

Spring 2-16-2017

An Alternative Pathway to College: A Qualitative Case Study of an Adult Learner in an Online Competency-Based Education (CBE) Bachelor's Degree Program

Fang Chen
University of New Mexico

Follow this and additional works at: https://digitalrepository.unm.edu/educ_llss_etds

 Part of the [Curriculum and Instruction Commons](#), [Higher Education Commons](#), and the [Online and Distance Education Commons](#)

Recommended Citation

Chen, Fang. "An Alternative Pathway to College: A Qualitative Case Study of an Adult Learner in an Online Competency-Based Education (CBE) Bachelor's Degree Program." (2017). https://digitalrepository.unm.edu/educ_llss_etds/71

This Dissertation is brought to you for free and open access by the Education ETDs at UNM Digital Repository. It has been accepted for inclusion in Language, Literacy, and Sociocultural Studies ETDs by an authorized administrator of UNM Digital Repository. For more information, please contact disc@unm.edu.

Fang Chen

Candidate

Language, Literacy, and Sociocultural Studies

Department

This dissertation is approved, and it is acceptable in quality and form for publication:

Approved by the Dissertation Committee:

Dr. Christine Sims , Chairperson

Dr. Alicia Chavez

Dr. Lucretia (Penny) Pence

Dr. Ricky Allen

**An Alternative Pathway to College:
A Qualitative Case Study of an Adult Learner in an Online
Competency-Based Education (CBE) Bachelor's Degree Program**

By

Fang Chen

B.A., English, Qingdao University, 2001

M.S., Educational Administration, Missouri State University, 2006

M.A., Teaching English to Speakers of Other Languages, Missouri State University, 2007

DISSERTATION

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Language, Literacy, and Sociocultural Studies

The University of New Mexico

Albuquerque, New Mexico

May 2017

ACKNOWLEDGEMENTS

I would like to take this opportunity to acknowledge all the UNM faculty who have inspired and supported me throughout this journey. The dedication, knowledge, and professionalism of all these faculty members will help me become a better educator in my own career.

I especially acknowledge Dr. Christine Sims and Dr. Alicia Chavez, my dissertation committee co-chairs, for guiding me throughout the dissertation process. They frequently checked in with me to offer assistance and always responded to my requests promptly. I also would like to thank the other two members of my committee, Dr. Penny Pence and Dr. Ricky Allen, for their valuable recommendations and advice pertaining to my study. My committee played a significant role in supporting me through the different stages of my dissertation.

My deep appreciation also goes to the participant of my study--Rico. This dissertation would not have existed without his participation. I would like to thank him for taking out a great deal of time from his busy life to do my study with me.

Last but not least, I would like to acknowledge my family for their tremendous support of me pursuing my doctoral degree, and I dedicate this dissertation to them: my husband, my two beautiful children, my parents, and my parents-in-law. Their encouragement and support made everything possible.

**An Alternative Pathway to College:
A Qualitative Case Study of an Adult Learner in an Online
Competency-Based Education (CBE) Bachelor's Degree Program**

By

Fang Chen

B.A., English, Qingdao University, 2001

M.S., Educational Administration, Missouri State University, 2006

M.A., Teaching English to Speakers of Other Languages, Missouri State University, 2007

Ph.D., Language, Literacy, and Sociocultural Studies, University of New Mexico, 2017

ABSTRACT

My dissertation research investigated an adult learner's experience in an online competency-based education (CBE) bachelor's degree program. The purpose of my study was to understand how CBE was transforming the practices of traditional postsecondary education and how CBE was serving the needs of students, particularly nontraditional adult students in higher education.

The methodology used in this dissertation research was a qualitative case study. The participant was an adult learner enrolled in an online CBE bachelor's degree program at a public institution. My case study used a series of face-to-face interviews, document analysis, participant-guided web tours, and participant observation to collect data during a six-month period.

The themes that emerged from my study include: (1) adult learning as a self-directed process, (2) adult learning as a flexible process, (3) adult learning as a social

process, (4) adult learning as a goal-oriented and results-drive process, (5) adult learning as a change process, and (6) adult learning as a scaffolding process.

The findings of my study suggest that CBE can make a valuable complement to the traditional higher education model and a functional alternative pathway to postsecondary credentials. While CBE has the potential to enhance existing models of higher education to address access, quality, and productivity challenges, it is certainly not a panacea that will save higher education and no one has claimed that it is. What competency-based education can bring is a catalyst for change and innovation that our higher education system desperately needs.

TABLE OF CONTENTS

	Page
CHAPTER 1 - INTRODUCTION.....	1
Background of My Study.....	7
Purpose of My Study and Research Questions.....	9
Significance of My Study.....	10
Significance for Educators.....	10
Significance for Students.....	11
Significance for Me as the Researcher.....	12
My Bias, Positionality, and Assumptions as the Researcher.....	13
Summary.....	16
CHAPTER 2 - LITERATURE REVIEW	17
What Is CBE?.....	17
The History of CBE.....	17
The Definition of CBE.....	18
The Differences between CBE and Traditional Higher Education.....	21
Conclusion of CBE Definition.....	23
What Are the Building Blocks of CBE?.....	24
A competency Framework.....	24
Competency Assessments.....	26
Conclusion of CBE Building Blocks.....	29
Why Is CBE Gaining Popularity?.....	30
How Can CBE Benefit Students?.....	31

CBE and Productivity of Higher Education	32
CBE and Quality of Learning.....	33
CBE and Adult Learners	36
How Can CBE Benefit Institutions?	39
How Can CBE Benefit Employers?.....	42
Empirical Data on CBE Benefits	44
Conclusion of CBE Benefits	48
What Are the Critiques of CBE?	49
Flaws in Theoretical Foundation.....	49
Flaws in Learning Quality.....	50
Flaws in Educational Equity	52
Empirical Data on CBE Critiques	54
Conclusion of CBE Critiques.....	54
What Is the Current Landscape of CBE in the U.S.?	55
Western Governors University: The CBE Pioneer.....	56
Westminster College and College for America: The Project-based Model.....	57
Brandman University and Southern New Hampshire University: The Modularization Model	59
Lipscomb University and University of Wisconsin: The Direct Assessment Model	61
Conclusion of CBE Landscape in the U.S	63
Summary	63

CHAPTER 3 - METHODOLOGY.....	65
Case Study	65
The Definition of Case Study.....	65
Types of Case Study	68
Strengths and limitations of Case Study	69
Data and Methods for Case Study.....	70
Trustworthiness in Case Study.....	71
Case Study Research and CBE	73
The Participant	76
Data Collection Methods	77
Semi-structured Interviews	77
Document Analysis	79
Participant-guided Web Tours	80
Participant Observations	81
Analytical Memos	82
Data Analysis	82
Trustworthiness of My Study.....	85
Limitations of My Study.....	86
Summary	87
CHAPTER 4 - RESEARCH FINDINGS.....	88
A Snapshot of Research Findings	89
The Participant--Rico.....	91
An Overview of the CBE Program Rico Enrolled In.....	95

Major Themes	103
Theme 1: Adult Learning as a Self-directed Process	104
Three Dimensions of Self-Directed Learning.....	105
Theme 2: Adult Learning as a Flexible Process.....	110
Theme 3: Adult learning as a Social Process	114
The Social Context of Learning.....	114
The Social Activities in Learning	117
Theme 4: Adult Learning as a Goal-oriented and Results-driven Process	119
Theme 5: Adult learning as a Change Process.....	124
Theme 6: Adult learning as a Scaffolding Process	127
Summary	134
CHAPTER 5 - DISCUSSION, RECOMMENDATIONS, AND IMPLICATIONS	135
Discussion of Findings.....	135
Recommendations as a Result of My study	138
Autonomous Learning for Adult Learners.....	139
The Constructs of Autonomous Learning.....	139
An Example of Autonomous Learning	140
Effective Instructional Design for Educators.....	144
Introduction to Gagne’s Nine Events of Instruction	144
Gagne’s Nine Events of Instruction in a CBE Program	146
Recommendations for Changes	163

Modularization Approach	164
Assessments Structure	167
Theoretical Underpinnings of Competency-Based Education	169
Interactivity in Online Self-Paced Learning	171
The Implications of CBE for Higher Education	175
Accessibility and Affordability	177
Accountability	178
Employability	180
Summary of Implications	181
Conclusions	183
APPENDIX - INTERVIEW PROTOCOL	185
REFERENCES	186

CHAPTER 1

INTRODUCTION

Since the birth of American public education in the 17th century, the norms of our educational system have been represented by buildings with classrooms, clocks on the walls, buses that bring students back and forth, academic calendars from one semester to another, students from grade 1 to grade 12, from college freshmen to senior, and so on, and so on. Tick tock...tick tock...that is the rhythm of education, a system built on blocks of time; class periods, recesses, credit hours, semesters, and graduation are all based on the measurement of time. Even with the advent and popularization of distance education, it is still measured by time in terms of how long an online class or a program should last and how much time students are supposed to spend in them. Most people in America “fall into the rhythm of school,” bound in time, “from 12 to 16 years or more.” “For professional educators, this rhythm of school goes on and on.” This rhythm of school and college has become “so fixed in our thinking” that it has remained resolute and unchanged until now (Bramante & Colby, 2012, p.1).

Today, “there is ever-increasing pressure” on American public education to change itself. A coalescence of economic imperative, changing demographics, and technological innovations have led to a force never before seen and this force is pushing public education to redesign (Bramante & Colby, 2012, p.7). American higher education, in particular, “is at the breaking point...with the very survival of many institutions at stake” (Bradley, Seidman, & Painchaud, 2012, p. ix). First, costs have become very problematic for a great many higher educational institutions; many students and their families can no longer bear the rising price tag of tuition and fees. Next, although costs

have spiraled upward, the demand for higher education has continued to grow. Estimates show that 63% of the nation's population will need postsecondary degrees by the end of this decade, and only 38% have those degrees now. As a response, the White House has challenged colleges and universities to produce more graduates with higher education credentials (Brower, 2014). In the meanwhile, an increased number of non-traditional students are entering the sphere of higher education and non-traditional students have become the majority on college campuses. The "traditional" college students--full-time students of standard college age--comprise only 29% of all college undergraduates, while the majority of those seeking higher education are adults "who are already fully engaged in their professional and personal lives outside of an institution of higher education" (Casselmann, 2013 & Brower, 2015). Unlike "traditional" college students, nontraditional college students have to juggle family, job, cultural, spiritual, and academic responsibilities on a daily basis. Further, employers have expressed concerns that many college graduates are not adequately prepared for the workforce, and demanded more accountability from higher education institutions. Finally, there is fierce competition between traditional non-profit public institutions and for-profit institutions to attract students (Bradley, Seidman, & Painchaud, 2012). Examining the various challenges facing American higher education, it is clear that "... higher education has reached a crossroad and it's badly in need of reconstruction to handle today's travelers and tomorrow's traffic" (Brower, 2014).

While most educators around the country are aware of the pressure to change, for many, it is still difficult to envision what education will become. The system of American public education has constantly evolved over the years; so what would make the change

this time different? The difference lies in a new vision for change, and that vision "is fairly simple:" "Instead of time being the primary constant with achievement the variable, the exact opposite will be the tenets for the new system. Time and place will be the variables and achievement will be the constant" (Bramante & Colby, 2012, p.15).

As a response to the new vision for change, competency-based education (CBE) model has come to the forefront of education reform in the 21st century. It is attracting significant interest for challenging the traditional "factory model," "assembly line structure" of the American school system, in which students spend a standard amount of seat time in class, move to the next level by earning passing grades, and graduate when they have accumulated a set number of credit hours (Le, Wolfe, & Steinberg, 2014). As an alternative to the time-based system that usually takes place inside of school buildings, CBE can be described as an education "anytime, anyplace, anyhow, and at any pace" (Bramante & Colby, 2012, p.57).

What is CBE and what makes it different? Although there hasn't been a universally agreed-upon definition for CBE, there is a major distinguishing characteristic for CBE. That is, CBE "measures learning rather than time" (Mendenhall, 2012). In the traditional higher education model, students must spend a set amount of time in a class and accumulate a set number of credit hours before they can earn a credential. CBE turns the traditional higher education model on its head. Instead of awarding credits based on how much time students spend in a class, CBE awards credits based on whether students can prove they have mastered competencies in an area of study. Transitioning away from the restraints of seat time, CBE creates flexibility by allowing students to progress as soon as "they demonstrate mastery of academic content, regardless of time, place, or pace

of learning" (U.S. Department of Education, n.d.). The idea of CBE is not new. The concept has been around since the 1960s. At its earliest form, CBE "simply means defining what the student will learn at the unit, course, and program level." Over the decades, CBE has transformed itself. What is new about CBE today is decoupling what the student will learn from seat-time or credit hours and allowing the students to learn the material at their own pace (Anderson, 2013); there is a clear "focus on learning outcomes rather than time spent in a classroom" (Federal Student Aid, 2015, p. 1-1).

Weise and Christensen (2014) recounts a story from Steven Spear's (a senior lecturer at MIT) research that provides a powerful illustration of the potential of competency-based approach to learning. When he was a doctoral student, Steven Spear took temporary jobs working on an assembly line at one of the Detroit Big Three factories and later at a Toyota plant.

In Detroit, the person training Steven essentially told him: "The cars come down this line every 58 seconds, so that is how long you have to install this seat. Now I am going to show you how to do it. There are seven steps. First, you do this. Then do that, then click this in here just like this, then tighten this, then do that and so on," until the seat is completely installed. Steven was quite confident he could do each of those things in the allotted time, given that he had advanced degrees in mechanical engineering from MIT. When the next car came down the line, Steven confidently started the process. He did all of the preparatory steps, but when he tried to install the seat in the car, it would not fit. By the end of the 58 seconds he had not completed the installation. His trainer had to stop the assembly line to fix the problem. The trainer then showed him how to do it again, but when the next car arrived, Steve failed to install the car seat again. In the span

of an hour, Spear only managed to install four seats correctly (Weise & Christensen, 2014, p.12).

Later, Steven went to work at the same station in Toyota's plant. He had a completely different experience. At the training station, he was told: "There are seven steps required to install this seat successfully. You don't have the privilege of learning step 2 until you have demonstrated mastery of step 1. If you master step 1 in a minute, you can begin learning step 2 a minute from now. If step 1 takes you an hour, then you can learn step 2 in an hour. And if it takes you a day, then you can learn step 2 tomorrow. It makes no sense for us to teach the subsequent steps if you cannot do the prior ones correctly." As a result, when Steven took his spot on the Toyota line, he was able to do his part correctly the first time and every time afterwards (Weise & Christensen, 2014, p. 12-13).

That was a striking contrast between the two methods of training Steven Spear. At the Detroit plant, the training time was fixed, but the result of the training was variable and unpredictable. The final assessment—installing the car seat—came at the end of Steven's training. At the Toyota plant, the training time was variable. Assessment was embedded throughout the instruction process rather than coming at the end of the instruction process. In fact, Toyota builds into its process a mechanism to assess and verify immediately that each step is done correctly so that no time or money is wasted fixing a defective product. The result of the training is fixed: everyone who goes through the training can predictably do what they are taught to do (Weise & Christensen, 2014; Horn, 2012).

The Detroit example represents how a factory-model education operates; the Toyota example illustrates how a CBE model works. Although Steven Spear's story is a relatively simple, technical, and hands-on learning example, it provides a vivid illustration of the basic principle behind CBE, and it has important implications for CBE model in the academic context. The CBE model, illustrated by the Toyota training, has demonstrated advantages in terms of how learning is immediately and frequently assessed, how learners are allowed to acquire skills at their own pace, and how the standards of learning are held high and consistent for all learners. Higher education, although a much more complex system than the example of installing a seat into a car, has a lot to learn from the CBE model.

My research was a qualitative case study designed to investigate how the CBE model was implemented in an online bachelor's degree program at a public institution and what a student's experience was like going through this program. The purpose of my study is to explore how the CBE approach facilitated as well as how it hindered an adult learner's experience going through an online CBE bachelor's degree program, to investigate the learner's understanding of CBE, as well as to provide insight into what implications the CBE model has for American higher education. The results of my study are significant for both educators and students. My study is significant for educators who are looking to improve existing CBE programs or to launch new CBE programs because it highlights what worked and what did not work with the CBE approach from the perspective of one student's experience. My study is also significant for future students who are interested in pursuing CBE degree programs because it paints a picture of what it

is like to learn in a CBE format and what it took for one student to succeed in an online CBE bachelor's degree program.

Background of My Study

In recent years, CBE programs are growing in popularity as an alternative path to a postsecondary degree. Across the United States, various institutions have developed or begun developing a range of programs modeled on CBE principles. According to *Eduventures*, an independent research and advisory firm focused exclusively on analyzing higher education reforms, "today, as many as 150 (colleges) offer some form of competency-based programming, with as many as 400 others with programs in development" (Fleming, 2015). The number of institutions that offer competency-based learning opportunities have grown significantly compared to the reality that no more than 50 colleges offered CBE programs in 1990. Furthermore, "the number of students enrolled in CBE programs has grown fourfold" from no more than 50,000 students in 1990 to nearly 200,000 students in 2013. Widespread marketing efforts are also underway to attract new audiences through innovative CBE delivery formats (Fleming, 2015).

Looking ahead, CBE will continue to gain steam across the country. The number of colleges that offer CBE programs and the number of students enrolling in CBE programs will continue to grow. *Eduventures* estimates that by 2020, "as many as 750 colleges will offer CBE programs and that overall enrollments will exceed 500,000 students, mostly adults learning through self-paced programming offered wholly or mostly online" (Fleming, 2015). CBE is not merely a passing fad in higher education; it is here to stay.

As the latest innovation in higher education, CBE “is fully backed by the White House, and was recognized by President Obama in a major policy speech in 2013 on college affordability” (Hill, 2015). In summer 2014, the U.S. House of Representatives unanimously passed a bill to support the development of 30 pilot CBE programs at colleges and universities (New Measure for Collegiate Learning, 2015). The United States Department of Education has also given its approval for select colleges to award federal student financial aid based on the assessment of competencies instead of just earned credit hours over the semester, which signals a tipping point for the CBE movement and serves as a linchpin of the CBE model (Hill, 2015). Currently, the United States Department of Education is working on offering comprehensive guidelines for CBE experiments and granting more institutions permissions to experiment with CBE in terms of federal financial aid disbursement (Federal Student Aid, 2015). With support at the federal level, especially with policy revisions in terms of granting federal financial aid and accreditations, CBE can be implemented with fewer restraints, and its potential can be better achieved. The federal-level support has also fueled interest and growth in CBE.

It was in the midst of the rapidly-growing, nation-wide CBE movement that I received the presidential fellowship at Central New Mexico Community College during the 2014-2015 academic year to study CBE and lead CBE initiatives. This experience gave me the opportunity to become well-informed with CBE, develop a keen interest, and gain first-hand experience with its development at my college. As part of my fellowship, I collected information on existing CBE programs across the country. One of those programs became the focus of my study because I was able to gain the most amount of information about this program and because it had many features that were distinctive

from traditional higher education formats. I was intrigued by the unique setup of the program and I wanted to learn more about it.

My fellowship research on CBE programs across the country also became helpful when a couple of my former students were looking at options to further their education and seeking input from me. I referred them to several CBE degree programs I learned about through my research. The next thing I knew one of my students began the application process with one of those programs. As this student started his journey in the chosen CBE program, I began to formulate my case study idea to follow and document his experience. I believed such a case study would provide valuable empirical data on the implementation of CBE in one degree program and its impact on students.

Purpose of My Study and Research Questions

The main purpose of my study was to explore how the CBE approach facilitated or hindered an adult learner's experience of going through an online CBE bachelor's degree program. Examining the particularity and singularity of one adult learner's experience in his CBE program was the goal. What I wanted to accomplish through the study was to tell the detailed story of how this student got started with the CBE program, how he had been progressing through the program, what he was learning in the program, and what he perceived as the advantages and disadvantages of the program. Furthermore, I wanted to examine this student's understanding of CBE based on his own experience and his view of CBE's position in America's higher education system. Specifically, the following research questions were explored:

Research Question: How did the CBE approach facilitate or hinder an adult learner's experience of going through an online CBE bachelor's degree program?

Research Sub-questions:

(1) What were the experiences of an adult learner in an online CBE bachelor's degree program?

(2) How did the adult learner perceive the learning he gained from the CBE program?

(3) How did the adult learner perceive CBE's position in American colleges and universities?

Significance of My Study

Significance for educators. As more and more institutions are either expanding their existing competency-based education (CBE) programs or developing new CBE programs for the first time, a comprehensive and systematic understanding of CBE implementation is valuable. My study provides specific information regarding the implementation of CBE in an online bachelor's degree program and its impact on an adult learner for a variety of educators including instructors, administrators, and student support specialists.

For instructors, my study includes specific information on curriculum design for the described CBE program, which consisted of the structure of the curriculum, the assessments of competencies, the learning resources, as well as a student's responses to the curriculum. Instructors will also learn about how interaction with students and support for students changed in a fully online CBE program. For administrators, my study provides limited information on certain administrative aspects of the program, such as enrollment process, financial aid, and business model. For student support specialists, my study highlights what kind of support one particular student needed in his CBE

program and his recommendations on how to assist other students in progressing through a CBE program. Overall, my study provided a window into how to build and deliver effective CBE programs to help more students earn their college degrees and gain valuable competencies for work and life.

As an educator, my own experience with leading CBE development at my work told me that case studies of different CBE programs could be a great resource to refer to when planning and developing CBE programs, especially for the first time. During our CBE project planning at Central New Mexico Community College, we were eager to learn from as many CBE programs as possible and we were thirsty for information from curriculum design and faculty models to marketing efforts and enrollment processes. In-depth case studies would have been extremely valuable to us as we attempted to build our own CBE programs. From administrators to faculty to staff, we could always learn valuable lessons from reading case studies of other CBE programs.

In spite of all the recent publicity on CBE, comprehensive and systematic studies on CBE programs are few. Studies of CBE programs from students' perspectives are even fewer. At this point, there is very limited empirical data on how CBE impacts students' learning or how CBE prepares students for the workplace and for life. I hope my study adds to the research base of CBE with some empirical data and provides guidance for educators as they engage in CBE development and implementation.

Significance for students. Competency-based education (CBE) is attractive to students because of its flexibility, affordability, and potential to accelerate through a degree program. The primary beneficiaries of CBE programs are typically identified as “time-pressed, place-bound adults” who have some college credits but no degree, who

need maximum flexibility to complete their degrees, and who usually have substantial work experience (New Measure for Collegiate Learning, 2015). The participant in my case study was such an adult learner. His story provided a useful example for future students with similar backgrounds who are interested in CBE degree programs. Students will find my study helpful because it described in detail what it was like to go through an online CBE degree program from a peer's perspective. Students will also learn about the possible challenges and advantages of pursuing their degrees through a CBE approach so they have a better idea of what to expect. Finally, my study may help certain students decide whether CBE is the right choice for them.

