who are interested in implementing a competency-based education model for their institution.

I will be asking participants to answer a series of open-ended questions related to your institution’s open-entry, closed-exit program model. Follow-up questions which

may come to light during the conversation, will occur organically. If you agree to participate, the interviews will occur either in person or on the telephone. The interviews will be recorded and later transcribed, and if follow-up interviews are necessary to clarify or confirm any information, those will be conducted via email. The interview should not take more than an hour.

There are no identifiable risks beyond those experienced in normal, everyday life. However, the researcher bears the responsibility of carrying out research that describes innovative higher-education academic models to contribute to the literature in the field.

For this study, you must be 18 years of age or older to consent to participate. If you feel uncomfortable at any time during the interview or follow-up process, you are free to refuse to answer any questions or stop the interview at any point. If you choose to withdraw from the research, there will be no penalties associated with the withdrawal.

I will not ask for information that would identify the participant to the responses other than the general title of your department or the role you represent. All responses will be recorded anonymously, with no mention of any names or the name of the institution. The title of the study will refer to your institution as a Mountain West Region Community College.

I expect to be on your campus the week of (Date).

May I schedule a time interview you in person? If you are unavailable the week I am on your campus, may I schedule a phone interview with you?

Thank you! May I have your email address to confirm our time and day of the interview? I will include in my confirmation notice the name and contact information for

my faculty advisor as well as the ISU Office for Research, Outreach, and Compliance.

Thank you.

If you later have questions, concerns, or complaints about the research please call me at (XXX) XXX-XXXX, or if you prefer, you may call my advisor for this research, Dr. Paul Watkins, Idaho State University, (208) 282-3273.

If you have questions regarding your rights as a research participant, you may contact Idaho State University – Office for Research, Outreach, and Compliance (208) 282-2179.

Thank you so much for your participation.