Significance for me as researcher. My study was very meaningful for me personally because it gave me the opportunity to conduct an in-depth investigation into an existing competency-based education (CBE) degree program, and the opportunity to work closely with a student to attain his goal of a college degree. For the past two years, I have been serving as the leader and coordinator of CBE initiatives at my college. To fulfill the duties of this role, I need to learn every aspect of CBE and become well-informed about the potentials and drawbacks of CBE. Learning from the experiences of another institution and a student at that college was an effective way of learning. Through conducting this case study, I was able to gather detailed information about an existing CBE degree program offered at a public four-year institution, and I was able to obtain an insider view of the program from a student's eyes, which greatly informed my own practices in leading CBE development.

More importantly, my study gave me a unique opportunity to work with a nontraditional adult student through his alternative pathway to a bachelor's degree. I

watched and listened to his struggles and accomplishments. I heard his voice and witnessed his experience as he trekked along his journey to earn a college degree. Through my study, I learned about what a student really wanted and needed from us in higher education. This experience taught me how to become a better teacher, which is valuable to my future experience of working with students. Last but not least, I gained great satisfaction from watching a former student of mine obtain his educational goals, which made my study particularly important for me on a personal level.

My Bias, Positionality, and Assumptions the Researcher

Competency-based education (CBE) is of great interest to me because I was selected as a presidential fellow to spearhead CBE initiatives at my school, Central New Mexico Community College (CNM), in fall 2014. Since then, I have been one of the key personnel to facilitate CBE development efforts at CNM. During the past two years, I did extensive reading on CBE; I studied CBE models from a variety of institutions; I attended multiple conferences to learn about CBE; I shared my learning with faculty and staff at CNM; and I led a campus-wide CBE project team. As the CBE leader at my job, I'm definitely a proponent of CBE and I have a favorable opinion about the potential of CBE to serve students who have difficulties to pursue a college education through traditional degree programs. Specifically, I believe that CBE is a promising reform strategy to increase access to higher education, improve efficiency of higher education, and reduce the cost of higher education. In the meanwhile, I also understand that CBE is certainly not a silver bullet: its limitations and drawbacks need to be carefully examined; a CBE program has to be well designed and implemented to truly realize its potential to benefit students. My belief system in CBE has guided the construction of my research as I

designed this case study to investigate the benefits, limitations, and challenges to implement a CBE program. My role as a CBE proponent and leader is both helpful and limiting to my research. It is helpful because my role has allowed me to collect a significant amount of information on CBE from existing literature as well as from talking to other CBE programs around the country; it is helpful also because I have first-hand experience with trying to develop a CBE program at my own college and therefore, I understand what is all involved in making a CBE program possible. It is limiting because my role as a CBE proponent and leader may hinder my perception into the drawbacks of the CBE approach. During my study, I had to closely monitor my own perceptions to remain neutral and open to what was working as well as what was not working for my participant enrolled in a CBE program.

My positionality in the study is two-fold: I'm both a supporter of the participant and an outsider researcher. The participant was a former student of mine; therefore, I already established a relationship with him and I was familiar with his abilities and personalities; on the other hand, the participant knew me prior to the study and felt comfortable with me throughout the study. Over the course of my research, I provided him with regular encouragement and guidance because I believed in him and I liked to see him succeed. In this sense, I was not just a researcher whose only focus was to collect data from the participant; I was a strong advocate of my participant to succeed in his CBE program. At the same time, I was an outsider researcher in my study who was not affiliated with the targeted CBE program or the institution that offered it. My goal as a researcher was to conduct an in-depth study of the CBE program and the participant's experience in the program from an outsider's perspective.

Before I began the data collection process, I had a few assumptions about the participant's experience based on my knowledge of CBE. My first assumption was that nontraditional students and adult learners could definitely benefit from the flexible nature of CBE programs especially when they were juggling family, work, life, and school. My second assumption was that although self-paced learning offers great convenience to adult learners, it also poses a significant challenge to student's academic progress because it takes strong motivation and discipline for a student to stay on track and maintain an adequate rate throughout a self-paced degree program. My third assumption was that adult learners could apply their rich life and work experience to accelerate through a CBE program by demonstrating competencies in areas they had already mastered; therefore, adult learners could potentially progress much faster in a CBE program than traditional college students who were new high school graduates with little or no real-world work experience. My final assumption was that CBE would hold all students to a higher standard of learning than the traditional format of college classes where some students earn merely a passing grade yet still get full credits for the course. I assumed if designed and implemented well, CBE could lead to better student learning outcomes because all students had to demonstrate mastery of required competencies. During the data analysis process, I carefully compared the data to my own assumptions and strove to minimize the influence of my personal assumptions and stance on the results of my study.

Patton (2002) states that the instrument of qualitative research is a human being. Merriam (2002) also states that reality in qualitative research is dependent on multiple interpretations by researchers and participants. As I came into my study with prior experiences and beliefs about the subject of the study, it brought challenges that I had to

overcome as the researcher. It was imperative during every phase of my study to separate my own experiences and beliefs from the stories the participant told and the observations I made.

Summary

A new trend in American higher education is rising, and it is toward competency-based education (CBE). “Although a handful of institutions have had some kind of CBE programs for some time,” CBE “is largely uncharted water” for colleges and universities in America (Ellucian, 2016, p. 4). My research was designed to explore the uncharted water of CBE through a case study. The following chapters of my dissertation will present a literature review of CBE, illustrate the methodology of my research, and discuss the findings from my study.

CHAPTER 2

LITERATURE REVIEW

Across the United States, the enthusiasm around competency-based education (CBE) is growing swiftly and the number of institutions jumping on the CBE bandwagon is increasing rapidly. The idea of my dissertation was born amidst the reality of a “CBE Frenzy” in the realm of higher education. I designed my study to investigate a single student’s experience in one particular CBE degree program with the purpose of understanding how CBE was transforming the practices of traditional higher education and how it was serving the needs of students, particularly nontraditional adult students in higher education.

To set up the background for my study, I believe it is necessary to review the following issues through existing literature: What is CBE and how is it different from traditional formats of higher education? Why is CBE attracting widespread interest? What are the potential benefits of CBE? What are the critiques of CBE? What is the current landscape of CBE across the country? The answers to these questions lay a foundation for understanding a student’s CBE experience described in my study.

What is competency-based education (CBE)?

The history of CBE. Competency-based education (CBE) is not new. According to Brown (1994), the competency-based training and education model can be dated back to as early as the First World War. In fact, Brown describes sequential “generations” of competency movement: the first generation can be traced to the application of scientific management to the workplace in the context of the efficiency movement to support the waging of World War I. The second generation involves the development of mastery

learning models in the U.S. during the 1920s and 1930s. The third generation was primarily concerned with formative vocational training, and reflected instruction design informed by psychology and behaviorism, namely, the work of B.F. Skinner.

The teacher education movement in the U.S. during the 1960s represented the fourth generation, moving beyond vocational training to education. This is also when the word “competency” first appeared to refer to measurable behavioral objectives that could specify what a learner should be able to do and at what level. The fourth generation marked the beginning of the modern competency-based education and training movements (Brown, 1994 & Ford, 2014).

The renewed interest and popularity in CBE today can be argued as a new generation of the competency movement, which is characterized by “online learning, advances in learning analytics and adaptive learning technology,” and “the increased emphasis on direct assessment of competencies” rather than traditional courses (Ford, 2014, p. 3). “Until recently, CBE programs were primarily a ‘niche’ offering targeting adult learners” in the higher education market. Recent calls for productivity, accessibility, affordability, and accountability from the higher education sector “have prompted expanded interest in the development of major CBE initiatives” (Ford, 2014, p. 3).

The definition of CBE. Although rich in historical precedents, CBE has just recently begun to capture the imagination of people in the education industry. Today’s competency-based education is an emerging and evolving field. There is no universally shared definition of what makes competency-based education. Various implementers also approach CBE differently. However, underlying a plethora of institutions and practices are three key elements that characterize CBE:

- **Mastery:** An effective CBE program has a clear definition of mastery, along with procedures and tools for tracking and measuring that mastery (Priest, Rudenstine, & Weisstein, 2012). “Students advance to the next level, course, or grade based on demonstration of skills and content knowledge as outlined in clear, measurable learning objectives that hold all to the same high academic standards” (Le, Wolfe, and Steinberg, 2014, p. 4). If students cannot demonstrate mastery of targeted competencies, they simply continue to practice or relearn the material until they can demonstrate mastery.
- **Pacing:** An effective CBE program uses time flexibly by releasing students from seat time requirements and re-organizing teaching and learning around mastery of competencies, regardless of the speed at which it is achieved (Priest, Rudenstine, & Weisstein, 2012). “Students progress at different rates in different areas, rather than on a teacher-driven, class-wide schedule.” Students who do not demonstrate mastery of a competency on the first attempt can continue learning and have multiple opportunities to try again (Le, Wolfe, and Steinberg, 2014, p. 4). Whether the students are proficient learners or struggling learners, allowing students to learn and progress at a pace that fits their individual needs is a key element of CBE.
- **Instruction:** An effective CBE program features tailored instruction to individual students. “Students receive customized and personalized supports to match their individual learning needs to keep them learning increasingly challenging material in a developmentally appropriate and motivating

manner.” Students who are proficient learners are challenged to move faster through the instructional materials and receive the support they need along the way; students who are struggling in any area will also be able to reach proficiency after receiving personalized assistance and spending more time to practice in the area (Le, Wolfe, and Steinberg, 2014, p. 4).

“The basic idea underlying CBE is simple:” students are awarded credits based on demonstrated competencies rather than the amount of time the students have spent in a course (Baker, 2015, p.ii). Instead of having each student march through the same semester-long course and awarding credits at the end (with grades of A to F that may or may not capture the mastery level of course material), “CBE models award credits as soon as students show how they have mastered a particular set of content and skills.” Students progress at their own pace toward clear learning outcomes “through a series of assessments designed to measure competence” (Baker, 2015, p.1). Although the basic idea underlying CBE is intuitive and straightforward, giving a clear and accurate definition to CBE has been difficult.

In 2011, one hundred innovators in CBE across the country came together for the first time. At that meeting, "participants fine-tuned a working definition of high quality competency education" (Sturgis, Patrick and Pittenger, 2011, p.6):

- Students advance upon mastery.
- Competencies include explicit, measurable, transferable learning objectives that empower students.
- Assessment is meaningful and a positive learning experience for students.

- Students receive timely, differentiated support based on their individual learning needs.
- Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions.

This working definition provides elements of a high-quality CBE approach. Developing a CBE program requires alignment around these five key elements. Since its creation, this working definition of CBE has been widely accepted and used by CBE practitioners, administrators, and policymakers.

The differences between CBE and traditional higher education. Many Americans are familiar with what a traditional college or university looks like. In traditional models of college or university, most students take a number of courses each semester on a physical campus or in an online environment until they have collected enough credits to graduate (Baker, 2015). Competency-based education (CBE) distinguishes from a traditional higher education approach by a few key features. First of all, “a CBE degree is defined by a series of competencies, rather than the accumulation of credit hours in a variety of academic disciplines” (Porter, 2014, p.4). Rather than simply accumulating credit hours by taking and passing courses, students in CBE programs must demonstrate their achievement of each competency regardless of seat-time requirements. Second, all learning outcomes, or “competencies,” often derived from specific career preparation and industry standards, are precisely defined and measurable. Third, students must demonstrate mastery of each competency before moving on to the next. Some CBE programs allow students to skip the content related to a competency if

they can demonstrate mastery of the content through an assessment. This leads to a final characteristic common to CBE: it has the potential to accelerate the student’s progress through an educational program (Person, Goble, & Bruch, 2014) and focus learning among students where they need it most. Table 2.1 further illustrates the major differences between traditional academic programs in higher education and CBE programs (Blank, 1982):

Characteristics	CBE Programs	Traditional Programs
How degrees/certificates are defined	defined by a series of competencies	defined by accumulation of credits through taking and passing classes in a variety of disciplines
What students learn	<ul style="list-style-type: none"> • Are based on specific, precisely stated learning outcomes/competencies that have been recently verified as being essential for successful employment in the career field for which the student is being trained. • The competencies describe “exactly what the student will be able to do upon completing the program” (Blank, 1982, p. 40). 	<ul style="list-style-type: none"> • Are usually based on course outlines or textbooks. • Students rarely know exactly what they will learn in each successive part of the program. • Curriculum is built around chapters, units, blocks or other segments. • The curriculum has limited relevance to the occupation.
How students learn	<ul style="list-style-type: none"> • Student-centered learning with individualized pace • Students can stop, slow down, speed up or repeat instruction as needed to learn the materials effectively. 	<ul style="list-style-type: none"> • Instructors personally deliver most of the instruction through demonstrations, lectures, discussions and other teacher-led activities. • Students have little control over the pace of instruction.
When students progress	Students advance upon mastery. Each student has enough time to fully master one task before being allowed to move on to the next.	A group of students spend the same amount of time on each unit or chapter. The group then moves on to the next after the unit/chapter is covered.

How students' learning is assessed	<ul style="list-style-type: none"> • Use performance-based assessments to measure each student's ability to apply the knowledge in a real-world situation. • Each student has to achieve mastery on the target competencies. 	<ul style="list-style-type: none"> • Rely heavily on paper and pencil tests. • "Students are allowed to move onto the next unit after only marginally mastering or even failing the current unit" (Blank, 1982, p.41).
------------------------------------	--	--

Table 2.1: A Comparison of CBE Programs and Traditional Programs

CBE is fundamentally different from the traditional way higher education is delivered in the United States because CBE is built upon a different theoretical paradigm towards learning. "Traditional higher education programs hold time constant;" for example, students must complete 120 credit hours to earn a bachelor's degree; but they "allow the amount of demonstrated learning during that time to vary;" for example, students can earn different course grades and still receive the same number of credit hours. "CBE programs aim for the opposite: the standards for demonstrated learning are held constant, but the amount of time students must spend to reach those standards can vary" (McClarty & Gaertner, 2015, p.1).

Conclusion of CBE definition. CBE "isn't a classroom practice or an add-on program." It is a theoretical paradigm shift toward teaching and learning. It is "a re-engineering of our education system around learning" in which "failure is no longer an option." It is "a new learning regimen that requires students to show proficiency in core competencies in each subject—with no exceptions" (CompetencyWorks, n.d., para. 5). CBE rejects "the idea that a student must spend a certain number of hours in the classroom in order to progress through college," and instead emphasizes that "demonstration of knowledge and skills is what truly matters" (Porter & Reilly, 2014, p. 3).

What Are the Building Blocks of CBE?

There are two main building blocks needed for any competency-based education (CBE) program: (1) a competency framework, which includes a set of clearly defined competencies that students are expected to demonstrate in order to earn a degree/certificate, and (2) competency assessments, which include valid and rigorous assessments tied to those competencies. CBE program models take various forms, but most programs include these two building blocks (McClarty & Gaertner, 2015).

A competency framework. At the turn of the 20th century, Andrew Carnegie created the credit hour as a faculty workload measure for pension purposes. Although “the credit hour was never intended to be a measure of student learning,” “over the years, the credit hour’s use has expanded beyond measures of time to serve as a proxy for measures of learning” (Laitinen, 2012, p.4-5). Today, credit hour represents the currency and building blocks of most higher education; all operations in higher education revolve around the credit hour, from admissions to tuition, from financial aids to transcripts, from graduation to faculty pay.

However, time and learning are not the same; time does not equal learning. Instead of using credit hour as a measure of learning, CBE uses competency as a measure of learning. What is competency?

Bramante and Colby (2012) define competency as “a student’s ability to transfer content and skill in and/or across content areas.” This definition emphasizes that students not only have to learn important content information and skills, but also have to demonstrate that learning by applying the content and skills in unique ways. In the 21st century, an educated person is someone “who not only knows a lot of information but can

also put that knowledge to work.” CBE programs use the term “competency” to “reflect this combination of knowing and doing” (Klein-Collins, 2013, p. 5).

The National Postsecondary Education Cooperative—NPEC’s work group defines competency as “a combination of skills, abilities, and knowledge needed to perform a specific task” (as cited in Voorhees, 2001, p. 8). In this definition, performing a specific task is the ultimate goal of learning; a combination of skills, abilities, and knowledge is the tool used to achieve the goal. For example, a competency from a teacher education program may be stated as: students will be able to design instruction that addresses challenges to effective delivery. In this competency, the goal is to design effective instruction; to achieve this goal, students will need a combination of knowledge, skills, and abilities related to the effective delivery of instruction.

Competencies “mark empirical performance” and posit “a documented execution” (Klein-Collins, 2013, p. 5). The concept of competency should include both knowledge and demonstration of that knowledge in real ways. Students must go beyond mere knowledge acquisition and demonstrate that they can apply what they have learned in different situations. This is no simple task: competencies call for learning that goes beyond factual memory and basic skills; competencies require deeper understanding of the content and higher order thinking skills necessary to integrate those knowledge and skills into an appropriate process of decision and action in real-world settings.

Using competencies to measure learning has several advantages. First of all, competencies are transparent. There is no mystery in what students are expected to learn and be able to do. In addition, if a learner has not mastered one or more competencies in a learning process, he/she can return to those particular competencies rather than having

to repeat one or more traditional courses. Furthermore, competencies also provide students with a clear map and the navigational tools needed to move rapidly toward their goals (Voorhees, 2001). There is minimum guessing or uncertainty in what courses a student should take to fulfill their degree requirements. Finally, a transcript of competencies can more clearly convey the learning that has taken place, compared to the traditional transcript that simply lists all the classes a student has taken and the grades earned in those classes. For instance, when we see on a traditional transcript that a student passed a 3-credit psychology class, we know the student learns something about psychology; but we don't know exactly what skills and knowledge this student has acquired in psychology from reading the transcript. A transcript of competencies will be able to tell us what skills and knowledge this student has acquired and demonstrated in psychology.

According to McClarty and Gaertner (2015), the competency framework describes the skills, abilities, and knowledge students need to perform specific tasks. "Competencies must be clearly defined, measurable, and related to the knowledge or skills needed for future endeavors, such as additional education or employment" (p. 2).

Competency assessments. The second building block of competency-based education (CBE) is competency assessments. With a focus on competency, these assessments require "students to demonstrate mastery on all essential knowledge and skills rather than merely attain lower levels of understanding" (Achieve & Center for Assessment, 2015, p.1). Competency assessments are used to determine mastery of competencies and award credits, degrees, or other certifications. The quality of these

competency assessments are highly important to a CBE program because they determine the value and integrity of a CBE credential.

Since CBE programs first came into existence, the quality of assessment has continued as a central concern. Back in the 1970s, CBE researchers concluded that the major development effort in CBE should not lie in the design of instructional materials but in the design of appropriate assessments. Today, that conclusion persists. Quality assessment is a necessary precondition for any CBE program's success.

What makes competency assessments different from assessments widely used in traditional higher education programs? Perhaps, in the CBE context, the most critical question answered by a competency assessment is how we know the student is competent. More specifically, a 2015 report by Achieve and Center for Assessment summarizes four characteristics of assessments used in CBE (p.1):

- Allow students to demonstrate their learning at their own point of readiness;
- Contribute to student learning by encouraging students to apply and extend their knowledge;
- Require students to actually demonstrate their learning; and
- Where possible, they provide flexibility in how students demonstrate their learning (e.g., through a presentation, research paper, or video).

As a core component of CBE, competency assessments should provide a meaningful learning experience for students, provide rich and reliable information to instructors so they can offer targeted and personalized support to students, and help validate determinations that instructors make about student proficiency or mastery of skills and knowledge (Achieve & Center for Assessment, 2015, p.1). Furthermore, competency

assessments in CBE “must align with industry standards and employers’ needs” to bridge the skill gap between higher education and the workplace (Ebersole & Goodyear, 2016, p. 3).

Competency assessments can take a variety of forms: objectively scored assessments (for example, those with multiple choice or true-false questions), performance based assessments (for example, essays, projects, presentations, portfolios, lab experiments), and real-world observations (for example, student teaching in the classroom and internships). Regardless of formats, competency assessments require criterion-referenced assessments: “the score is tied to standards for the competency, and what one student does has no effect on another student’s score” (Hoffman & Jones, 2016, p. 7). Given the importance of making decisions concerning student progress, student attainment of competencies, and the awarding of credentials, competency assessments in a CBE context must also have robust quality in terms of validity and reliability. Validity refers to accuracy of an assessment. Basically, an assessment is valid if there is appropriate evidence to support the inferences about what a student knows based on the assessment score. Reliability refers to consistency of an assessment: “people with the same levels of knowledge, skills, and ability should achieve the same results” on the assessment (Hoffman & Jones, 2016, p.14; McClarty & Gaertner, 2015).

The concepts of validity and reliability are foundational for all assessments, but they are particularly important in a CBE assessment environment for three reasons. First, CBE programs tend to make strong and specific claims about student achievement: a student either “has or has not attained a defined competency.” In a traditional program, “passing a class usually means that the student has grasped most of the important

concepts,” “but not necessarily that the student has mastered” all of the learning outcomes for that class. Second, in CBE programs, a student’s final grade is often heavily dependent upon formal assessments while elements such as attendance, participation, behaviors, or homework completion are often not considered. In traditional programs, “many more individual assessments (formal and informal)” as well as attendance and class participation typically make up a student’s final grade. Third, because CBE programs are new in higher education, they bear heavier burden than traditional programs to show that students come out of CBE programs “learning what they should” (Hoffman & Jones, 2016, p. 9).

In addition to validity and reliability, another important consideration in competency assessment is to determine the level of performance for competency. In other words, “what is the cut score that separates the competent from the not-yet-competent?” (McClarty & Gaertner, 2015, p. 3). This process is known as standard setting in educational assessment. In the process of standard setting, discrete levels of achievement on an assessment are defined and then cut scores are set to separate those levels. In some cases, two levels of performance are sufficient: pass or fail. In other cases, more levels of performance are useful to further differentiate performances (McClarty & Gaertner, 2015). Either way, an explicit link must be established between defined competencies, performance on assessment, and decisions resulting from that performance (Hoffman & Jones, 2016).

Conclusion of CBE building blocks. A competency-based education (CBE) program is comprised of two building blocks: a competency framework and a series of competency assessments. The competency framework will guide the content and the

structure of the program; it will also determine the types of assessments needed to evaluate student learning. Competency assessments “provide a type of certification or guarantee that the graduates receiving the degree or credential in this manner have been found competent,” not only in terms of their knowledge in a specific field, but also in terms of their ability to apply that knowledge in the real world (Ebersole & Goodyear, 2016, p. 1). The competency assessments must be of high quality to ensure the integrity of a CBE program.

Why Is CBE Gaining Popularity?

While competency-based education (CBE) is not a new concept, there are a number of reasons why it is gaining renewed popularity among educators and policy makers today. These reasons include: demands of the economy, technological advances in education, flexibility and affordability of CBE model, as well as needs of learners in the 21st century.

Today’s demand for CBE reforms is, first and foremost, “fueled by the expanding global economy, which has transformed the U.S. labor market over the past decade” (Le, Wolfe, & Steinberg, 2014, p.2). It is broadly recognized that most jobs soon will require some sort of postsecondary credentials (Carnevale, Smith, & Strohl, 2013). The need for citizens of the U.S. with postsecondary education could not be higher today. “From the White House to the Lumina Foundation, national calls are for 60 percent of the U.S. population to have a postsecondary degree by the year 2025.” Currently, only 41 percent of the U.S. population has such a degree. This means we will need to increase the number of college graduates by about 20 percent in the next ten years, which equals to almost 64 million more U.S. citizens (Brower, 2015). As a result, we are grappling with “the

greatest challenge of our current era—preparing all students from all backgrounds for college and careers” (Le, Wolfe, & Steinberg, 2014, p.1). This challenge is pushing many people to take a hard look at our traditional higher education system and CBE has emerged as one of the promising reform strategies.

Second, recent advances in technology, including online education, adaptive learning, interactive tutoring and mentoring, and learning analytics, have added to CBE’s potential (Baker, 2015) to enhance the learning experience. These extraordinary technological advances allow CBE to provide greater flexibility for students to learn at their own pace, anytime and anywhere; they can also allow greater personalization and tailor instruction to meet individual needs, interests, and learning styles (Priest, Rudenstine, & Weisstein, 2012).

Finally, CBE attracts support because it is designed to serve non-traditional adult students who have long been underserved by the traditional format of higher education. Because CBE decouples learning from time, nontraditional students are able to break free restrictions of seat-time and better fit school around their work schedules. In addition, CBE allows students to apply their wealth of life and career experience to obtain college credits, thus shortening the amount of time they need to finish their degrees (Chen, 2014). “Flexibility, the ability to learn at a distance, and a focus on competency makes CBE an ideal way to promote access to students traditionally underserved by higher education” (Porter, 2014, p. 4).

How can CBE benefit students? According to the United States Department of Education, competency-based education (CBE) models, in favor of a structure that creates flexibility and personalization, lead to better student engagement and better

student outcomes (U.S. Department of Education, n.d.). More specifically, CBE has the potential to allow students to graduate more quickly, save money, gain marketable skills, as well as achieve deeper and better learning.

CBE and productivity of higher education. CBE programs can allow students to graduate more quickly. Because seat time is no longer a requirement, students who have become proficient in a variety of areas through work or life experience can in turn rapidly establish those competencies without having to sit through a course. The flexibility of a CBE model allows students to demonstrate what they already know and devote their energies and time to areas in which they are not yet competent, which means students can fast-track their way to their degree or credential (Chen, 2014).

CBE programs can potentially save students money. The cost of higher education rose more than 600 percent between 1980 and 2010. The average cost for an in-state public college for 2013-2014 was approximately \$9,000 per year, while private schools cost close to \$30,000 per year on average, not including books and other resources. CBE helps address the cost and accessibility issue of higher education by providing access at a more affordable rate (Complete guide to competency-based education, n.d.). In theory, CBE could be more cost-effective for a number of reasons. First, if the price per credit between traditional and competency-based models is similar, then CBE programs “could save students money if they are able to progress through coursework more quickly, lowering the opportunity cost of being in school” (Kelchen, 2015, p.8). Second, cost savings could also result from students’ ability to transfer in previous college credits and to earn credits through prior learning assessments that cost relatively less than credit hours. Third, new tuition pricing models might also lower the cost of attendance. The “all

you can eat” subscription model, in which students pay a flat tuition for a set period of time and can earn as many credits as possible during that period, may drive the cost of tuition down if students are able to complete more credits during the fixed period of time.

CBE programs may also improve productivity in preparing students for the workplace. As CBE focuses on “targeted and specific learning outcomes as well as identifiable skill sets meaningful to employers, it serves as an important link between learning outcomes and industry needs” and it has the potential to “bridge the gap between traditional postsecondary education and the workforce” (Weise, 2014, p. 28). As opposed to blurring the line between learning and work, CBE ties learning explicitly to skills that equip students for the workplace because “competencies can provide a clearer signal of what graduates know and are able to do” (Baker, 2015, p. i). As for the students who need to “skill up” to move ahead in their careers, “more time spent in college or graduate school is not often the answer” (Weise, 2014, p. 28). CBE can potentially fit the needs of this group of students by breaking learning down into competencies, rather than by courses or by subject matter, and creating modules of learning that can be easily arranged and combined into skillsets and stackable credentials relevant to the workforce (Weise, 2014). With this modularized approach, students may choose specific competencies they need to gain as a focus of their study rather than have to go through an entire certificate/degree program. In short, whether it is for students who are looking to enter the workforce or for students who are looking to “skill up” in the workforce, CBE could provide a streamlined and efficient pathway for them.

CBE and quality of learning. Competency-based education (CBE) can potentially lead to deep learning. In a traditional time-based system, students may achieve

variable amounts of learning in fixed amounts of time; this system may result in students having varying levels of knowledge gaps as they move through the educational system with passing grades (Patrick, Kennedy, & Powell, 2013). CBE relies on students demonstrating their mastery of competencies toward the attainment of a degree or diploma, and therefore, can be much more rigorous. For students, the CBE model is more challenging because they are not able to get away with a merely average understanding of the materials or get by with earning a passing grade.

CBE can lead to deep learning by providing “redefined high-touch teaching.” Advances in educational technology enable instructors to monitor students’ learning better than they might be able to do in a classroom setting (Weise, 2014). Weise (2014) states that:

there is nothing innately personal about a professor lecturing to a classroom of students or leading even the smallest seminars in which any number of students can drift off or get away with being attentive or with not having done the assigned work relevant to the discussion (p. 32).

In an online CBE environment, instructors access a dashboard that can immediately reflect the concepts a student might be struggling to grasp or the lack of progress a student is making. Through frequent online assessments and low-stakes exercises, the recently-developed CBE learning platforms, such as Ellucian Brainstorm, Motivis Learning, and Flat World, can perform learning analytics and capture a student’s mastery of competencies and progress of learning. The platforms can alert the instructor if a student is struggling with an exercise or falling behind in his/her studies. The instructor can then intervene and help the student promptly. New educational technology

has the ability to generate rich and relevant data about each student's performance; instructors can access these data and provide specialized tutoring for each student as needed. These data-driven interactions between teachers and students redefine the traditional idea of high-touch pedagogy: face-to-face interaction doesn't equate high-touch instruction; proactive, just-in-time, and personalized assistance to individual students is high-touch. "Ultimately, instructors can guide the learning process in an efficient yet highly tailored fashion" within a CBE program (Weise, 2014, p. 33).

CBE can lead to better learning by placing students at the center of their education experience. A CBE system "enables personalized learning by opening the system constraints to allow multiple pathways for demonstrating what a student knows and can do" (Patrick, Kennedy, & Powell, 2013, p. 24). In CBE models, where learning is the constant and time is a variable, each student's needs and interests can be addressed through tailored instructional environments. Students are expected to demonstrate the same high level of mastery, but they can get there in different ways based on a student's own unique needs, goals, strengths, and preferences (Patrick, Kennedy, & Powell, 2013).

Le, Wolfe and Steinberg (2014) identified four key conditions under which students are more engaged, more motivated, and achieve better learning outcomes: (1) education is personalized to their needs; (2) students can advance upon mastery of clear learning outcomes; (3) students have a range of learning opportunities in and out of school; and (4) students have voice, choice, and agency in their learning experiences. CBE customizes a student's educational experience to allow for individual pacing and progression, which is an antidote to the factory model of education. CBE pushes

educators to see each individual student and to “get the right support to the right students at the right time” (Priest, 2014).

CBE and adult learners. Competency-based education (CBE) is especially beneficial for adult learners. Adult learners over age 24 currently comprise about 44% of students enrolling in U.S. postsecondary institutions. Students who have work or family commitments “represent a large and growing share of the college-going population.” In today’s higher education, twenty percent of undergraduate students work full time and more than seventy percent of undergraduate students work at least part time. Nearly a quarter of undergraduate students are parents with half of those single parents (McClarty & Gaertner, 2005, p. 1). No longer is the traditional, financially dependent, 18 to 21-year old high school graduate the typical college student. More and more adults are looking for ways to upgrade and expand their skills to succeed in today’s workforce (Chao, DeRocco & Flynn, 2007).

According to data from the U.S. Census Bureau (2004), over 60% of the U.S. population between the ages 25 and 64, which is about 64 million people over 25 years of age, had no postsecondary education credential. Although the number of Americans earning postsecondary credentials is rising, the pace of progress is slow. According to a 2014 report by the Lumina foundation, “38.7 percent of working age Americans (ages 25-64) have earned a two- or four-year college degree. That figure is up slightly from 38.3 percent and 38.1 percent in 2010 and 2009 respectively” (Kamenetz, 2014 & O’Shaughnessy, 2013). With nearly four out of ten Americans not continuing their education beyond high school, the pace of educational attainment in America needs to be faster (O’Shaughnessy, 2013). On the other hand, the development of world economy

increasingly demands a more educated workforce with postsecondary skills and credentials. The 2014 Lumina report tells us that 65% of U.S. jobs will require some form of post-secondary education by 2020. Compared to the fact that fewer than 40 percent of Americans are educated beyond high school today, the U.S. is facing a “talent gap” (Kamenetz, 2014 & O’Shaughnessy, 2013). If we don’t address the gap between the demand of the modern workplace and the lack of postsecondary qualification among many in the adult population, “the United States runs the risk of being hobbled economically” (Chao, DeRocco & Flynn, 2007, p. 2).

Although a growing number of adults are participating in postsecondary and work-related programs, as many as 37 million more adults are interested in pursuing postsecondary credentials but unable to participate (Chao, DeRocco & Flynn, 2007). Adult learners face significantly different challenges to completing a postsecondary education program than students who enroll in college immediately after high school. According to Chao, DeRocco & Flynn (2007), four major barriers have been identified as primary to furthering education among working adults: lack of time to pursue education, family responsibilities, scheduling of course time and place, as well as the cost of educational courses. These obstacles pose challenges to adults in terms of both access to postsecondary programs, and persistence and success.

Today’s higher education institutions—two-year and four-year, continue to favor traditional, financially dependent, 18 to 21-year-old high school graduates who enroll full time. For many adult learners, the practices and policies of the higher education system are failing to serve their needs. As adult learners are opening up a huge market for higher education, postsecondary institutions need to be more responsive to their needs and

interests. The question is not how to fit the life of an adult student into an educational system geared towards 18-to 24-year-old full-time college students, but how to incorporate quality education experiences and opportunities into an adult student's existing life (Brower, 2015). According to Chao, Derocco, & Flynn (2007), higher education programs need to focus on three areas to better meet the needs and interests of adult learners; these three areas include: accessibility, affordability, and accountability. Accessibility refers to greater flexibility and more accelerated learning options for adult learners; affordability concerns strategies of student aid and institutional financing; and finally, accountability emphasizes aligning the quality and outcomes of educational programs with the needs of adult learners.

CBE offers a model with advantages in areas of accessibility, affordability, and accountability. First of all, CBE features flexible structure and duration of courses and programs, including open-entry/open-exit, year-round scheduling, self-pacing, shorter learning modules instead of semester-long courses, etc. These flexible options make it possible for adult learners to fit school into their busy schedules. Second, as discussed earlier, CBE has the potential to significantly reduce the cost of postsecondary education and save students money. The cost savings can be achieved through accelerated learning path, prior learning assessments, as well as subscription tuition model. For adult learners who often have significant financial responsibilities, affordable programs make college education accessible. Last but not least, in addition to its flexibility and affordability, CBE is about quality of learning. With an outcome-driven approach, CBE aims to equip adult learners with the competencies they need to succeed in today's workplace. Because of its advantages in accessibility, affordability, and accountability, CBE is particularly

ideal for adult learners and it can help adult learners' access to and success in higher education.

Dr. Robert Mendenhall, the president of Western Governors University, says: “we know two things about adult learners—they come to higher education knowing different things, and they learn at different rates” (2012). Recognizing this reality, CBE matches the education to individual students. Unlike a one-size-fits-all approach, it allows adults to come back to college and apply what they have learned, either through previous formal education or their work and life experience. It also allows adults to learn at their own pace and on their own schedule, moving quickly through materials they already know and focusing on what they will need to learn. For many adult learners, this means saving both time and money.

How can CBE benefit institutions? Establishing a CBE program is not an easy undertaking; establishing a CBE program within the existing infrastructure of a traditional institution is even more challenging. However, why are so many institutions across the country still moving in this direction?

First, CBE degree programs can be appealing to the institution's potential applicant pool. CBE programs have the potential to attract students, especially nontraditional students and disadvantaged students, with flexible scheduling, faster completion of degree, and lower tuition cost as they often claim.

Second, some institutions may view CBE degree programs as congruent with their mission. Institutions adopting CBE are often not residential, research-focused universities; they are usually institutions with a strong emphasis on undergraduate teaching and student learning, often with large nontraditional student populations (Porter

& Reilly, 2014). CBE programs strongly emphasize learning and demand evidence of learning; students cannot progress through the program unless they can demonstrate mastery of competencies. Such an emphasis on student learning outcomes is consistent with the core mission of those schools who view themselves as teaching institutions. In addition, CBE programs emphasize intense student-faculty contact and one-on-one mentoring. These programs often assign a faculty mentor or academic coach to each student (the ratio of students to mentor/coach varies from school to school depending on the size of the programs), who then guides the student through the entire program, checks in with the student regularly, and is there to intervene and help the student with any problems that may arise. Such practice of substantive faculty-student interaction is congruent with many institutions' mission on student success.

Third, institutions view CBE as a promising strategy to improve efficiency during a time of limited resources (Porter & Reilly, 2014). Two of the major strategies adopted by CBE programs to improve efficiency include disaggregated faculty roles and increased online enrollment. In the traditional context of higher education, each faculty member designs his or her own course materials and assessments, teaches the material in his or her own way, advises a group of students, and grades student assessments. The faculty member is playing multiple roles at the same time: course designer, lecturer, advisor, and assessor. In contrast, some CBE programs have adopted a disaggregated faculty role model, in which faculty duties are split across several different groups: instructional designers, subject matter experts, student advisors/mentors, graders and assessors, etc. Each course/competency is taught the same way by different faculty members using the same assessments, and different groups of faculty members specialize

in their strengths, for example, designing curriculum, mentoring students, teaching concepts, rather than have to do a little bit of everything. In theory, this model of specialization might lead to increased productivity, as each group focuses on one main task only (Porter &Reilly, 2014).

Because most CBE programs are implemented online, institutions may also save cost in building investment and in-person amenities. Online CBE programs can increase student enrollments at a lower cost than with new residential degree programs. However, to scale up online education requires significant information technology investment, which might not be cost-effective for the institution in the short run (Porter &Reilly, 2014).

Fourth, CBE is often appealing to potential employers of their graduates. CBE “reorients the educational process toward demonstrated mastery and the application of knowledge and skills in the real world” (Johnstone & Soare, 2014). This reorientation is beginning to bridge the gap between postsecondary education and the workplace by building a better understanding of the knowledge and skills students will need to succeed in the workplace. CBE can also increase the transparency of what a graduate is able to do by providing a competency transcript that outlines all the competencies and level of mastery a student has achieved. An employer will, therefore, receive a clearer picture of a potential employee’s specific abilities and skills, unlike with the traditional college transcript where employers can only see a student’s GPA and a list of courses the student has completed. The competency transcripts can better communicate a graduate’s value to employers, which may lead to a more

transparent system that highlights skillsets and dispositions meaningful to an employer (Weise, 2014).

How can CBE benefit employers? “The inability to innovate, losing your competitive advantage, the high costs of reckless hiring, poor leadership and communication, and regulatory nightmares” have been identified as the five major threats to businesses. Of the five threats, all but regulatory nightmares can be linked to employee competency or the lack thereof (Johnson, 2012). Employers need competent employees capable of problem-solving, communication and innovation. Competency-based education (CBE) can potentially meet this need.

In theory, CBE programs are designed to teach students what employers need. Even with degree areas that don't necessarily have specific employers, such as liberal arts and general science, the CBE approach may emphasize transferrable competencies applicable to the general workplace, such as communication and critical thinking competencies. In CBE, required competencies for each degree/certificate program are usually defined in collaboration with employers to ensure that students graduate with real-world knowledge and skills employers recognize and need. In a CBE program, learning outcomes articulate precisely what knowledge, skills, and abilities are to be mastered and to what degree they will be mastered by the students. This transparency is very attractive to employers (Johnson, 2012).

In the past, employers often put their faith in higher education institutions' reputation as general indicators of the quality of a degree and the quality of a graduate. In other words, if an applicant is a graduate of a reputable college or university, the name of the college/university simply indicates the applicant's competencies. However, that

indicator is often misleading. With a partnership between employers and CBE providers, employers have a way to verify the learning accomplished in that CBE program through a graduate's workplace performance; employers can also provide valuable feedback to the CBE provider for program improvement (Weise, 2014). Furthermore, transcripts from CBE programs do a much better job of communicating a graduate's value to employers. For example, an applicant's transcript says that he has taken two 3-credit courses in history. An employer doesn't know what that means other than the applicant knows something about history. However, if you break it down in such a way that it talks about the specific knowledge of history, and the writing and analyzing skills the student obtained from the two courses, those are knowledge and skills an employer is more likely to understand and determine if they need in the workplace (Complete Guide to Competency-Based Education, n.d.).

Another important benefit to employers is that CBE can modularize the learning process, which makes it easier to create new learning experiences related to emergent fields of study and new skills in the workplace (Weise, 2014). For example, when a company wants to teach its employees a new line of production, a CBE modularized learning experience can be efficiently put together to teach targeted competencies related to the new line of production.

Last, employers might favor an educational model that allows learners to work on their schooling any time and any place. Students are in control of their time, resources, and effort and they are much more able to successfully balance work and school. Healthier work-study balance leads to healthier, more productive employees, which will in turn lead to more successful businesses (Johnson. 2012).

At this point, some CBE programs, such as UniversityNow and College for America, are working directly with employers and bringing a college education to frontline workers. By partnering with large companies, these CBE programs are putting a learning mechanism within the workplace for employees who are looking to further their education and move up the career ladder within their companies. In addition to flexible scheduling and self-directed learning, these programs also offer very reasonable tuition rates that employees may be able to cover through their companies' tuition assistance programs. Such partnerships allow employers to observe firsthand the effectiveness of CBE programs in terms of increased quality of work or outputs of their employees. Rather than complain about the effectiveness of higher education in preparing students for the workplace, employers have the opportunity to be directly involved in the education of their employees and build up the skills of their current workers (Weise, 2014).

So far, there has been anecdotal evidence of employer satisfaction with graduates of CBE programs. In a survey of 200 employers by Western Governors University (the leader and pioneer in CBE), 100 percent said that WGU graduates were prepared for their jobs and 96 percent of employers stated that WGU graduates exceeded their expectations (Complete Guide to Competency-Based Education, n.d.).

Empirical data on CBE benefits. Although competency-based education (CBE) sounds very promising in theory, its benefits, as claimed in the previous sections, have not been fully proven by empirical data. What does existing research suggest "the likely effect of" CBE on higher education "access, affordability, and attainment?" The American Enterprise Institute (AEI) analyzed 380 studies of postsecondary CBE

programs and prior learning assessment listed in the Department of Education's Education Resources Information Center (ERIC) database published between 1996 and 2015. What AEI found was that "existing research leaves many important questions unanswered" and "researchers have not conducted the kinds of rigorous empirical evaluations of CBE" that education leaders and policymakers could draw on to create effective policies. AEI's study "uncovered more than twice as many qualitative studies (228 articles) as quantitative ones (102 articles)." The studies in AEI's sample "focus on questions of program design and institutional practices," describing the process through which institutions have developed competencies, assessments, and programs." Far fewer articles have explored data on questions about "who actually enroll in CBE, how students fare in CBE programs compared to those in traditional programs, what outcomes CBE programs produce in terms of learning, progress, completion, and labor market success" (Kelly & Columbus, 2016, p. 1-2).

Some of this gap in research is due to the newness of CBE reform. "Dozens of programs have only recently emerged, and research on them is just getting underway" (Kelly & Columbus, 2019, p.2). Some of this gap in research is also due to the recent spike of interest in creating CBE programs. Because the CBE experimentation is still emerging and evolving, many new CBE programs "could be a few years away from a comprehensive study of their outcomes." According to AEI's study,

Early on, practitioners and researchers (of CBE) are mainly focused on trying to develop and implement effective programs, and descriptive work can help others identify the best practices. Likewise, formal evaluations of the model take time. Completion rates and labor market success take years to measure, and it is likely

best to wait until a program is fully implemented before evaluating it (Kelly & Columbus, 2016, p.9).

Among the available researches of CBE programs that did focus on student outcomes, the data were preliminary and the picture is seriously incomplete. Wang (2015) describes a qualitative research project by Young Inconvincibles, a national nonprofit organization that captures a general picture of students' perspectives on CBE. Using three focus groups conducted at three institutions that offer CBE program(s), one all-day on-campus interview, and an online survey, reaching 843 CBE students and non-CBE students (83% of survey participants were currently enrolled in CBE programs), the research arrived at the following key findings:

1. Flexibility is the hallmark benefit for CBE students.
2. CBE students varied significantly in the pace they set for their programs.
3. CBE works best for self-motivated learners who prefer setting their own schedules, but is likely not the best fit for all students.
4. Some CBE institutions have created academic and social support programs to help students navigate the highly individualized learning environment.
5. CBE students had a lot more confidence in their career preparation than traditional students, although the programs may struggle to teach certain "soft skills", such as teamwork.
6. CBE programs costs vary by type of program, pricing structure, and financial aid eligibility.
7. Students reported few people understood what CBE was, but it did not appear to be a barrier to program recruitment (Wang, 2015, p. 4-5).

In November 2015, *Inside Higher Ed* reports a preliminary snapshot of the general-education learning and skills of students who are enrolled in the CBE programs at Southern New Hampshire University's College for America. The CBE degree programs at College for America, using project-based curriculum design, "do not feature formal instruction and are completely untethered from the credit-hour standard." College for America used the Proficiency Profile from the Educational Testing Service (ETS) to assess a small group of students who are halfway through an associate degree program in core skills areas of critical thinking, reading, writing and mathematics. The Proficiency Profile test also gives "context-based" sub-scores on student achievement in the humanities, social sciences, and natural sciences. The test allows colleges to "benchmark their results on the Proficiency Profile against those from other institutions" because "ETS features comparative data based on results from 7,815 students at 27 associate degree-issuing institutions, representing a wide range of colleges, programs and students." The overall test results from College for America "placed its group of students at the 67th percentile. The students scored at the top -- the 100th percentile -- in reading and the natural sciences." The student scores "also looked good on the measure of critical thinking. It only lagged behind averages in mathematics, and not by much." According to INSIDER HIGHER ED, although this assessment of student learning outcomes is preliminary and the sample of students is small, the results are promising (Fain, 2015).

In August 2016, the CBE program at Texas A&M University–Commerce (TAMU-C) also reported preliminary data on its program performance and efficiency. The CBE BAAS (Bachelor of Applied Arts and Science) in Organizational Leadership at TAMU-C "was designed specifically to serve the needs of the over 3 million non-

traditional, working students in Texas with some college and no degree.” The program is fully online consisting of 99 competencies (for the equivalent of 120 standard credit hours). Tuition and fees are fixed at \$750 for Texas residents and \$2500 for non-residents for each seven-week term. Students can attempt as many competencies as possible in each seven-week term for this flat rate. The program has established metric framework to analyze student demographics, program performance and efficiency since its inception. Their data shows that students in the CBE program are taking, on average, six credits per seven-week term and maintaining a 3.05 GPA. Students are being retained at a running average of 86 percent. Since the program admitted its first class of students in January 2014, 66 students have graduated from the program. Recent graduate data shows that, on average, these students came to the CBE program at TAMU-C “with a significant 87 transfer credits;” they graduated “in less than a year with an average of 43 credits taken at TAMU-C” and “an average cost of \$4,891 to obtain their degree.” While still early in the history of the program, TAMU-C’s data suggests that students in its CBE program “can accelerate time to degree by a year” and “they are also able to do so while saving up to half the cost of a traditional program” (Rivers, 2016).

The research described by Wang (2015), the INSIDER HIGHER ED’s report on College for America, and the data from Texas A& M University-Commerce were all preliminary findings on the benefits of CBE. More studies are needed to collect systematic data from both early CBE programs and new CBE programs while CBE continues to evolve.

Conclusion of CBE benefits. A report by the Georgetown University Center on Education and the Workforce predicts that more than 55 million new jobs will be created

in America by the end of the decade and over 70 percent of these jobs will require a post-secondary credential (Carnevale, Smith, & Strohl, 2013). “Our higher education system needs new and innovative ideas to meet the changing needs of students and our workforce” (Box & LeBlanc, 2014). Competency-based education (CBE) represents an innovative initiative to “shake the walls of higher education” and to hit the academic world with new opportunities (Brahm, 2015).

CBE is gaining interest and popularity across the United States because theoretically, CBE can bring benefits to students, institutions, employers, and the nation in general. A time for a disruptive force in higher education has come and CBE has emerged as an answer in this time of need. However, in spite of potential benefits claimed by proponents of CBE, there is a lack of empirical evidence to prove the benefits of CBE to students, institutions, and employers. An extensive research base needs to be built to examine how CBE impacts student’s learning, how CBE prepares students for workplace and for life, how employers view CBE, and how CBE addresses access, affordability, and attainment issues in higher education.

What Are the Critiques of Competency-Based Education (CBE)?

Not everyone agrees with the rosy picture painted by enthusiastic proponents of competency-based education (CBE). In spite of its appeals and potentials, CBE is not without critiques. CBE has been criticized for its flaws in theoretical foundation, learning quality, and educational equity.

Flaws in theoretical foundation. Founded on behavioristic learning theory, some critique the competency-based education (CBE) models as theoretically flawed. Relying on “a crude form of behaviorism,” the competency-based model “attaches a great

deal of importance to performance over knowledge and understanding, and artificially separates the mental and physical components of performance” (Naranjo, 2012). That is, CBE overemphasizes the physical performance of learning and underestimates the importance of mental understanding of knowledge. According to Jacobus (2007), a behaviorist-CBE is narrowly utilitarian and uses an instrumental and functional approach to education that implies a fragmentation of subject. Furthermore, Jacobus provides a theoretical critique of CBE by pointing out that CBE ignores the educational process and focuses solely on educational outcomes.

A main weakness of CBE is that “it works well with some learning environments and less well with others (Bates, 2015, para.16).” In particular, CBE “does not suit subject areas where it is difficult to prescribe specific competencies or where new skills and new knowledge need to be rapidly accommodated” (Bates, 2015). With its main focus on immediate employer needs, CBE approaches learning from a utilitarian perspective and it is less effective in preparing learners with the flexibility and adaptability needed for a more uncertain future.

Flaws in learning quality. One claimed weakness with competency-based education (CBE) is that it does not result in adequate learning on the part of students, compared with what they would have learned in a traditional degree program. There is a perception that focusing on skills rather than on disciplines or ideas, and focusing on outcomes rather than on the experience of college is “a reductive, overly vocational way to approach what should be the lofty mission of higher learning” (Kamenetz, 2013). CBE’s reductive representation of learning puts emphasis on behaviors and performance but devalues cognitive skills, particularly thinking and reflecting (Naranjo, 2012). These critics

posit that while traditional college programs offer students an education with rich intellectual experiences, CBE programs can only offer students a certification of competencies.

Another missing piece of CBE is classroom participation and interaction with peers. “Competency-based education with its emphasis on personalization, viewed from the outside, is often seen as an individual pursuit that surely must compromise the social aspects of learning” (Priest, 2014). Contact and collaboration with peers is hard to foster when every student is working at his or her own pace. According to Neem (2013), “for most students, the experience of being in a physical classroom on campus with other students and faculty remains vital to what it means to get a college education.” CBE programs seek just to demonstrate a series of learning outputs while they fail to offer a significant number of diverse intellectual inputs that happen when students spend time interacting with instructors and each other in various classrooms (Kamenetz, 2013).

In terms of prior learning, some CBE programs give equal credit for students’ classroom, online, work-experience, life-experience, and video-, book- or game-based learning. As long as students demonstrate pertinent skills through assessments, they are credentialed, regardless of how those skills were obtained (Slaton, 2013). Although critics of CBE agree that learning is not limited to formal schooling and recognize that people learn as much from life as they do from school, they believe that to give credit for experiences that are not properly academic is “to undermine the higher academic—that is, intellectual purposes of formal higher education in the arts and sciences.” The non-academic realms—workplace, family, cultures, community, churches, etc.—are different in their goals, in their criteria, and in their materials (Neem, 2013); therefore, the kind of

learning obtained from those realms will be different from institutionalized academic experiences.

Flaws in educational equity. Another major concern with CBE is that it will make America's higher education less equitable. The development of CBE is likely to create a two-tiered education system where the “haves” can access traditional college programs while the “have nots” are relegated to new higher education models like CBE (Morris, 2015). A gap will continue to remain between students with CBE credentials and students with traditional university education. The values that underpin CBE and those on which traditional university education is based “are often seen to be at odds:” CBE focuses on the development of prescribed workplace skills while a traditional university education focuses on the general development of the mind. As a result, some academics view CBE approaches as too narrow and conformist (Bowden, n.d.) because in outcomes-focused CBE curriculums, it often strips “unnecessary” instruction and deems open-ended, liberal learning as wasteful (Slaton, 2013).

Whether CBE can contribute to educational equity in America is questionable because it does not necessarily provide a cheaper way to a college education for less privileged students. In response to many CBE programs’ promise to offer students a faster and cheaper way to a college credential, Phillips (2013) cautions “buyers” that “choosing a competency-based degree program can represent a costly step toward college failure.” When students buy education within the traditional system, they pay per credit or per course. The students then get an instructor-led course from beginning to end. Some CBE programs don’t charge by the course or by the credit. Instead, they charge for blocks of time. If students suffer from procrastination, they may pay for a full six months of

learning, often billed as “subscription fees,” yet fail to complete any coursework at the end of the subscription period. By then, students are out of their subscription fee with no refunds and no college credits earned. This can be very costly for students. As Kelchen (2015) states, “although the list price of CBE programs seems like a bargain compared to typical tuition and fees” (para. 3), this rosy hypothesis has not been fully tested.

In addition, CBE programs are sometimes characterized as merely vocational and CBE programs are solely focused on workforce preparation rather than intellectual development (Horn, 2014 & Morris, 2015). Because many CBE programs are marketed based on their lower cost, they are likely to attract more disadvantaged students. These disadvantaged students will not be receiving a “real” college education; instead, they will receive a cheaper version of a real college education. Meanwhile, wealthy students continue to attend traditional schools and receive a “real” college education. As a result, we will inadvertently create a two-tiered system of learning (Porter & Reilly, 2014). Amy E. Slaton, a professor of history at Drexel University and an outspoken critic of CBE, sees CBE as “a smokescreen for the class-based stratification of higher education” (Kamenetz, 2013). Slaton says:

if you are from a lower socioeconomic status, you have this new option that appears to cost less than a traditional bachelor’s degree, but it’s not the same product. I see it as a really diminished higher education experience for less money, and yet disguised as this notion of greater access” (2013).

Steven C. Ward, a professor of sociology at Western Connecticut State University and author of “Neoliberalism and the Global Restructuring of Knowledge and Education,” also claims that CBE “threatens to further stratify higher education.” As “the

new darling” of higher education reform advocates, CBE has been extolled as a way to provide a “more relevant 21st-century general education curriculum,” a means to “personalize learning,” and a strategy “to increase time to degree completion.” However, “in the rush to emphasize marketable skills” and in the attempt to “get students in and out as quickly and cheaply as possible,” CBE programs are forcing students, particularly students enrolled in lower-tier institutions into a “‘knowledge-less’ version of liberal learning.” “Despite the rhetoric of ‘serving the underserved’ and ‘closing the skills gap’,” recent CBE programs in higher education “are responsible for generating new hierarchies between those who receive a cheap, fast food style or ‘good enough’ education from those who receive a quality one.” According to Ward, CBE “essentially promotes a division between those who need a thorough, content-centered liberal education and those who only need a light, fast, and vocation-friendly version” (Ward, 2016).

Empirical data on CBE critiques. Just as the benefits of competency-based education (CBE) lack empirical data as evidence of specific outcomes, some of the critiques of CBE also lack empirical data to back up their arguments. Whether CBE compromises the quality of higher education will need real student data to help us determine. Whether CBE compromises educational equity will also require extensive data to substantiate. Because CBE reform is still emerging and evolving in higher education, claims on the strengths and weaknesses of the CBE approach are largely opinion-based at this point. Once again, more empirical data are needed to give us a better understanding of the real impact of CBE.

Conclusion of CBE critiques. The critiques of CBE “reveal three deeply-seated myths about the quality of CBE:” (1) CBE programs focus solely on workforce

preparation; (2) Students in CBE programs will not experience the same kind of intellectual development that students in traditional college programs experience; (3) CBE programs do not provide students access to the student to faculty interaction experience of traditional programs (Morris, 2015). To dispel these myths about CBE, a body of empirical research data is needed. According to critics of CBE, in spite of its potential benefits to students, institutions, and employers, CBE is not likely to replace traditional credit hour and seat time based systems because CBE is not able to provide students with "a true liberal education." One mode of thought from critics is that CBE is only to train people while a true liberal education is to change people (Slaton, 2013), and that CBE is creating new strata "in an already highly stratified higher education system" (Ward, 2016).

What Is the Current Landscape of Competency-Based Education (CBE) in the U.S.?

The phrase competency-based education (CBE) has no single meaning or definition. CBE program models also come in many flavors. In general, there are two different approaches to CBE in higher education. The first approach is to use competency frameworks within the context of a traditional course-based system. These programs define competencies that are expected of graduates, and students demonstrate these competencies by successfully completing courses that relate to the required competencies; this approach is also becoming more common in traditional higher education programs. The courses are instructor-led and credit-based. They may be offered in a classroom or online, accelerated or normally paced (Klein-Collins, 2012). The other approach is to use competency frameworks as a tool to disrupt the traditional college curriculum in new and innovative ways. CBE programs following this

approach have taken noteworthy steps away from the traditional course-based, seat time-based curriculum (Klein-Collins, 2012). This second approach will be the focus of the following section, where examples of CBE programs using remarkably different curriculum designs and instruction models will be discussed.

Western Governors University: The competency-based education (CBE) pioneer. Western Governors University (WGU) is a pioneer in CBE and is probably the best-known example of CBE in higher education. At WGU, each degree has an identified set of “domains” that make up the degree, and each domain consists of “sub-domains” that list specific competencies the student must demonstrate. Students progress only by passing the series of competency assessments associated with their degrees. These assessments can take a variety of forms: problem-solving assignments, standardized exams, essays, projects, and research papers. In preparing for their assessments, students use a variety of learning resources, guided by their faculty mentors based on students’ learning needs, backgrounds, and academic strengths and weaknesses. A system of competency units was established to assign a number of units to each assessment based on its complexity or difficulty. For example, a simple assessment might be worth one or two competency units while a complex assessment might be worth ten or twelve competency units (Kinser, 2007; Johnstone 2005; Klein-Collins, 2012).

At WGU, students are admitted on a monthly basis and work their way through each competency at their own pace. Students who already possess certain competencies may accelerate through their program either by transferring in credits from previous college coursework or by taking assessments when they feel they are ready (Bates, 2015). Tuition is charged at a flat rate for each six-month term, during which students

may complete as many competencies as they can. The more competencies they complete each term, the more affordable their degree becomes (Western Governors University, 2015).

Unlike traditional institutions that typically rely on faculty instructors for every course, WGU has adopted a new staffing model that unbundled the faculty role, which means “discrete activities typically performed by one faculty member in a traditional institution would be handled separately by several different individuals” (Kinser, 2007, p.20). WGU faculty and staff work in different capacities to guide and assist students (Western governors University, 2015):

- Student mentor: the primary faculty support assigned for each student. The student mentor provides advice, coaching, and support from the moment a student enters WGU to the time he or she graduates.
- Course mentors: these are the subject matter experts who provide specific discipline support for students as they engage in specific sections of the curriculum. They are knowledgeable and can address any issue that might arise related to a course, a learning resource, or an assessment.
- Program faculty: their major responsibilities include curriculum and assessment development as well as program management.
- Evaluators: they are responsible for evaluating assessment submissions.

Westminster College and College for America: The project-based model.

Westminster College offers a low-residency, competency- and project-based bachelor’s degree in business. The program has identified 70 competencies that a student must master through a project-based curriculum. According to the program’s website, a student

is required to complete a series of 20 projects organized into five project sequences: professional development, consumers and markets, enterprise performance, strategy and leadership, business planning (Westminster College, n.d.). A student's progress is measured not by grades and tests but by successful completion of each project sequence. Students do not attend lectures. Instead, they are provided with a faculty coach and an online knowledge database to help them complete the projects. Each project sequence is preceded by a two-day, on-campus residency that includes workshops, seminars, and tool-building sessions. Students use these resources to learn on their own to complete each project. A student who is working full-time could complete the program in 12-18 months, but the time frame could be longer or shorter, depending on individual experience, capabilities, and life commitments. The program is designed to take five semesters to complete (Klein-Collins, 2012).

College for America, located at Southern New Hampshire University, also uses a project-based model. Its three CBE bachelor's programs in communication, management, and healthcare management are built around 120 competencies rather than traditional credit-bearing courses. These competencies are organized into three clusters: foundational skills, personal skills, and content knowledge. Students demonstrate mastery of competencies by completing projects, which are tasks that enable students to learn by doing. Some examples of projects are: creating a marketing plan, developing a budget, analyzing an advertisement, etc. The program does not use a traditional grading system. Students either successfully complete a project and progress to the next one, or continue to work on a project until they achieve mastery. A dedicated learning coach is assigned to each student to guide the student through the entire program and provide assistance

whenever needed. Like Western Governors University, College for America also adopted the subscription tuition model. The college charges a flat fee of \$2500/year during which students complete projects at their own pace and on their own schedule (Share, 2013).

Brandman University and Southern New Hampshire University: The modularization model. The bachelor of business administration (BBA program) at Brandman University has built its competency framework within a modular design. Drawing from the Lumina Degree Qualifications Profile, the Association of American Colleges & Universities (AAC&U) Essential Learning Outcomes, and industry standards detailed by the Occupation Information network (ONET), faculty at Brandman University identified both general education competencies and major-specific competencies for the BBA degree, which formed a competency framework to guide the curriculum design (CAEL, 2015).

From the competency framework, a completely new curriculum was developed that would guide students to master each of the 80-plus identified competencies. The new curriculum is made up of groupings of online learning modules called bundles; the bundles are sequenced and scaffolded in the way that “higher level competencies cannot be accessed until a prerequisite competency is first mastered” (CAEL, 2015, p.5). Each bundle includes 4 to 11 modules. Each module consists of learning activities that are designed to result in the mastery of a single competency. Students are given access to the bundles one at a time. Within a bundle, students can work through the modules at their own pace. A student must complete a bundle of modules before he or she can move to the next bundle (CAEL, 2015).

Not only the bundles are scaffolded, the assessment process is also scaffolded. Each module has a summative assessment at the end as well as formative assessments throughout. The end-of-module summative assessment signals the successful completion of a module and demonstration of a competency. The formative assessments throughout a module are used to test student progress and they are brief, objective assessments delivered through an adaptive learning engine. If a student does not pass a formative assessment, the adaptive learning engine will send students back to the content for more studying in order to be successful the second time around (CAEL, 2015).

The BBA program adopted a subscription model with each year split into two six-month subscriptions. Students can start a subscription on any Monday during the year. During each subscription, students work at their own pace to complete as many modules or bundles as they can for a flat tuition of \$2700 (CAEL, 2015).

The CBE model also necessitated a shift in faculty model. The competency-based BBA program has four separate faculty roles: (1) curriculum developers who are subject matter experts responsible for designing the competency-based curriculum; (2) tutorial faculty who are subject matter experts responsible for tutoring students in the CBE program; (3) academic coaches who are the advisors responsible for counseling students regarding program requirements and academic progress; and (4) assessment graders whose primary responsibility is to accurately and consistently score student submissions of performance-based summative assessments as well as to provide robust feedback on each assessment (CAEL, 2015).

At Southern New Hampshire University (SNHU), students can earn a bachelor's degree in three years using a modularized curriculum. The program is designed from the

bottom up around a set of competencies. Classes are interdisciplinary “modules” rather than traditional three-credit courses. Each module integrates course content into unique learning experiences and satisfies general education and major requirements at the same time. For example, instead of taking Public Speaking as a separate course, students fulfill the public speaking requirement through a module on client and public presentations. Each semester concludes with an innovative week-long “integrating experience.” These experiences place students in teams in which they are given challenging case-based problems related to their major. Faculty hold special consulting hours to provide guidance and support to the student teams. At SNHU, redesigning four-year content into a three-year curriculum is achieved in a number of ways, including program themes, joint assignments between various disciplines, distributing competencies through modules rather than traditional courses, end-of-semester integrating experiences, and experiential learning opportunities (Bradley, Seidman, & Painchaud, 2012).

Lipscomb University and University of Wisconsin: The direct assessment model. Lipscomb University used the direct assessment approach to build its competency-based Bachelor of Professional Studies in Organizational Leadership. The new CBE program is called the Customized, Outcome-based, Relevant Evaluation (CORE), which “integrates the use of behavioral assessment, online competency development modules, faculty coaching, and traditional coursework that leads to a bachelor’s degree.” “Central to the CORE program is its emphasis on behavioral assessment: actual demonstrations of what students can do in a simulated work setting” (CAEL, 2014, p. 1& p.4).

Students in the CORE program can potentially earn up to 30 credit hours through these behavioral assessments. Lipscomb also created the Competency Assessment and Development Center to conduct the behavioral assessments designed to evaluate 15 competencies. The behavioral assessment focuses on actual demonstrations of what students can do in a simulated work setting. Students work in groups or individually to complete various tasks and are assessed by three trained assessors. Students are awarded with electronic badges that document their levels of mastery for each competency. The electronic badges can be used to demonstrate competencies to employers or can be converted to credit hours. Up to 30 credit hours can be earned through the behavioral assessment of competencies. Students who do not demonstrate all competencies can enroll in online, self-paced modules to develop the competencies (CAEL, 2014).

The University of Wisconsin's Flexible Option (UW Flex) is also a direct-assessment CBE model that focuses on assessment rather than credit hours. In UW Flex, students register for three-month subscription periods during which they can complete as much coursework as they like without being confined to term or class structure. Students progress toward their degrees not through structured courses or accumulated credits, but by demonstrating mastery of competencies through rigorous assessments. They prepare for these assessments as they like and at their own pace, and take these assessments whenever they are ready. If they don't pass the assessment the first time, they can take the assessment again (Brower, 2014; Brower & Schejbal, 2016).

Arguably, the direct assessment model is the "purest" and "most flexible version" of CBE because the direct assessment CBE programs "are not tied to credits, semesters or

courses.” Instead, these programs “are entirely structured around a series of competency assessments” to directly evaluate student learning outcomes. Students must complete each competency assessment “at a predetermined mastery level” to demonstrate they have gained the skills, knowledge, and abilities required to earn their degrees (Brower & Schejbal, 2016).

Conclusion of the current competency-based education (CBE) landscape in the U.S. The landscape of competency-based education (CBE) in the U.S. is diverse with varying models of CBE implemented in different institutions and programs. Some institutions built the competency framework within their existing course system while other institutions have taken remarkable steps away from the traditional course system. This section provided examples of CBE programs that adopted innovative approaches to curriculum design, business model, and faculty model; the CBE program being investigated in my study also provides such an example of innovation. With this broad view of the current CBE landscape as a background, my dissertation examines one particular CBE degree program.

Summary

Despite rising popularization and significant media attention in recent years, competency-based education (CBE) is not a new concept. CBE in the United States “found its roots in early behaviorist models for vocational training,” and “it has evolved from early vocational education models to more robust and complex approaches to learning in higher education” (Ford, 2014, p.15). The CBE approach places intensive focus on outcomes versus process; it prioritizes what students know and can do over what is taught. Despite significant variation in the implementations of CBE across different

institutions, the application of the CBE model to American higher education is both "evolutionary" and "revolutionary" (Ford, 2014, p. 4). It is evolutionary because today's CBE model has evolved from the vocational education model dated back to the 1960s and has encompassed new practices especially in online learning and the direct assessment model. It is revolutionary because it has significantly challenged the traditional time-based model of higher education. To further explore this evolutionary and revolutionary approach in American higher education, the following chapter in my dissertation will discuss how CBE is implemented in one particular degree program and how it has impacted a student.

CHAPTER 3

METHODOLOGY

The main methodology for my study is qualitative case study research. This chapter first explains what case study research is and then discusses why cases study is appropriate for investigating the phenomenon of CBE. The chapter continues with describing the participant of the study, data collection methods, and data analysis methods. Finally, the chapter ends with stating the trustworthiness and limitation of my study.

Case Study

The definition of case study. Case studies are widely used across the social sciences as a research design. What is a case study? To answer this question, it is helpful to first answer: what is a case? Gillham (2000) defines “case” by identifying four characteristics that constitute a case: (1) A case is “a unit of human activity” that happens in the real world; (2) A case “can only be understood and studied in context”; (3) A case “exists in the here and now”; (4) A case can evolve so it is difficult to draw precise boundaries (p. 1). A case can be an individual, a group, a program, an institution, a community, a policy, a process, or a system. Depending on the purposes of our research, we can study a single case or multiple cases. In my study, the case was an adult learner going through an online CBE bachelor's degree program.

The definition of case study has varied for different people and in different disciplines. A number of researchers have written extensively about case study research. For the purpose of this dissertation, I relied primarily on the definition offered by case study researcher Helen Simons (2009). Simons describes case study research as:

...an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program or system in a 'real life' context. It is research-based, inclusive of different methods and is evidence-led. The primary purpose is to generate in-depth understanding of a specific topic, program, policy, institution or system to generate knowledge and/or inform policy development, professional practice and civil or community action (p. 21).

Simons' definition of case study research is comprehensive. It emphasizes that the purposes of case study research are to explore complexity and uniqueness, to study a phenomenon or situation in real-life context, and to achieve deep understanding of a larger phenomenon through intensive examination of one specific instance. Rather than define case study by methods (qualitative or otherwise), Simons' definition focuses on the purposes of case studies as well as the data collection and analysis approaches. Overall, case studies are "descriptive, holistic, heuristic, inductive" (Rossman & Rallis, 2012, p.103). The case study approach explores "a phenomenon within its context using a variety of data sources," which ensures that the issue is explored through a variety of lenses that allows for "multiple facets of the phenomenon to be revealed and understood" (Baxter & Jack, 2008).

Case study research has some common features. Wynsberghe and Khan (2007) provide a prototype view of the typical case study to clarify what makes a case study. They suggest the following seven common features in a prototypical case study:

Feature 1: Small sample size. "The case study calls for an intensive and in-depth focus on the specific unit of analysis and generally requires a much smaller sample size

than survey research" (p.83). The subject of case studies can be a single entity, for example, an individual, an organization, a group, a policy, a system, and so on.

Feature 2: Contextual detail. Case studies aim to give the reader a "lived experience" and a sense of "being there" by providing a highly detailed, contextualized description and analysis of a case in action. The contextual details are used to capture the real-life context in which the case is situated.

Feature 3: Natural settings. Case study researchers choose to systematically study situations and they do not exert external control over the situation. In other words, case study researchers investigate the case as it is without applying any manipulation. Therefore, case study is uniquely suitable for research in complex settings because complex settings cannot be reduced to single causal or correlational relationships.

Feature 4: Boundedness. A case is a "bounded system" (Simons, 2009); it exists in a specific temporal and spatial boundary. That is the selected case for study has boundaries in terms of time, place, or activity. Case study research could easily get out of control without setting boundaries on the case.

Feature 5: Multiple data sources. Case study routinely uses multiple sources of data, including interviews, surveys, documents, artifacts, observations, videos/audios, statistics, etc. This practice offers findings that are likely to be much more convincing and accurate.

Feature 6: Working hypotheses and lessons learned. In case studies, the design is more emergent than preordinate. Researchers can generate working hypotheses and learn new lessons based on what is uncovered during data collection and analysis in the case study. The target entity or phenomenon emerges throughout the course of the study, and

"it is this surfacing that can bring the study to a natural conclusion" (Wynsberghe & Khan, 2007, p. 84).

Feature 7: Extendability. "Case studies can enrich and potentially transform a reader's understanding of a phenomenon by extending the reader's experience" (Wynsberghe & Khan, 2007, p. 84) as the description of the case study presents a "lived experience" for the reader.

In summary, these seven common features of a prototypical case study align with the nature of case study research: as a comprehensive research strategy, case study is a holistic and detailed investigation of an entity within its real-life context.

Types of case studies. Stake (1995) distinguished between two different types of case studies based on their purposes: intrinsic case study and instrumental case study. An intrinsic case study is carried out when the researcher has a genuine interest in the case itself and intends to better understand the case. The case doesn't represent other cases; the case doesn't illustrate a particular problem. The purpose is not to understand a generic phenomenon or to build theory. Instead, the particularity and ordinariness of the case is of interest. An instrumental case study is carried out when the researcher intends to gain insights into an issue. It is used to accomplish something other than understanding a particular case. The issue is of primary interest and the case is of secondary interest. Studying the case supports or facilitates understanding the issue as the case is used as an instrument to get insights into the issue of concern.

Yin (2003) suggested three different types of case studies based on the research questions: exploratory, descriptive, and explanatory case studies. An exploratory case study focuses on the "what" questions. It is used when the researcher has an initial idea or

has observed something and seeks to know more about it. An explanatory case study focuses on the "how" and "why" questions. It is used when the researcher seeks to explain the causal relationships in a complex situation or wants to examine how elements of the case come together and interact. A descriptive study focuses on covering the contextual information and detailed description of the case in question. The purpose of a descriptive case study is to examine a case in detail and in depth and to fully illuminate the intricacies of the case.

Strengths and limitations of case study. The main advantage of case study research is that it can produce an in-depth analysis of phenomena in context. A case study seeks a range of different kinds of evidences from the case. No single kind of evidence is likely to be sufficient to address the research question. The case study design allows researchers to explore the complexities of a phenomenon that are beyond the scope of more “controlled” approaches and to “get under the skin” of an individual or group to find out what really happens (Gillham, 2000, p.11). Furthermore, case study allows audiences of case study reports to vicariously experience what was observed through an authentic, detailed representation of reality. Case studies allow both researchers and audience to fully understand how an intervention worked, or why an intervention had an effect in a particular situation. In contrast, other forms of research, such as experimental or quasi-experimental research, “do not delve into this type of detail, but rather aim to give information on whether or not an intervention has a particular, predefined effect” (National Center for Technology Innovation, n.d.).

Another strength of case study lies in its flexibility, that is, it is "neither time-dependent nor constrained by method." It can be conducted in a relatively short time

frame or over an extended time period. It can include a range of research methods, whatever is most appropriate in understanding the case. It is also responsive to changes and unanticipated situations of the case in action (Simons, 2009).

The case study research method also has weaknesses and limitations. First, the data collection and data analysis are time consuming especially for studies that span a long period of time. Second, the external validity of the results is problematic because it is difficult for another researcher to reproduce a case study. Third, the subjectivity of the researcher is an inevitable part of the research frame. Last, the case method has limitations when it comes to the generalizability of the results. However, it is important to state that the aim of case studies is particularization--to present a rich portrayal of a case to inform practice--rather than generalization (Gagnon, 2010 & Simons, 2009).

Data and methods for case study. To achieve deep understanding in case study research, the researcher must be alert to the need for multiple kinds of data: “what people say, what people are doing, what they make or produce, what documents and records show, etc” (Gillham, 2000, p. 20). This approach of using multiple kinds of data across multiple time periods is called triangulation, which can help establish trustworthiness of case studies. Main types of evidences often used in case study research include: (1) documents and records such as letters, policy statements, regulations, guidelines, or reports; (2) interviews that are both formal and informal during which people can give you information; (3) observations of what you actually see in the case setting; and (4) physical artifacts that are relevant to the case (Gillham, 2000).

To collect multiple kinds of data, a variety of methods can be used in case study research to facilitate in-depth understanding. Just like ethnographic studies, "case studies

are methodologically eclectic." Whatever choices of methods, the researcher immerses in the case setting. Case studies are not about methodological choice; they are about choices of what is to be studied. By whatever methods, the researchers choose to study the case (Rossman & Rallis, 2012). Three main qualitative methods are often used and they are: interview, observation, and document analysis. However, there are many other qualitative methods a case study researcher can choose from, including critical incidents, open letters, discourse analysis, narratives, video analysis, photographs, log entries, and artifacts. In addition, quantitative methods can also be used, such as surveys, questionnaires, or descriptive statistics (Simons, 2009).

Trustworthiness in case study. The traditional criteria of internal validity, external validity, reliability and objectivity for quantitative research are not applicable to qualitative inquiry. As a solution, the concept of trustworthiness was introduced, which consists of four components: credibility, transferability, dependability and conformability (Simons, 2009). When planning and implementing a case study, there are several strategies that can be integrated to the design to enhance the overall quality and trustworthiness of the study.

As a basic foundation to achieve trustworthiness, a researcher is responsible to ensure that: the research question is clearly defined; the case study design is appropriate for the research questions; purposeful sampling strategies appropriate for the case study are applied; data are collected and managed systematically; and data are analyzed accurately (Baxter & Jack, 2008).

Besides the basic foundation to achieve trustworthiness, further strategies can be incorporated as well. One important strategy advocated in qualitative case study to

validate accounts and experiences is triangulation, which refers to seeing things from different angles. There are four types of triangulations—data triangulation (using different data sources), investigator triangulation (using multiple investigators), theory triangulation (using more than one theoretical scheme in the interpretation of the phenomenon), and methodological triangulation (using multiple qualitative or quantitative methods to study the phenomenon). Triangulation allows cross-checking the relevance and significance of issues and test out perspectives from different angles “to generate and strengthen evidence in support of key claims” (Simons, 2009, p. 129).

Another strategy to validate accounts and experiences in case study is respondent validation or member checking, which refers to “checking the accuracy, adequacy and fairness of observation, representations and interpretations of experience with those whom they concern” (Simons, 2009, p.131). As data are collected and analyzed, you can share your interpretation of the data with participants so that they have an opportunity to discuss and clarify interpretation as well as contribute new or additional perspectives on the topic under study (Baxter & Jack, 2008).

Additional strategies commonly used in qualitative studies to establish trustworthiness include the use of reflection field notes and peer scrutiny of the data. At the analysis stage, the “dependability” of data can be enhanced by having multiple researchers independently code a set of data and then meet to come to agreement on the emerging codes and themes. Researchers can also choose to use double coding where a set of data are coded, and then after a period of time the researcher revisits and codes the same data set again (Baxter & Jack, 2008).

Case Study Research and Competency-Based Education

With the rapidly growing polarity of competency-based education (CBE) has come a wide range of CBE programs developed by various institutions. Today, as many as 150 institutions in the United States offer some form of CBE (Fleming, 2015). This wide array of CBE programs differ in their curriculum design, delivery format, business model, and staffing model; each of these CBE programs provides students with a unique experience. Considering the diversity of the current CBE landscape, case studies are an appropriate approach to investigate the different CBE programs that currently exist to gain an in-depth understanding of how CBE is implemented in the higher education system.

Baxter and Jack (2008) propose four conditions under which a case study should be considered: (1) The focus of the study is to answer what, why, and how questions; (2) the researcher cannot manipulate the behaviors of those involved in the study; (3) the researcher desires to uncover contextual conditions relevant to the phenomenon under study; or (4) the boundaries between the phenomenon and the context are not clear. The case study design is a good choice to study emerging CBE models in higher education because: (1) the focus of such studies is to find out what is involved in a CBE program, how the CBE model is implemented, or how the model is impacting students; (2) I, as the researcher, cannot manipulate the CBE program under my study; nor can I manipulate the behaviors of the participant in my study; (3) the case study design can help me to uncover the complex contextual conditions under which a particular CBE model is developed and implemented; and (4) the case study design allows me to investigate the particularity of a CBE program as each existing CBE program is unique.

Developing and delivering CBE programs is a complex process as it involves multiple stakeholders (faculty, staff, administrators, employers, and students) and affects almost every aspect of the institution (e.g. academic affairs, student services, information technology services, finance, and operations). The contextual conditions in which an institution is situated also add to the complexity of CBE development and implementation. As different institutions have different cultures, resources, and experiences, they tend to develop different CBE models that fit their own needs. Because case studies have the strength of exploring the complexity of a phenomenon and providing an in-depth analysis of the topic under investigation, the case study design makes a good fit for examining the complexities of developing and implementing a CBE program.

In addition, the flexibility of case studies also facilitates research on CBE. The case study researcher can incorporate multiple methods, both qualitative and quantitative, to collect a variety of data about a CBE program. Without constraints on the choice of methods, the case study researcher can explore different aspects of a CBE program, such as curriculum design, technology integration, administration, business processes, faculty experience, and student experience. The case study researcher can also hone in on one particular component of the CBE program and examine it from multiple angles; for example, a case study can be designed to investigate how the CBE model affects students including motivation, persistence, academic performance, employability, and so on. Depending on the purpose of the research, a case study is able to provide the flexibility necessary to achieve the specific research goals. As new discoveries are made and new

problems emerge while the researcher is in the field, the flexibility of case study design also allows the researcher to adjust the study as needed.

Not only is the case study design appropriate for investigating CBE at the program level, it is also appropriate for conducting an in-depth examination of CBE students at the individual level. There are often a multitude of elements that will affect a student's learning experience in a CBE program, including the student's personal background, intellectual attributes, personality traits, life situation, and particular features of the CBE program a student is enrolled in. Due to the complexity involved in an individual CBE student's learning experience, case study makes a good choice of method for my study, which focused on studying one adult learner's experience going through an online CBE degree program.

In spite of the publicity and enthusiasm that surrounds CBE, limited research has actually been conducted to take an in-depth look at the wide range of CBE programs in the field of higher education. A number of fundamental questions remain about CBE: What kinds of students are likely to choose CBE programs? What are the various ways students can earn credits? How is curriculum structured to facilitate students' mastery of competencies? How do students in these programs fare in terms of persistence, completion, transfer, and labor market outcomes? How are students supported in these programs? Are these programs more affordable than traditional degrees? Do employers value CBE credentials? It is important to address these fundamental questions through research in order to provide a more accurate picture of CBE and its impact. Additionally, many institutions that are in the process of developing CBE programs need knowledge and advice on how to build quality CBE programs. Research on existing CBE programs

will be a valuable resource for those institutions that are looking for guidance. A series of detailed case studies on different CBE programs across the nation will expand our understanding of the CBE landscape in higher education.

My study was an instrumental case study because I had a genuine interest in the case itself—one adult student who was going through an online CBE bachelor's degree program, and I wanted to better understand the case. This case didn't represent other CBE students or other CBE programs; this case didn't illustrate all CBE-related issues.

Understanding the case was the primary goal of my study, which was to understand one adult learner's experience with an online CBE bachelor's degree program. My study was also exploratory and descriptive in nature. As the researcher, I didn't have preliminary knowledge about the case and I conducted my study to explore the case. I intended to provide a detailed description of the case and illuminate the intricacies of the case.

The Participant

The participant of my study was selected through convenience sampling, which is “a type of sampling where the first available primary data source will be used for the research without additional requirements” (“Convenience sampling,” n.d). I knew the participant as his former instructor while he was pursuing his associate's degree in integrated studies at my institution. When he expressed his need to find a more flexible program for his bachelor's degree, I referred him to several online CBE programs across the country. When I found out he was accepted into one of the CBE programs, I decided to recruit him to participate in my study and he gladly agreed to it.

The participant was a Hispanic male in his mid-thirties. He was the father of two young children and he worked full-time as an administrator at a construction company.

From my experience of being a former instructor of the participant, I knew this student was a bright and fast learner. However, his other responsibilities outside school seemed to interfere with his study. While he was taking my class, he expressed frustration that he had to miss classes due to work demands and he was unable to register for certain classes due to work schedule conflicts. While he was in my class, he also demonstrated he could learn new skills quickly and moved through the content at a faster pace if given the opportunity. I believe my participant represented the ideal student population for CBE programs--adult learners with rich work and life experience, some previous college credits, but no degrees nor wanting to pursue further degrees. His participation in my study provided valuable insights into how CBE worked as an alternative pathway to a college education for adult learners. The participant chose the pseudonym Rico to use for my study.

Data Collection Methods

The goal of my study was to understand one adult learner's experience in an online CBE bachelor's degree program. To achieve this goal, I followed my participant for six months, which was the length of one complete subscription period in his CBE program. The prolonged engagement with the participant allowed me to establish trust with him and to examine changes in his experience as he progressed through the program and from beginning to end of one formal subscription period. My data collection methods included: a series of face-to-face semi-structured interviews, document analysis, participant-guided web tours, and participant observations.

Semi-structured interviews. In qualitative research, interviews are helpful to explore the meanings of central themes in the life of the participants. Interviews are

designed to uncover both facts and meaning behind the facts. The main task of interviewing is to understand the meaning of what the interviewees say and the main advantage of interviewing is to get the story behind the participant's experiences and pursue in-depth information around the topic (Kvale, 1996).

In my study, I conducted a series of face-to-face semi-structured interviews with the participant, between April and September 2016. These interviews were scheduled twice a month for the first three months and once a month for the following three months, with a total of nine interviews. Each interview lasted one to two hours. The first interview, serving as the introductory interview, oriented me to what the student had done with his CBE program and where he was with the program when the study began. This introductory interview was more structured with pre-planned questions to gather preliminary information about the CBE program and the participant's experience. Subsequent interviews all adopted a set of grand tour questions; these open-ended questions let the interviewee set the direction of the interview, reflect on his experiences since our last interview, and allowed the interviewee to go as deeply as he chose about his particular experiences in the CBE program (Spradley, 1979). The structure of these interviews allowed the participant to be free in his responses and allowed me to guide the conversation spontaneously with a focus on the predetermined subject.

All of the interviews were conducted in a conversational manner to elicit facts, opinions, meaning making, and insights from the participant and discover his views pertaining to my study. These interviews were conducted throughout the span of my study to document the interviewee's perspectives at different times and under different circumstances. The interviews took place at two large public locations of the participant's

choice, including the Flying Star coffee shop on the Westside of Albuquerque and the library on the Westside Campus of Central New Mexico Community College. We were able to find spots at either location that provided privacy for our conversations. I made sure that the participant was comfortable with the surroundings of the interviews and that there was no intimidation on my part or the setting. Over the course of the nine face-to-face interviews, I established a good rapport with my participant, which further facilitated the data collection process.

All interviews were audio-recorded, transcribed, and then uploaded into my personal password-protected laptop. My reaction to each interview was written immediately following the interview. The main goal of the interviews was to find out what was on the participant's mind regarding his CBE degree program. In addition, the interviews promoted active engagement for both the participant and me in identifying and analyzing issues related to the topic. Finally, these interviews allowed for triangulation of information obtained from other sources (including documentation, web tours, and my own reflections and observations).

Document analysis. Documents “are objects that participants use in everyday activity of the context under examination” (Hatch, 2002, p. 117). In case studies, documents are often used to support and/or enhance data from other sources (Yin, 2003). Throughout my study, documents relevant and applicable to understanding the participant's experience in his CBE program were collected and reviewed. These documents consisted of assignment samples, learning material samples (e.g. readings or multimedia materials), and test questions. Collecting documents from the participant happened mostly during our face-to-face meetings. Once the participant provided me

with a particular document, I asked him to talk about the document, including what it was, why he chose the particular document to share with me, and what he thought of it. Having the participant explain a document provided rich information about his understanding of certain issues related to the document. A review of these documents also helped clarify, illustrate, or substantiate the participant's statements obtained from the interviews. The documents collected in hard copies were stored in a locked file cabinet in my home office; the documents collected in electronic copies were stored in an electronic folder on my personal password-protected laptop. All identifying information on these documents was erased before filing. At the conclusion of my study, all documents were shredded or permanently deleted.

Participant-guided web tours. Since the competency-based education (CBE) program was delivered fully online through a customized distance learning platform, co-developed by the institution and Pearson Education, I asked the participant to give me web tours of his CBE program during our face-to-face meetings. The major web tour happened during our second face-to-face meeting. Because I had never seen the online platform before, the participant gave me a complete web tour of the platform, showing me its different features, explaining to me how he normally used the platform, and talking about what functions he liked or disliked. It appeared that the participant was very familiar with the platform and he said he had been using it almost every day since he started the program a year ago. Throughout the remainder of the study; the participant logged into the platform each time we met and referred to it frequently while he was being interviewed. When he talked about a particular lesson, reading, or assignment, he often showed it to me on the learning platform.

My goal during web tours was to have the participant explain the layout and content as shown on the web. This served to demonstrate how he made sense of the program and his own learning processes within the program. Because the web tours put the participant in control of what he wanted to show, emphasize, and explain, they provided rich data on what the participant thought of his CBE program. Web tour processes were not recorded; however, I took hand-written notes of what the participant showed and explained to me. My notes were stored in a locked file cabinet in my home office. On a few occasions, I also used my iPad to take screen shots of the learning platform with the participant's permission. These screen shots were uploaded and saved on my password-protected laptop with any identifying information blacked out.

Participant observations. Throughout the study, I scheduled four meetings when I focused on observing the participant working on his program. During these times, the participant mainly read assigned textbook chapters or articles, and worked on writing assignments, based on his own choices. I took written notes on the spontaneous behaviors of the participant as he was working. There was limited interaction between the participant and me during these observation times; however, the participant did make occasional comments to me about what he was reading or writing at the time, and I responded to him when necessary. The four observations all took place in the library on the Westside Campus of Central New Mexico Community College, immediately following four of our interviews. As planned between the participant and me, we conducted our interview during the first hour and the observation during the second hour. This plan worked out well because the participant was able to complete some of his coursework during those observation times and I was able to collect some data. The

observation data was recorded using field notes, including written description of the setting, the participant, and his activities using my own words; direct quotations from the participant when applicable; and my own comments about the observations.

Analytical memos. In my study, I used analytical memos both as data collection tools and as a data analysis tool. I used analytical memos to record my experiences, observations, thinking, reflections, and discoveries as I worked with the participant during our meetings. Analytical memos also included summaries of my major findings as well as my comments and reflections throughout the study.

Data Analysis

Qualitative data analysis is a process of making meaning. It is an inductive and creative process, not a mechanical process. Therefore, there is no single, fixed way to accomplish qualitative data analysis (Denzin & Lincoln, 2000). Stakes (1995) also reminds qualitative researchers that “there is no particular moment when data analysis begins... (analysis) essentially means taking something apart” (p. 71). As an intellectual process, qualitative data analysis is ongoing and recursive.

In my study, data were collected and analyzed simultaneously. This process allowed me to uncover important information through data collection that prompted further questions or new questions to ask in the following interview. Content analysis and constant comparative analysis were used to interpret the qualitative data collected. Overall, the goal of content analysis was to take text data that has been gathered and reduce it into a series of patterns or themes for further examination (Hatch, 2002). The goal of constant comparative analysis was to examine a particular bit of information from an interview, document, or observation and compare it with another incident of data

collection; the comparisons led to possible categories and patterns that were emergent (Merriam, 2001). To carry out the content analysis and constant comparative analysis, I followed the process below:

Step 1: Get to know my data. For hard-copy documents, I read and annotated them. For web pages, I took screen shots of them and used my analytical memo to record additional notes that accompanied these screen shots. For interview recordings, I listened to them multiple times and transcribed them into Microsoft Word documents. In the meanwhile, I wrote down any impressions or ideas that came into my mind in the analytical memo as I went through the data. During this step, I focused on the overall meaning of the data to gain a general sense of the information and ideas the participant conveyed.

Step 2: Categorize my information. After I familiarized myself with the data and developed a general idea of the data following each incident of data collection (e.g. an interview, an observation, or a document), I identified possible categories within the incident of data collection. I used open coding to create a descriptive label for each category identified. This process summarized as well as brought meaning and order to the data.

Step 3: Identify connections between and within categories. I compared the categories identified across multiple incidents of data collection and created concept maps to illustrate the relationships between categories. This process allowed me to assess the relative importance of different categories, highlight subtle variations, and discover relationship between categories.

Step 4: Bring it all together. To further organize the enormous amount of data that was collected during the six-month study, I sorted all the categories identified from multiple sources of data collection into three large areas: curriculum design, student needs, and support services. Under each of the three areas, some repeated patterns became more obvious, such as "flexibility," "self-directedness," "self-management," "scaffolding," "interaction with faculty," "interaction with other students," etc. These patterns became the foundation for developing the themes of my study.

This data analysis process was ongoing and it went hand in hand with the data collection process. Following each interview or observation, I tried to organize and analyze the data collected immediately by identifying categories. After all the interviews and observations were completed, I already had a set of initial categories that were associated with each single incident of data collection. I used this initial set of categories as a foundation to develop further patterns across multiple incidents of data collection. By not waiting to the end of data collection to begin analyzing the data, I also avoided data analysis overload. Instead of being overwhelmed by the extensive amount of data collected during the six-month period, I chose to conduct my first round of data analysis along the way and finish with a second round of data analysis after the data collection process ended. My data analysis process was also fluid. I moved back and forth between the steps of going over the data, categorizing information, identifying connections between categories, and bringing everything together. Multiple concept maps were created to record and illustrate the relationships between ideas. An analytical memo was used to record my thinking, reflection and discoveries during the data analysis process.

Trustworthiness of My Study

Trustworthiness is vital to case study research. Trustworthiness refers to the accuracy of the instrument, data, and findings of the research (Simons, 2009). In my study, trustworthiness was primarily achieved through methodological triangulation and member checking (Merriam, 2002). Methodological triangulation was accomplished through the use of multiple methods for the collection of data, including interviews, document analysis, web tours, screen shots, observations, and analytical memo.

Triangulations was further achieved through collecting data at different times over an extended period of time (six months) as the participant was progressing through his CBE program. Member checking requires the researcher to involve participants in the analysis and reporting process. After the findings were compiled, I asked the participant to read through the findings for verification and clarification. Furthermore, I maintained an audit trail that involved the extensive use of analytical memos. The analytical memo was kept throughout the research process and with it I kept track of multiple ways data was collected, sorted, and analyzed. The analytical memo provided a detailed account of the methods, procedures, and decision points in carrying out the study.

Merriam (2002) recommends that qualitative researchers follow the guidelines below to ensure trustworthiness of their studies: (1) Reflexivity: the researchers engage in critical self-reflection to identify assumptions, biases, and positionality in the study. Before the study began, I clearly stated my assumptions and biases regarding the research topic; I also identified my relationship to my study and my support of the participant at the very beginning of the research process. I was very aware of how my assumptions, biases, and positionality might affect the investigation process. While it is impossible for

a researcher to be completely bias-free, I made conscious efforts to maintain my neutrality throughout the study. (2) Engagement: the researchers have adequate time to collect data to the extent that the data become saturated. In my study, I followed my participant for an extended period of time (six months) to collect data. I maintained regular contact with the participant and engaged in a series of substantive conversations with the participant about my research topic.

Limitations of My Study

A major limitation of my study was that it didn't represent a variety of students' experiences with the described competency-based education (CBE) program. As an outsider, I had very limited access to the CBE program described in my study and I was unable to recruit a large sample of students to participate in my study in the extensive way I desired. Therefore, I focused my efforts on one participant who was enrolled in the program at the time of my study. This participant's view did not reflect the collective opinions of all students. However, this participant's view can provide valuable insights into the CBE program under my study. A second limitation of my study was that it didn't examine other CBE programs developed by other institutions. As discussed in Chapter 2 Literature Review, the current landscape of CBE in American higher education is very diverse and different institutions implement CBE differently in their programs. The CBE program described in my study cannot represent all of the existing CBE programs in higher education. In spite of the second limitation, focusing on one particular CBE program allowed me through my study to examine the program in the kind of depth that examining multiple CBE programs would not be able to achieve.

My case study was exploratory in nature. Because CBE degree program is a very new practice in the field of higher education, many people don't have a clear idea how it works. As the researcher, I have read extensively about CBE and I have been leading CBE initiatives at my work; but I haven't seen the implementation of CBE in person until my study. Without prior research as a foundation, I designed my study to explore how CBE was implemented in one online bachelor's degree program and how this program was serving one particular student's needs. Investigating the experiences of a large sample of students from the program would be very informative; however, given the limitations, the proposed research design still achieved the purpose of my study.

Summary

The design of my research project was a qualitative single-case study. The case of concern was an adult learner going through an online CBE bachelor's degree program. Chapter 3 begins with a review of the case study research methodology. The chapter also provides a rationale for the methodological decisions of my study. The participant of the study, data collection and data analysis processes are also explained. The chapter concludes with a discussion of the trustworthiness and limitations of the study. The next chapter will present the findings from my study.

CHAPTER 4

RESEARCH FINDINGS

The purpose of my research study was to examine a nontraditional college student's experience going through a fully-online, competency-based bachelor's degree program. The following research questions informed my study:

How did the competency-based education (CBE) approach facilitate or hinder an adult learner's experience of going through an online CBE bachelor's degree program?

- (1) What were the experiences of an adult learner in an online CBE bachelor's degree program?
- (2) How did the adult learner perceive the learning he gained from the program?
- (3) How did the adult learner perceive CBE's position in American colleges and universities?

The research findings that this chapter reports are based on analysis of the following data sources: a series of face-to-face interviews during a six-month period, discussion of learning materials, participant-guided web tours, and observations of the participant working on his program. This chapter begins with a summary of answers to the research questions quoting mostly the participant's words, which provides a snapshot of the data collected during my study. Following this snapshot of research findings, the chapter will then present a detailed description of the participant in my study--Rico, including his personal, family, educational, and work experiences. Finally, this chapter will present the major themes that have emerged from the data.

A Snapshot of Research Findings

Because my study centers on investigating a competency-based education (CBE) student's experiences and perspectives, I open this chapter of research findings with a brief summary of responses to the research questions quoting mostly the participant's words. I believe using the participant's original words can paint a more vivid and authentic picture of the participant's experiences and perspectives related to the research questions. By highlighting the participant's own words, this section also serves as a snapshot of the raw data collected through my study.

(1) What were the experiences of an adult learner in an online CBE bachelor's degree program?

“If I have to describe my experience in this CBE program in three words, they would be: education my way.” More specifically, here is some of what the participant really liked about the program:

- Flexibility:

I love the flexibility of this program. I wouldn't have been able to finish my degree without the flexibility. Being able to do the coursework on my own schedule, not being restricted to their (the school's) schedule--that is the biggest benefit of this program for me.

- Affordability:

My financial aid was able to cover almost all of the cost for my program...I didn't have to pay much at all out of my own pocket...I love the subscription model because the more credits I finish for each subscription, the more money I can save...in the end, my degree was very affordable for me and my family.

- Different ways of learning:

- I like the small lessons compared to the traditional 3-credit class. A full 3-credit class has a lot of content to it and you have to work on it for a long time before you can earn the 3 credits. But these lessons

are smaller and you can get one done in less time, earn the credit [associated with the lesson] right away, and move on to the next lesson.

- I like that I'm allowed to skip assignments and go straight to the post-test whenever I feel I'm ready. Also, I can pick and choose which assignments I want to do for practice, rather than have to do all of the assignments.
- Although the post-test is often very challenging, I can take it as many times as I need to until I pass. I didn't get that kind of opportunity in my previous college classes; you're usually given one shot at an exam and you either do well on it or you don't.

Although the CBE program described in my study was innovative and distinguished itself from traditional degree programs, the participant also recognized that the program had its flaws as it was still “a little immature” and “being tested.”

Specifically, here are the characteristics that the participant disliked about the program:

- Reading requirements:

The amount of reading you have to do in this program is a killer...they give you a list of stuff to read in every lesson; some are PDF files, some are textbook chapters, some are even entire books...some of the readings are very long, some are very dense and difficult to understand, some are just boring.

- Writing assignments:

Some assignments involve writing big, complex papers. The requirements are sometimes too broad or vague. I don't know where to start...I feel I need more guidance before I know how to write these papers.

- Interacting with others:

- You don't get very much personal interaction with the professors because you don't get to see them in person. Most of the communication is done online through emails. Also, I didn't interact at all with other students in my same program. It would've been nice to talk with them about how they were doing in the program, or to talk about a difficult lesson.

- You work with the same professors again and again throughout the program on multiple lessons because I guess they only have a few professors dedicated to the program. So you don't get exposed to a variety of professors' teaching, like you would in a traditional college program.

(2) How did the student perceive the learning he gained from the program?

- "I feel the learning is better because it's on my own terms."
- "My writing, thinking, and reasoning skills definitely got challenged constantly and I feel they've improved."
- I feel the quality of learning in CBE and in traditional learning is about the same because I retain about the same amount of information in either CBE or traditional classes—that is just my way to make the comparison. Personally, I believe learning is not about simply retaining information; it's about the ability to reason through things and solve problems, and that is something I had to do a lot in my CBE program.

(3) How did the adult learner perceive CBE's position in American colleges and universities?

To me, CBE is a usable alternative to traditional education. (It is) something that makes sense to me at this point in my life, something that is not available to me before. It is a format of education I can appreciate... CBE is welcoming to everybody. It opens up higher education to individuals who previously don't get a chance to go to college—people who either can't afford it or don't have the time to do it.

The Participant—Rico (Pseudonym)

When I first contacted Rico and asked him if he would like to consider being the participant of my study, Rico immediately said yes and throughout the study, he was excited to talk about his experiences with competency-based education (CBE) and his journey of earning a bachelor's degree: "CBE makes sense to me, and I want more people to know about it."

Rico is a Hispanic male in his mid-thirties. He is a father of two young children and he works full-time as a supervisor at a construction company. Upon graduating from high school, Rico joined the army and served three years (including one year in South Korea), which was something Rico wanted to do throughout his high school years. After the army, he held a series of jobs in different industries including security, construction, retail, sales, and customer service. As a result, he gained a variety of work-related skills and experiences. When my case study began, Rico had just started his job at the construction company because it was a higher-paying job with good potential for further advancement. Before that, Rico worked in the call center industry for a few years as a customer service and sales agent and exhibited consistently good performance. Highly motivated to advance his career, Rico wanted to move up to management positions, and he knew a college degree would add to his qualifications. So, Rico began working towards a bachelor's degree.

Rico first returned to school at his local community college to work on an associate's degree in business administration. He accumulated almost 60 credits over the years. However, it was always a challenge for him to juggle work, family, and school at the same time. In fact, he had to take breaks from his coursework during certain semesters because he was unable to find classes that could fit in with his work schedules. Rico knew he only needed a couple more classes to finish his associate's degree, but that turned out to be difficult because the two classes he needed were face-to-face science labs and they were always offered during his work shift from one semester to another. For several semesters in a row, Rico looked at the college's class schedule and became frustrated because the schedule for those science labs simply would not work for him.

Besides scheduling conflicts, the cost of transferring to a four-year university to finish his bachelor's degree would be a burden for Rico and his family. As a result, the route of completing his associate's degree at the community college and then transferring to the local four-year university became less doable for Rico. For a while, Rico gave up on the idea of earning his bachelor's degree until he learned about the CBE option.

Rico described himself as "a fast learner" who had "very short attention span" and tended to "lose focus over the course of a long semester." "I wish all college classes can be short and intense; I think I'm more likely to focus and finish them that way. I always prefer summer classes because they're shorter and you can get them done faster," said Rico. However, short and intense classes were not always an option for Rico in his traditional college program. Furthermore, Rico wished some classes would allow him to move through faster and exit sooner if he was able. Rico shared the example of a computer literacy class he was required to take:

I already knew most of the stuff in that class, like how to use Word, Excel, PowerPoint, and I was able to pass all the tests easily. But I still have to stay in that class for the entire semester and I had to show up to class every time. It wasn't an online class. I was bored in that class.

For a busy working adult and a parent, there were always things in Rico's life that came up and interfered with him attending classes. Rico recalled frustrating situations when he had to miss classes due to unforeseeable circumstances or unexpected incidents, whether it was work-related or family-related, and after he missed a certain number of classes, he wouldn't stand a chance of passing the class anymore according to the college's attendance policy. It was frustrating for Rico that excessive absences would cause automatic failure in a course regardless of what you could do to prove your knowledge and skills. Consequently, when Rico found out about CBE, he was

immediately attracted to the idea: “I knew CBE would work for me because I can show what I know and move on without having to attend classes regularly and stay in a class for an entire semester.” He went on to explain:

I was never considered a good student as a kid and a teenager. I always know I’m smart and I’m a fast learner, but I didn’t feel inspired or motivated at school. In most of my classes, I only did the minimum and got enough work done to pass them. But there were some classes I was very interested in and I did well in them.

Reflecting on his experience in high school, Rico stated he was always good at taking tests, but not good at doing homework.

I saw homework as just busy work the teacher wanted us to do. I remember in math homework, we had to show how we worked out the problems, you know, like the process and the steps. Well, I just wrote down my answers; I didn’t show the work like the teacher asked. I didn’t understand why I had to show my work if I could work out the problems...Well, as a result of not doing my homework, I was a C student, but I was fine with it. Maybe if they had CBE when I was a kid, I would’ve done better, ha ha ha! I don’t like homework, but I don’t mind taking tests. I think tests really show what a person can or can’t do.

Now as a mature and responsible adult, Rico felt motivated by his family and by the CBE format of learning, and he was able to commit himself to pursuing his CBE degree. “All I’ve done before led me to where I’m now,” reflected Rico. His previous college experience hadn’t been a waste of time and effort; it laid a foundation of academic skills for Rico, which contributed to his progress in the CBE program. When I asked him what advice he had for future students who might be interested in CBE, Rico said:

Just do it. You won’t know how you like it until you try it...CBE is not easier; in a lot of ways, it’s harder. You have to be very motivated, you have to be very self-disciplined, and you do need to have certain skills, especially good reading and writing skills...having some previous college experience definitely helps too.

Throughout my study, Rico turned out to be a very active and responsible participant. He was eager to share his CBE experience with me and he never missed any

of our scheduled meetings. Although Rico didn't consider himself an outstanding student, he was very capable of learning new things and he adjusted to his CBE program very quickly. The CBE approach fit in how he preferred to learn and kept him motivated most naturally.

An Overview of the Competency-Based Education (CBE) Program Rico Enrolled In

I picked this particular CBE program because it is from a reputable public university and it is very affordable...I started the program in January 2015. I was so excited about it and I was telling everybody in my family...it is totally different from the traditional college experience.

Rico's competency-based education (CBE) program was one of the pioneers in the recent CBE movement, along with a handful of other programs across the country (mentioned in Chapter 2). It was newly launched when Rico first enrolled in it. The program distinguishes itself from a traditional bachelor's degree program in terms of curriculum structure:

My whole degree is made up of lessons, not classes. A lesson is much smaller than a traditional class. Each of these lessons is worth a certain credit amount. Some lessons are one credit; some lessons are 1.5 credits; some are 2 credits; some are only 0.6 credits. So, they vary from one lesson to another. In my associate's degree, you know, I took classes and each of the classes is usually three credits.

As Rico describes, his CBE program uses a modularized approach. The entire bachelor's degree is broken down into five areas: foundations requirements, major requirements, minor requirements, liberal studies, and language. Each of these five areas is then divided into a list of competencies and each competency is further divided into a series of lessons. Unlike a traditional bachelor's degree program, there is no concept of classes in Rico's CBE program. The following screen shot shows a portion of Rico's degree plan under the

major requirements. The orange "C" represents a competency. The green "L" represents a lesson.

▼	C	Diverse Communications
▶	L	Social Conflict Concepts
▶	L	Rhetorical Strategies
▶	L	Communication Concepts
▼	C	Solve Complex Problems
▶	L	Philosophical Concepts
▶	L	Ethics And Morality
▶	L	Human Obligations
▼	C	Analyze Complicated Materials
▶	L	Analyzing The Visual Arts
▶	L	Analyzing Literature
▶	L	Socio-Political Themes
▶	L	Cognition & Perception
▶	L	Human Nature
▶	L	Postwar Film And World Lit
▶	L	Film Noir
▶	L	Middle Eastern Culture
▶	L	Cold War Aftermath
▼	C	Write About Culture
▶	L	Summary Of Social Psychology
▶	L	Analyzing Victimization
▶	L	Writing An Argument
▼	C	Academic Essays
▶	L	Summarizing Positions
▶	L	Research Papers
▶	C	Technological Advancement
▶	C	Self-Reflective Life

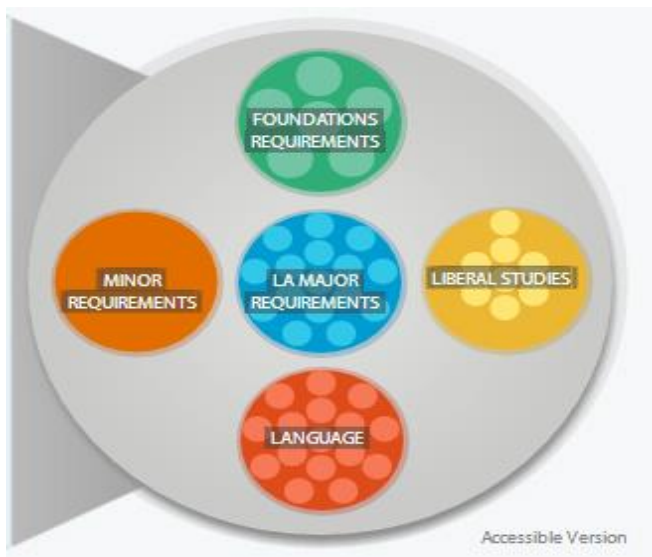
Screen Shot 4.1

The program also distinguishes itself from a traditional bachelor's degree program in terms of curriculum sequence:

When I was at the community college, I had to take lower level classes before I'm allowed to take the higher level classes. I had to meet prerequisites. I can't just register for any classes that are available. A lot of classes have blocks on them; if I don't meet the prerequisites, I can't sign up for those classes. In my CBE program, I can pick any lessons from the whole program. There is no such thing as prerequisites. I can do any lesson I want at any time. The whole degree program is available to us on the dashboard.

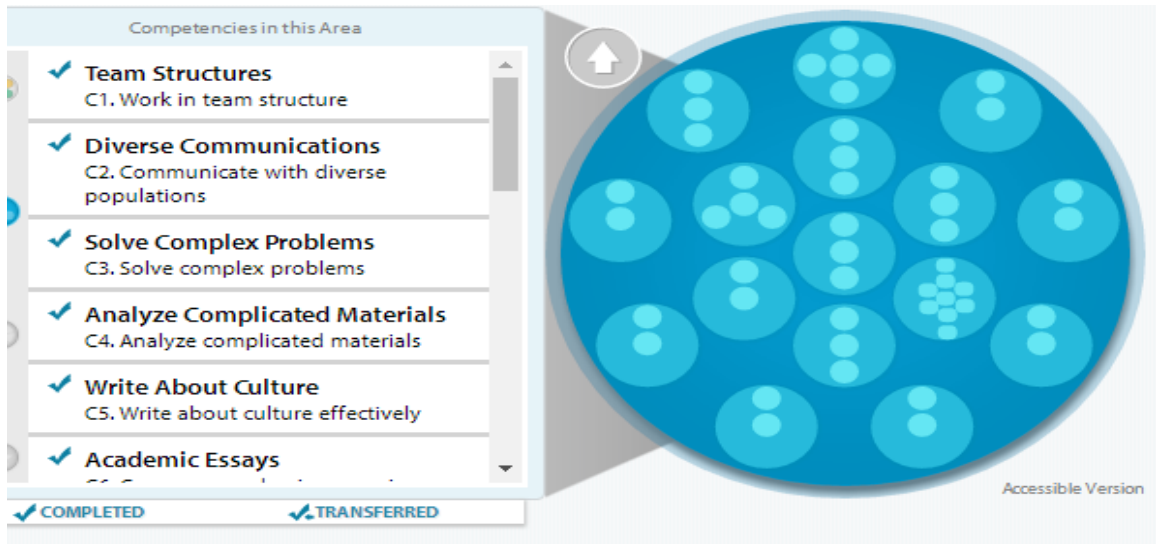
As Rico describes, the curriculum in his CBE program doesn't follow a pre-determined sequence and there are no prerequisite requirements. Once students pay for a

subscription, they will have access to the entire curriculum in the customized learning management system and students can choose which lessons they want to do in whatever order they prefer during the subscription. The following screen shot (4.2) was taken from the landing page of Rico's learning dashboard. These five circles of different colors represent the five areas in Rico's degree plan, and this is where Rico can access all the lessons.



Screen Shot 4.2

Once Rico clicks on one of the circles, for example, the blue circle, it will direct him to the screen (4.3) where he can see all the competencies in that area. From there, Rico can then pick which competency he wishes to do next; for example, he chooses Competency 3--Solve Complex Problems, Screen Shot 4.4 shows the three lessons under that competency: Philosophical Concepts, Ethics and Morality, and Human Obligations. Rico will have to pass all three lessons to achieve Competency 3-- "Solve Complex Problems."



Screen Shot 4.3



Screen Shot 4.4

Furthermore, the program distinguishes itself from a traditional bachelor's degree program in terms of learning expectations:

In my previous college classes, whether it's online or face-to-face, the instructor usually has a series of assignments and exams throughout a semester. Each of those assignments and exams is worth certain points and they all count toward your final grade. I'm expected to do all of those assignments. In this CBE program, every lesson starts with a pre-test. If you pass the pre-test, you can totally test out of a lesson and move on to the next lesson...those pre-tests are pretty hard. I was only able to pre-test out a couple of lessons, a basic math lesson

and a lesson on personal finance, I think. I usually just look through the pre-test and forfeit it. You won't be able to access the rest of the lesson until you either pass or forfeit the pre-test. Then once you're in the lesson, there are assignments. But they don't require you to do any of them as long as you can pass the post-test of the lesson. The post-test shows whether you're competent or not. The post-test is what really counts.

Rico's comment illustrates the post-test at the end of each lesson is the primary evidence through which a student demonstrates whether they are competent or not in that lesson.

The post-test is a high-stake, summative assessment to gauge whether students meet required learning objectives. Delivered in the format of an exam, the post-test usually consists of an extended essay question, a series of short-answer questions, and a few multiple-choice questions. The questions, particularly the essay question and short-answer questions, let students display their understanding of topics covered in a lesson as well as demonstrate their ability to organize and express their thoughts through writing. Most of these questions measure students' ability to synthesize, analyze, or evaluate the materials presented in a lesson. The chart below shows some sample post-test questions

Rico provided to me:

Type of Question	Lesson	Question
Essay	Culture in Film	Describe how the World War II victory helped create an economy of abundance in the United States.
Essay	Theories in Humanities	Describe the ways that subjectivity is illustrated in "To the Lighthouse" by Virginia Wolf.
Essay	History	How did the Civil Rights Movement become increasingly radicalized in the mid- to late 1960s? What contributed to this shift? Discuss four examples of the increasing radicalism.
Essay	Theories in Sociology	Discuss the differences between social conflict theory, structural functionalist theory and symbolic interactionist theory, and illustrate how the theories

		would apply to a real-life problem such as teen pregnancy.
Short-Answer	Criminology	Summarize the development of prison programs during the early, middle, and late 20th century.
Short-Answer	Religion and Art	In Leonardo da Vinci's <i>The Last Supper</i> , what was symbolic about the opening in the wall behind Jesus?
Short-Answer	Organizations	Define organizational structure and explain its six key elements.
Short-Answer	Social Psychology	Please recount an episode in your life that helped shape your cultural outlook. Specifically, describe if you tend more toward an individualistic or a collectivist perspective and describe how this was shaped by your chosen event.

Chart 4.1 Sample Post-Test Questions

Rico describes these post-tests as "very writing-intensive" and students have three hours to complete it. However, in case students can't complete it within three hours, they can request extra time to be added to the test. The post-test is based on a 100-point scale—40% of which will come from the extended essay and 60% from other types of questions.

In addition to the post-test as a high-stake, summative assessment, each lesson also has low-stake, formative assessments including discussion postings and assignments. The discussion postings and assignments are totally optional as they are designed as practice to prepare students for the post-test and they are only worth one bonus point each toward the post-test should students successfully complete them. Rico finds this practice drastically different from his previous college classes in which he was expected to do everything that was assigned by the instructor and everything counted toward his final grade (including attendance in some situations).

Another learning expectation that stood out to Rico was the expectation for mastery in his CBE program:

You had to get at least 86% on the post-test to pass. My classes I took at the community college, you only need a 70% to pass. Getting 86% is a lot harder than getting 70%. Even for the optional assignments in a lesson, you have to get either 100 points or redo it. If your assignment is good, you get 100 points. If it doesn't meet the expectation, you get zero and have to resubmit it. There is no in-between.

Rico's CBE program sets the mastery level at 86%, and students have to achieve 86% on every lesson. The 86% will earn students a B on their transcripts. If students desire to get an A on their transcripts, they will have to attempt the additional Mastery at the end of a lesson, which usually involves a more complex project. Students are allowed to attempt the post-test and the Mastery as many times as they need. The following chart (4.1) further illustrates the learning process and expectations in a lesson:

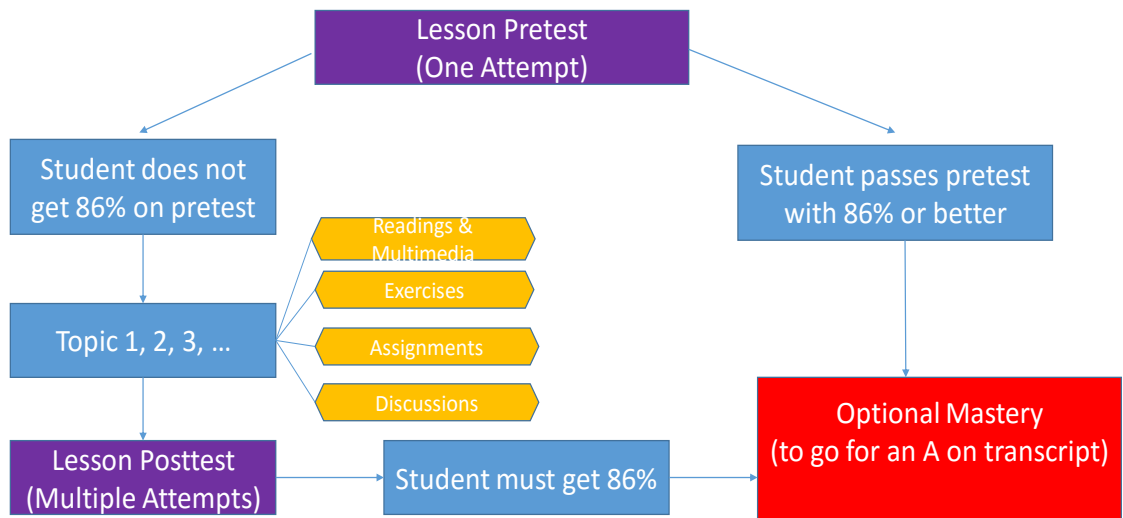


Chart 4.2 Lesson Flow and Expectations

Perhaps, the biggest difference between the CBE program and a traditional bachelor's degree program is how it breaks away from time constraints.

When I was doing my associate's degree, there were semesters. Classes begin when a semester begins and classes end when the semester ends. If I don't sign up for a class early enough, I may not be able to get into the class and then I'll have to wait for the next semester to take the class. In my CBE program, there are no semesters; there are just subscription periods. Every time I buy a subscription, I get six months on my own terms and then I can take all the lessons I want.

As Rico describes, his CBE program breaks away from the traditional semester structure and operates on a year-round schedule. Students will not lose time to learn from waiting for a semester to begin or from semester breaks. In addition, Rico's CBE program allows him to determine his own learning schedule:

I really like taking online classes because I don't have to follow set class times or sit in a classroom after a long day at work. But my online classes from before all have a set schedule for assignments or exams. I have to follow those schedules closely; otherwise, I'll flunk the class. In CBE, it is totally on my own schedule. There are no due dates on anything. Say if I don't finish a lesson when my subscription ends, I can pick up where I left off when a new subscription begins. The only bottom line is I have to earn at least 12 credits during each subscription to keep my financial aid.

As Rico mentions, traditional online classes still have a beginning and end date as well as a weekly schedule. The same is not true in his CBE program. In fact, Rico could spend as much time as he needed on a lesson or he could race through a lesson as quickly as he was able to.

Finally, Rico's CBE program differs from a traditional bachelor's degree program in terms of pricing and cost:

The tuition for my program is \$2500 for a six-month subscription. The \$2500 covers everything. I can complete as many lessons as I can during each subscription with no additional cost. You know, it's the all-you-can-eat model. I never have to buy a single textbook. All the textbooks are e-books and they're already embedded in the lessons. The pricing is just awesome! You can't beat that.

In summary, the CBE program Rico enrolled in is innovative in several aspects, including curriculum organization, learning expectations, scheduling, and pricing. This section gives an overview of the CBE program described in my dissertation and introduces the distinguishing characteristics of the program. The next section will present the major themes that have emerged from my study.

Major Themes

The central question of my case study is how the model of competency-based education (CBE) facilitates or hinders adult learning in a higher education setting. The question of how adults learn has long occupied the attention of scholars, researchers, practitioners; however, there is “no single answer, one theory or model of adult learning that explains all that we know about adult learners.” Instead, “what we do have is a mosaic of theories, models, and sets of principles” that, combined, “compose the knowledge base of adult learning” (Merriam, 2001. p.3). Such a “knowledge base of adult learning” provides the theoretical foundation for my study. Particularly, a number of common themes discovered among the mosaic of adult learning theories and models has combined to establish the conceptual framework of my study. These common themes include adult learning as a self-directed process, adult learning as a flexible process, adult learning as a social process, adult learning as a goal-oriented and results-driven process, and adult learning as a change process. Furthermore, the findings from my study also gave rise to an additional theme that was not emphasized in the existing adult learning literature--adult learning as a scaffolding process, which means adult learners need support to complete tasks they would be unable to master without assistance.

Adult learning as a self-directed process. “The CBE program puts me in charge of everything. It makes me the driver of my own study.” This quote by Rico illustrates his CBE program gave him a truly self-directed learning experience. More specifically, here is how Rico’s CBE programs put him “in charge of everything:”

I’m able to pick and choose which lessons to do first, next, or at the same time. I don’t have to follow a particular sequence; I’m able to go at my own pace and on my own schedule; nobody is setting any due dates or deadlines for me; also, I’m allowed to choose what assignments to do and what assignments to skip, and to choose when to take a test.

As described by Rico, his CBE program empowers him to set learning goals for himself and choose a flexible path to reach those goals, which is a key characteristic of self-directed learning. Self-direction is a central concept in adult learning theories and models. Two of the most important theory-building efforts in the field of adult education—*andragogy* and self-directed learning—both emphasize the idea of self-direction as key to adult learning. Based on the literature on *andragogy* and self-directed learning theory, what qualifies learning as “self-directed” is that

learners take responsibility for their own learning process by determining their needs, setting goals, identifying resources, implementing a plan to meet their goals, and evaluating the outcomes (Teaching Excellence in Adult Literacy, 2011, p.2).

According to Rico, he had to take much greater responsibility for his learning in a CBE program than in a traditional college program:

When I was working on my associate’s degree in the community college, everything is very structured. The instructor usually has everything planned out for their class and they tell us what we need to do for every class and every week. I just need to make sure to attend classes regularly and turn in assignments when they are due. Now in CBE, I have to plan out everything: how many credits I want to finish for my subscription period, what lessons I want to do, how fast I want to

do a lesson, when I want to take a post-test, when I want to begin a new lesson—I have to worry about all of these things. But I like it. I feel empowered. I know it's all on me how fast I can go through my program.

Rico's statement testifies that the self-directed aspect of his CBE program meets the learning preferences of a mature adult learner as it gives him autonomy and empowers him to take ownership of his learning.

Three dimensions of self-directed learning. Although andragogy states that adults become increasingly self-directed as they mature, self-directed learning is not necessarily a good fit for all adult learners. The literature of self-directed learning theory further explains what it takes for one to be successful in a self-directed learning experience. In one model developed by Garrison, it emphasizes that self-directed learning integrates three dimensions interacting with each other: self-management, self-monitoring, and self-motivation (Merriam, Caffarella & Baumgartner, 2007).

Self-management involves learners' use of learning resources within the learning context to reach their learning objectives. The CBE program in my study offered students rich learning resources, including academic articles, textbook chapters, PowerPoint lectures, and multimedia materials, all of which were compiled and embedded in the customized learning platform to help the learner master targeted competencies; the program also provided its students with a multi-layered support system including faculty mentoring, subject matter expert guiding, peer networking, etc. to ensure academic success. However, given all the learning resources and support systems, it was still the student's primary responsibility to take control of and shape these learning conditions to their benefits so that they were able to successfully complete the program. Our participant of my study, Rico, demonstrated such self-management throughout his CBE experience.

First, Rico took advantage of the multi-layered support system that was provided to him. The first layer of the support system involved a faculty mentor.

I was assigned a faculty mentor the day I began the program and she's been working with me ever since. I think she will continue to work with me until I graduate...my faculty mentor is like an advisor and a guide. I can go to her for everything related to my program.

Because the faculty mentor acted as students' first point of contact, Rico always stayed in regular communication with his faculty mentor and reached out to her whenever he needed help. During my study, Rico made multiple comments on how helpful a designated faculty mentor was to him:

I know my faculty mentor has a lot of other students to mentor, but I still feel that she is there just for me. She regularly checks in with me to see what I've been working on and what questions I might have...In my first subscription, she checks in with me every week. Then after my first subscription, she checks in with me once every two weeks because I'm not new to the program anymore...I never hesitate to email her with any of my problems and she usually replies back right away. You know, I start to think my mentor must be on the computer all the time because she always responds to my emails so quickly, sometimes even late at night or over the weekend...my mentor is also like a personal cheerleader for me; she knows when I pass a lesson or reach a certain milestone, and she sends me an email to cheer for me.

In addition to his assigned faculty mentor, Rico also utilized the subject matter experts' support; these subject matter experts were faculty members assigned to particular lessons and they support students in lesson-specific problems:

There are professors in charge of specific lessons. They grade the post-test and the assignments for their lessons they are in charge of. They also answer questions about their lessons. When I'm working on a lesson and have a question about that lesson, I would email the professor in charge of that lesson...You do know which professor is in charge of a lesson as soon as you begin the lesson. They send you an email, welcome you to the lesson, and tell you they're there to help you. They always leave you with their name and contact information.

As Rico describes, the subject matter experts provided a second layer of support to students. Throughout his program, Rico worked with several subject matter experts

multiple times on multiple lessons. These faculty members began to know Rico and Rico also became familiar with their teaching style and expectations. Between the faculty mentor and the subject matter experts, Rico felt that he was well-supported in his program:

In a traditional college class, you only have one teacher to help you, you know, the teacher of that particular class you are taking. In my CBE program, I always have two people I can reach out for help: the teacher who's in charge of a lesson and my faculty mentor. I can get help from both of them if I need to...I never hesitate to ask questions in this program. I don't have to worry about what other students might think of me and my questions. I don't really worry about what the professors might think of me. They always welcome your questions and they make me feel they're really there to help me.

Besides the faculty mentor and the subject matter experts, this multilayered support system also included specialized program staff, for example, the financial aid officer. There were a couple of times when Rico's faculty mentor had to connect Rico with the program's designated financial aid officer to address specific financial aid questions.

Second, Rico demonstrated self-management by applying effective study skills to understanding the learning materials. For example, soon after Rico began his program, he realized it was important to take notes while going over the assigned readings.

I create a Word document whenever I start a new lesson and use the Word document to jot down key points from the readings. I also use the Word document to record all the questions from the pre-test, and then I'll try to answer these questions while I go through the readings or other materials. I know the questions on the pre-test are a good indicator of what might be on the post-test. So, I always copy down all of the questions on a pre-test as a way to help me prepare for the post-test.

Furthermore, Rico used his Word document to record information he found online that was relevant to the lesson he was working on; he said the Internet searches could provide very useful additional resources for him to study the content of a lesson because these external Internet resources helped him better understand the content or gave him ideas for writing.

As I make my Word document full of notes for every lesson, the document becomes my go-to-guide when I take the lesson post-test. When I have to answer a question on the post-test, I look for answers in my Word document first. When I have to write a response to an essay question, the notes in my Word document can give me ideas for writing. I usually incorporate stuff from the document in my answers.

Rico was able to use the learning resources available to him within the context of his CBE program to reach his learning objectives. Whether it was effectively utilizing the resources offered by his CBE program or applying effective study skills to his coursework, Rico demonstrated the self-management dimension in self-directed learning.

The next two dimensions of Garrison’s model—self-monitoring and motivation—represent the cognitive dimensions of self-directed learning. Self-monitoring includes both the ability to use a repertoire of learning strategies and the ability to think about their thinking (Merriam, Caffarella & Baumgartner, 2007). Learning strategies consists of study skills, goal setting and self-regulated learning, all of which are relevant to CBE, as they “affect each individual’s ability to acquire new skills and knowledge, progress at their own pace, and benefit from customized support” (Lewis, Eden, Garber, Rudnick, Santibanes, & Tsai, 2014, p. 4). The ability to think about one’s own thinking, or metacognitive skills, is very important in competency-based learning situations because there is more responsibility on the learner to plan and guide their own learning. Finally, students need to keep their motivation consistently high in a CBE program so that they can progress at a sufficient pace towards completion. The freedom to set one’s own pace and schedule can be motivating for adult learners, and the ability to decide when, where, and how to learn can contribute to adult learners’ commitment to do their best. In my study, the participant Rico demonstrated self-monitoring when he set both long-term goals for each subscription period and short-term goals for each week. Rico said:

In my community college classes, the teachers set goals for us, you know, by setting due dates and deadlines. All I need to do was to follow those. But in my CBE program, I have to set my own goals constantly—weekly goals, monthly goals, and subscription goals. The goals keep me on track. I always have a plan for what I need to do each week and how many credits I want to complete each subscription. I have to try everything possible to stick to my goals unless something unexpected comes up.

Rico's self-monitoring was also demonstrated when he realized his initial goal of finishing the entire program in one or two subscriptions was unrealistic and he altered his goal accordingly, giving himself a more realistic goal to work towards. When he failed to achieve a particular short-term goal, he would re-assess the situation and make a plan accordingly. Rico said:

I'm not the kind of person who writes my goals or plans down. But I do have them in my head. I have an idea in my head what I need to do every day, every week, every month. I think about them all the time. When I don't have any goal or plan in my head, that's when I get behind or lost...Yes, I do have to change my goals or plans from time to time because things just don't always work out as you planned. When things change, I just set a new goal or plan.

In addition, Rico demonstrated strong motivation by making amazing progress through his program. At the time of my study, Rico couldn't recall exactly how many credits he earned in each of his past two subscription periods, but he knew he earned at least double the minimum credits required for his financial aid eligibility, which was 12 credits per subscription period. Speaking of motivation, Rico commented:

It's very motivating whenever I pass a lesson and it's very motivating to see my credits built up little by little. As I finish the lessons one after another, I'm earning credits constantly rather than only at the end of a long semester like in my previous college...of course, there were times I felt sick and tired of studying. That's when I slow down some and take a break...I just keep thinking about finishing and graduating. I tell myself: the sooner you finish, the sooner all of this suffering ends, ha ha ha.

In summary, adult learning theories suggest that adults have a deep need to be self-directing in their learning. CBE, with its emphasis on personalization and flexible pace,

lends itself to a self-directed learning experience, and therefore can better meet the need of adult learners for self-direction. The results of my study show that the participant appreciated and took advantage of the opportunity for self-directed learning provided by his CBE program. My study also demonstrates that to succeed in the CBE model, students need to possess the characteristics of self-directed learners. Specifically, students need to take control in “planning their learning pace, monitoring their learning comprehension, and making judgments on various aspects in their learning process.” Students also need to become aware of and actively explore various learning resources offered by a CBE program. Further, students need to develop strategies to effectively use resources and overcome challenges that are uniquely associated with self-directed learning. Last but not least, students need to become highly motivated to take full advantage of a CBE program’s potential for faster completion and lower cost (Song & Hill, 2007, p. 35).

Adult learning as a flexible process. "I love the flexibility of this program." This quote by Rico summarizes the biggest advantage of the competency-based education (CBE) program described in my study. "Flexible" and "flexibility" are the two words used most frequently by Rico to describe his CBE experience.

Flexibility is an important concept embedded in adult learning theories and models. A key theory-building effort in the field of adult education that has endorsed the idea of flexibility is the theory of margin. The theory of margin is “grounded in the notion that adulthood is a time of change, growth, and integration in which one constantly seeks balance between amount of energy needed (Load) and amount of energy available (Power)” (Merriam, Caffarella, & Baumgartner, 2007, p. 93). To engage in learning, an adult must have some margin of power available. When the load continuously matches or

exceeds power, the situation is very vulnerable and susceptible to breakdown. When a person is able to maintain a reserve of power, they are more likely to learn new things. If an adult is going to undertake a learning activity, they must realistically evaluate his/her life and see if there is actually margin for the added demands of the learning (Merriam, Caffarella, & Baumgartner, 2007). The flexibility of a learning activity is one way to reduce “Load” and provide margin of “Power” for an adult learner.

In Rico's case, the flexibility of his CBE program made it possible for him to fit earning a bachelor's degree into his life's “margins.” Rico said:

I love the flexibility of this program. I wouldn't have been able to finish my degree without the flexibility. Being able to do the coursework on my own schedule, not being restricted to their [the school's] schedule--that is the biggest benefit of this program for me...The reality is my family and my work are more important than a degree. I have to put my family and work before college, in priority. With this CBE program, I was able to fit school around taking care of my family and working.

Rico's comment illustrates that the CBE approach takes into consideration that, the “student” role is a secondary role for most adults. Adults have multiple responsibilities and fulfill multiple roles in their lives. These multiple roles inevitably create conflicting and competing demands on the adult learner in terms of energy and time. Flexibility of a learning activity makes it possible for an adult to fit the learning activity into life's “margins” (Kuhne, n.d. & Merriam, Caffarella, & Baumgartner, 2007). With flexibility being its hallmark, the CBE model helps adult learners maintain that reserve of “Power” to engage in learning by offering convenient scheduling and flexible pacing, which equates to a decrease in external “Load” and an increase in external “Power.” No class schedules, no commute, and no set semesters made it feasible for Rico to pursue his bachelor's degree while juggling many other responsibilities in life.

In my study, the participant Rico acknowledged flexibility as the biggest advantage of CBE. Rico really liked the fact that in his CBE program, he didn't have to follow set class schedules, that he didn't have to worry about a class being full, and that he didn't need to register for new courses from one semester to another.

It had all the coursework laid out for us; it's all right here on the dashboard. I can see everything I'll need to complete. I don't need to guess or decide on what classes to register every semester. When I want to start a new lesson, I just click a few buttons on the dashboard, and then I'll have access to a new lesson. I can start a new lesson anytime I want.

For Rico, this was “so much better” compared to his traditional college program where he had to register for classes every semester and he couldn't start a new class until a new semester began. The flexibility of the CBE program took some “Load” off Rico's shoulder and gave him extra “margins” to focus on the learning. Rico said:

[When I was attending my local community college,] I remember having to stay up late at night or wake up very early in the morning, waiting for my registration to open up so that I can register for classes as soon as I was allowed to. They give you a specific time and date—that is when your registration opens. I make sure to register right then and there. If you wait, the classes you want might fill up. Even though I always register as soon as possible, I still can't get into some classes, especially the online classes; they fill up so fast. When I can't get into the class that works for my schedule, then I have to wait for the next semester... [with my CBE program], I don't need to register for classes from semester to semester. There's no such thing as semesters. I just do the lessons pretty much on my own terms.

Furthermore, the CBE program was also flexible in the way that there were no due dates and that there was no penalty for missing a deadline. Rico said there were weeks when he didn't get around to his schoolwork at all between family and work obligations.

If it was in a traditional college class, I would lose points for not showing up to class or not turning in stuff that was due. I will probably lose points even if my assignment is a little late. I might even flunk the class if I missed too much stuff. But I don't have to worry about that with this program.

The flexibility of his CBE program allowed Rico to get more schoolwork done when he had extra time or to take it slower when other obligations in life got in the way. Rico gave the example of the 2015 holiday season and the example of a family vacation in early 2016:

My company gave everyone two weeks' paid time off for Christmas and New Year's, which was awesome. Besides spending time with my family and celebrating the holidays, I was able to dedicate a lot of time to my schoolwork. I did more than six credits during those two weeks. That many credits would normally take me a couple of months to finish. I was very happy I could still work on my program even when the whole university was closed for the holidays. Honestly, having two weeks of paid, free time was like a luxury for me and I knew I had to take advantage of it...Yes, they still had professors working with us during the break.

In January of this year [2016], we went on a family vacation to Disneyland. We went for a whole week since it was our first trip to Disneyland. That week, I didn't get to do any study. But that was okay. I had planned for that week to be a little break for me from study. If it was in a regular program, I would have to miss classes, if the teacher even allowed it. But in this program, I didn't have to worry about missing classes or missing any work. In fact, we went on the trip with my older sister and her family. My older sister is also going to school for her bachelor's in a traditional program. She had to take her laptop and had to log into her online classes every day on the trip because that was what her teacher required. Hearing my sister complain about her classes, I felt lucky I chose this program.

Compared to the program Rico attended for his associate's degree, his CBE program offers students flexibility in many aspects, as summarized in the following chart. The flexible features of his CBE program were something Rico truly appreciated and they facilitated his learning throughout the entire program.

Rico's Associate's Degree Program	Rico's CBE Bachelor's Degree Program
Semester-based	Individualized subscription periods
Students have to register for classes from semester to semester	Once enrolled in the program, no further registration is needed.
Pre-determined weekly schedule set by the instructors;	Completely self-paced (The only bottom line for Rico is to complete at least 12 credits per

Due dates and deadlines for assignments and tests in every class	subscription to remain financial aid eligible.)
Breaks between semesters	No breaks between subscription periods; year-round schedule
Have to "sit through a class" for the entire semester	Can exit a lesson whenever passing the post-test
Have to start over with a course if it is not finished by the end of a semester	Can pick up where you left off from one subscription to another

Chart 4.3 A Comparison of Flexibility Between Two Programs

In summary, the nature of adults' lives determines that adult learning needs to be a more flexible process. For adults to engage in learning, they need to be able to fit learning activities into their life's "margins." My study demonstrates that the CBE model can provide extra flexibility adult learners appreciate and need, therefore facilitating the process of adults pursuing higher education.

Adult learning as a social process. The "socialness" of learning is another important concept embedded in a number of adult learning theories or models: experiential learning, situated cognition, social learning theory, transformative learning, emancipatory learning, lifelong learning, etc. (Merriam, Caffarella, & Baumgartner, 2007 & Niewolny & Wilson, 2009). In my dissertation, "socialness" of learning consists of two aspects: the social context in which learning occurs and the social activities involved in the learning process.

The social context for learning. The first aspect in "socialness" of learning is the social context where learning occurs. Learning, including self-directed learning, rarely occurs in total isolation from the world in which the learner lives. Rather, learning is "intimately related to the world and affected by it." "What one wants to learn, what is

offered, and the ways in which one learns are determined to a large extent by the nature of the society at any particular time” (Merriam, Caffarella, & Baumgartner, 2007, p. 5).

In my study, we see how different conditions of social context manifest themselves in the participant Rico. First, social context has created the demands for Rico to engage in new learning.

I didn't choose to go to college right after high school. I always wanted to join the army so that's what I did after high school. Going to college was not important to me at that time. The military was where I always wanted to go. After getting out of the army, I had a bunch of different jobs. Although I never had a really high-paying job, finding a job wasn't hard for me. I could always find something when I needed a new job.

But that situation changed for Rico around 2009 when he got married and wanted to find a better job to support his family. “I had a lot of trouble finding something good for me, my wife, and our baby on the way.” Rico recalled filling out numerous job applications and being rejected again and again. Around that time, the idea of going to college began entering Rico's mind:

I thought to myself, the days might've been gone when a high school diploma was good enough. More and more jobs require a college degree now. I thought if I could put a college degree on my resume, I'll be more marketable and I'll get a better job to support my family.

Eventually after a long job search period, Rico found a job he was happy with and he made decent money for his family. Then, the idea of going to college slipped Rico's mind again.

I was good at my job and I was satisfied with what I was doing until I was ready for another level at my work. I applied for several management positions at my company and I was very confident. I thought I did well on my interviews, but I didn't get any of those positions. I was turned down several times.

Rico didn't question his abilities to perform at the management level; he questioned if his lack of a college degree was an obstacle. Motivated by his desire to move up the corporate ladder, Rico decided to attend his local community college for a business administration degree. He believed his years of experience in the industry combined with a college degree would provide him with the stepping stone towards a management position at his company; thus, Rico started his college journey.

Second, social context has created new opportunities for Rico to engage in learning. Rico is an adult learner actively pursuing a college degree when the movement of CBE emerged in America's higher education.

When you first told me about CBE programs, I was immediately attracted to the idea and I looked up several programs. After I did my research, I felt very hopeful. I knew that was what I wanted. It was like a brand new opportunity opened up for me.

This new CBE movement shaped Rico's learning experience by offering him an alternative path to his bachelor's degree that better met his needs. If the option of CBE were not available, Rico wouldn't have been able to benefit from it. The case of Rico reconfirms that "what one wants to learn, what is offered, and the ways in which one learns are determined to a large extent by the nature of the society at any particular time" (Merriam, Caffarella, & Baumgartner, 2007, p. 5).

Furthermore, Rico's learning was also affected by his immediate social context, particularly his life situation. Rico came from a working class. Working to support his family was the first priority of his life. Rico wanted to go to college so that he could provide a better life for his family; in the meanwhile, he couldn't allow the cost of college to add extra financial burden to his family.

I chose to first attend a community college because it's affordable. We don't have extra money for college, and I don't want to take on debt to go to school...I chose this CBE program also because it is very affordable. I was thrilled to find out I was eligible for Pell Grant and it could cover all of my tuition.

Rico's life situation was also characterized by the multiple social roles he fulfills: employee, parent, spouse, son, brother, citizen, etc. As a result, learning for Rico was characterized by a complex interaction between him, his lifeworld, and the duties and responsibilities inherent in his multiple roles as an adult. Such interaction fundamentally affected how Rico preferred to learn and why he chose the CBE option. For Rico, CBE and his life situation was a good fit:

Leaving my job to go to college full-time is absolutely not an option. I need college to fit into my current life, not the other way around. On top of that, I need it to be affordable. I did what I could at the community college, but transferring to a university to get my bachelor's degree will be a struggle for me, both the cost and the class schedule... Fortunately, I found this CBE program. The schedule is not a problem at all and the cost is much lower than other schools. It really worked for me.

In summary, Rico's learning experience was "intimately related" to his lifeworld and significantly affected by it. Rico's personal life situation combined with the larger social context he lived in shaped Rico into the adult learner he was today as well as shaped Rico's choices of his educational path.

The social activities in learning. The other aspect in "socialness" of learning refers to social activities that the learner participates in to acquire knowledge and skills. That is, the learner's social behavior, experience, activity, positionality, and reflection results in learning (Niewolny & Wilson, 2009). The social learning theory posits that people learn from each other through observation, imitation, and modeling. It emphasizes the importance of observing, imitating, and modeling the behaviors, attitudes, and emotions of others as well as the importance of reciprocal interactions between cognitive, behavioral,

and environmental influences ("Summaries of learning theories and models," n.d.). The social learning theory highlights how the social element can result in the development of new learning among individuals.

A missing piece in Rico's CBE program is the lack of social learning, in which students can interact with and learn from each other through observation, imitation, modeling, and cooperation. In my study, Rico pointed out the lack of personal interaction as a disadvantage of his CBE program, especially the lack of interaction with fellow students in the program:

I wish I could talk to other students about the lessons or their progress, you know, just to know how other students are doing in the program or what they think of particular lessons or readings...there is a (online) chat room we can use on our dashboard. I left a message once, but nobody responded to it. It's not useful. I only talk to my faculty mentor and the subject matter professors through emails.

Because the CBE approach focuses on individual achievement of competencies at a self-directed pace, individual efforts are emphasized over collaborative efforts. According to Rico, he never interacted with any other student in the same program; there was no required group project or synchronous discussions that would involve student interaction:

There are discussion forums in the lessons, but they are more like a bulletin board; we post our responses to the discussion question and leave them there. You just post to the discussion whenever you get to the lesson. So, there might be student postings from a year ago, and also postings from a few days ago...No, there aren't much back-and-forth comments or responses because, you know, I might be the only student working on that lesson at that time; so, who's gonna respond to my postings except the professor who's grading it?

Rico understood students in the program were all at different places with their coursework which made it difficult for peer collaboration, but he thought students could still be encouraged to interact virtually and share their individual experiences.

It does feel lonely sometimes. I know there are other students doing my same program, but I don't know who they are and I don't have a way to reach them. It'd

be nice to talk to them and know how they're doing in the program. Also, when I'm working on a difficult lesson or a difficult assignment, it'd be very helpful if I could discuss it with other students and share some ideas.

Although Rico missed personal interaction in his CBE program, he said he did not miss having to drive onto campus and sit in a classroom; neither did Rico feel he received lesser of a college education due to the absence of learning in a physical classroom.

I prefer online learning. I actually learn better online. I don't mind having to communicate with my teachers and classmates online. Anyway, our whole world today is interacting online... I was thinking about maybe using social media to connect all the students in my program. Can they bring social media into the dashboard? The chat room we have on the dashboard now is not dynamic; it's not engaging. We need something better than that.

Just as Rico's program is delivered fully online, today's CBE programs in American higher education are mostly offered online to allow for maximum flexibility and convenience. Students in an online CBE program do not usually have the opportunity for class participation as well as interaction with peers and instructors as they would in traditional online classes. Contact and collaboration with peers is hard to foster when every student is working at their own pace and a formal class structure is lacking. As demonstrated in Rico's situation, he desired to engage in social learning opportunities and social communication even when he was working toward mastery of competencies on a flexible, individualized path.

Adult learning as a goal-oriented and results-driven process. "I want to get my bachelor's degree as fast as possible and as cheaply as possible." This quote by Rico summarizes what he really wanted from his CBE program. It demonstrates he had a clear goal in mind, and he wanted to achieve that goal efficiently in terms of time and money.

Literature on characteristics of adult learners often state that adult learners are goal-oriented; they usually want to achieve a particular goal or objective when coming

into a learning experience. Adult learners are also results-driven; they often have specific expectations for what they will get out of learning activities, have the end in their mind, and look for the fastest way to get there (“Training Principles of Adult Learning, n.d.; The Midwest Aids Training and Education Center, 2009; Malamed, 2009). As adult learners operate in the real world and are typically faced with important matters in everyday life, they primarily participate in learning programs to achieve practical goals; they have a results-driven mindset when it comes to getting things done; they also tend to evaluate their learning activities to see if their expectations are met. Adult learners are goal-oriented and results-driven in the way that they wish to achieve their goal and reach the end results of a learning activity efficiently. In other words, many adults come into higher education programs with the expectation that they can get in, get through, and get a better job as quickly as possible.

My case study finds that Rico was highly goal-oriented and results-driven when going through his CBE program. First of all, Rico knew exactly what he wanted from his CBE program. His goal was to earn his bachelor’s degree and his desirable results were to earn that degree "as fast as possible and as cheaply as possible.”

Before CBE, you can't really go faster even if you want to. You know, you can only get out of a class at the end of a semester. For tuition, you pay per credit. The more classes you take, the more tuition you have to pay. But in my CBE program, it uses the subscription model. I just pay a fixed price and I can do as many credits as possible. So, I can save a lot of money if I go fast. That's what I want--I want to do this fast and save as much money as possible.

Second, Rico was very strategic in maximizing the effect of his study to maintain a fast pace through the program. Since the lesson post-test was the ultimate measure of competency, Rico approached all the learning materials with the post-test in mind.

I always purposefully look for clues of what might be on the post-test through the pre-test, lesson introductions, assignments, discussions. I try to predict what might be on the post-test and take notes while I go through the readings...I always schedule the best times and situations to take the post-test so I can possibly perform my best. These tests are always stressful. I usually take them when I have plenty of time, [when I'm] not distracted by my kids, and when I'm not too tired from work or other things.

Rico was also strategic in deciding what to do and what to skip in his coursework so that he could save time. He really liked the fact that assignments and exercises in a lesson were completely optional and that they had no major effect on your grade:

I don't have to do any of those exercises, assignments, or discussions if I don't feel like it. I can totally pick and choose what I want to do and not get stressed out by those assignments. This is so different from my college classes before. Back then, I had to do everything the teacher assigns; otherwise, I'll lose points or even flunk the class. Here [in my CBE program], only the post-test counts. As long as I pass those tests, I'm good--that's how I prefer to learn.

When the assignments were small and didn't take too much time to do, Rico usually did them to earn bonus points toward his post-test, even though those points were minimal. However, when an assignment was long and complex, Rico would skip it because the immediate reward from completing the assignment would not be worthwhile of the time and energy he had to put into the assignment.

Each assignment in a lesson is worth one bonus point toward the post-test; so, say if you did five assignments in a lesson, you can earn five bonus points to add to your post-test. But some of those assignments are too much work. For example, sometimes you have to write a 1000-word essay. That would take me hours of work. I'm not going to put in that kind of work just to earn one bonus point. I'd much rather spend my time doing the readings and preparing for the post-test. That's a better use of my time and energy.

Besides assignments that are counted for bonus points, a lesson also includes small exercises. These exercises usually come before an assignment; but they are not worth any points.

At first, I didn't know these exercises are worth nothing. I remember trying to do all of these exercises in a Spanish lesson and then I realized they didn't count for anything. I was upset I wasted my time on those exercises. From then on, I never did any of the exercises. I don't even look at them. I just ignore them.

For Rico, his primary goal was to earn his bachelor's degree; the results he needed to achieve were passing post-tests and moving through the lessons as quickly as possible. Therefore, he devoted his energy and time towards achieving his goal and his desired results. As Rico became more familiar with the format of his CBE program, he learned to be more strategic in achieving his desired results:

When I first began this program, I tried to do all of the optional assignments because I wanted to be fully prepared for the post-test and I want to earn all the bonus points possible toward my post-test. But towards the end of my program, I saw not all of those assignments were immediately relevant to the post-test, so I only did the quick ones, such as discussion postings.

By skipping the big and complex assignments, Rico was able to "save quite a bit of time," which he spent on taking more notes while going through the reading materials. He found the notes he took during reading were sometimes more useful on the post-test than the assignments.

Although being goal-oriented motivated Rico to stay on track with his study, being overly results-driven had its downsides. In reflection, Rico knew he was "too anxious" to achieve results:

I want to knock out those post-tests one after another as quickly as I can. I feel I'm always in a rush. I want to get to the end so badly. I think I even became a little obsessive about being fast... There were times I was working on a lesson, my kids were bothering me, and I got mad at them.

Consequently, Rico didn't feel that he took the time to "slow down," "enjoy the learning," and process the materials deeply. To an extent, being highly results-driven has caused Rico to compromise the process of deep learning:

Now I hardly remember much from the lessons I finished. Maybe it's because I went through them so fast. There is a lot of content in those lessons, but I didn't really slow down to digest the content. I wish I could remember more and that makes me a little sad.

As Rico reflected on what he learned from the CBE program, he said:

I sure wish I could remember more of what I learned. I've done so many different lessons. But now I've forgotten most of the lessons I did. I wonder if this program was still taught in a traditional format, would I retain more of the information?

Being overly results-driven also caused Rico to make the mistake of plagiarism in a few lessons during his first subscription. Instead of relying on his own words to answer the test questions, Rico inappropriately used online sources in his responses.

Even when you correctly cite everything, you still have to make sure your own words make up the majority of your writing. The stuff you cited has to be under a certain percentage. They said I used too much outside sources. They are really strict about plagiarizing. If you get caught plagiarizing several times, the consequences can be serious.

When explaining why he made the mistake of plagiarizing, Rico said:

I was too eager to pass those tests and complete lessons. I didn't take the time to come up with my words when I could find certain answers online. I also didn't have a full understanding of what counts as plagiarism. I thought as long as I cite things, I'll be fine. But they don't want to see a lot of citations. The majority of your writing has to be your own words and your own ideas.

As a result of Rico's mistakes, he had to re-take a few tests and re-write a couple of essays. He had to seriously remind himself that further offenses of plagiarism could result in his expulsion from the program. In his following subscriptions, Rico was particularly careful about not committing any plagiarism.

In summary, Rico represented a typical adult learner who chose to participate in learning activities to achieve a personal goal and approached his learning experience with a results-driven mindset. For Rico, his goal was to earn his bachelor's degree, the sooner

the better. His desired process of learning was to get in, get through, and get out of the program, the faster the better. Everything Rico chose to do during his learning process was driven by the mindset that "I want to finish the program as fast as possible." The actual accumulation of knowledge and development of skills came secondary to the end result of earning his degree. By the conclusion of my study, Rico did finish his degree in record time (18 months) and achieve his goal. However, whether his drive for results compromised the quality of his learning is worth further investigation.

Adult learning as a change process. "My CBE program has made me change quite a few things." This quote by Rico summarizes the pursuit of his bachelor's degree and the CBE experience have created changes in Rico's life. According to Russell (2006), the reasons why most adults enter any learning experience in the first place are to create change, which could encompass a change in their skills, behavior, knowledge level, or even attitudes about things. For Rico, he experienced the following changes:

First, the program has changed Rico's skill and knowledge level, which was associated with the content of his degree program. In terms of knowledge, Rico was exposed to a variety of topics and competencies, from humanities, to art, to sciences, to Spanish. "These different topics opened my eyes to a variety of things," said Rico. In terms of skills, Rico commented: "My writing, thinking, and reasoning skills definitely got challenged constantly and I feel they've improved."

Second, the program has changed Rico's experience with higher education. Compared to the traditional model of postsecondary education Rico experienced at his local community college, the CBE program provided a significantly different learning experience towards a college degree. Rico experienced first-hand why these changes

were beneficial to him; he learned what these changes meant to him; and he learned how he should adjust to these changes:

This program is so different from my previous college program. It took me a little while to get used to this format. The first few weeks were difficult; I wasn't sure what was expected of me. But once I got the hang of it, it really worked for me and it becomes easier and easier.

Third, the CBE program changed Rico's personal learning habits. To take advantage of the CBE model, Rico knew he had to be "extremely self-driven" and "proactive" in his learning:

In my previous college classes, we follow the teacher's weekly schedule and I always worked under the pressure of due dates and deadlines set by the teacher; In CBE, I had to constantly set schedules for myself and make decisions by myself...In some of my previous college classes, I put in just enough effort to get a passing grade; in this program, I had to put forward my best efforts in every lesson because just getting by is not gonna cut it.

Last but not least, the CBE program changed Rico's perspective on education. After his own experience with CBE, he believed CBE was a viable method for delivering higher education and "CBE should always be an option for students."

I wish CBE were an option when I was a kid or a teenager. I want to advocate for trying CBE in the public school system and I want my kids to experience CBE...As much as I personally prefer the CBE model to the traditional model, I understand CBE will not replace the current system; however, I think CBE should always be an alternative available to students. I believe many students, especially students like me, can benefit from it. I have a few family members who are thinking about going back to school and I recommended CBE to them...I might consider getting a master's degree down the road. If I do decide to get my master's degree, I can't imagine doing it any other way except CBE.

As shown in the case of Rico, adult learning is about change. Compared to youth, adults have accumulated a greater repertoire of life experiences and knowledge; adults have also developed certain opinions and skills through personal experiences. When adults undertake a new learning activity, it will result in a change in their existing

repertoire of experiences, knowledge, skills, and opinions. In addition to acquisition of new information, skills, and experience, the adult learning process also involves learning about oneself, learning to understand why we see the world the way we do, making meaning of our experiences, making adjustments in life, as well as interacting and collaborating with others (Merriam, Caffarella, & Baumgartner, 2007). Therefore, “learning in adulthood is a transformative rather than an additive process” (Merriam, Caffarella, & Baumgartner, 2007, p. 434).

As a disruptor to traditional format of higher education, CBE represents change. Students who choose a CBE program will definitely experience significant changes compared to traditional model of learning that they were used to. In my case study, Rico had to learn what these changes meant to him, why these changes were beneficial (or not), how he should adjust to these changes and succeed in this new learning model. As a result of this process, Rico has changed.

Perhaps the biggest take-away for me is the increased self-confidence it [my CBE experience] gave me. I wasn't a great student before. I did okay in my associate's degree. But I surprised myself with what I could do in this program. It's very self-empowering. This program really forced me to challenge myself.

In summary, all learning is about change. Learning in a CBE model means more changes for most people who have experienced a traditional model of education. These changes present both opportunities and challenges to adult learners. Rico experienced a series of changes in his knowledge, skills, thoughts, and behaviors in the process of pursuing his bachelor's degree through the CBE approach. More importantly, Rico experienced a significant increase of self-confidence as a result of his achievement. The experience of Rico demonstrates that adult learning is a change process.

Adult learning as a scaffolding process. “I understand I’m expected to do the readings, the assignments, and prepare for the post-tests on my own, but I definitely could use more guidance.” This quote by Rico summarizes although he was independent and self-directed in his learning, he still needed support and assistance in executing learning tasks; such support and assistance involves instructional scaffolding.

Scaffolding refers to a variety of “instructional devices that enable students to complete tasks they would be unable to master without assistance.” In traditional face-to-face classrooms, scaffolding may include “modeling behaviors, coaching and prompting, thinking out loud, dialogue with questions and answers, planned and spontaneous discussions, and so forth,” all of which structure assistance to help the learner bridge a cognitive gap” or “leap a learning hurdle” (Grady, 2006). Traditionally, the concept of scaffolding has been characterized by verbal, visual, instant, and interactive assistance to the learner.

In recent years, with the growth of online learning, the traditional concept of scaffolding has been challenged. While online learning tends to be more flexible and self-directed, scaffolded instruction is still essential and can enhance the online learning experience. In the online environment when students are not physically present, a different kind of scaffolding must thus be constructed. This new form of scaffolding consists of multiple elements: (1) procedural scaffolding (2) conceptual scaffolding (3) metacognitive scaffolding, and (4) strategic scaffolding. Procedural scaffolding “supports learning how to navigate the online course environment and engage in learning activities.” Metacognitive scaffolding “supports learners’ development of thinking skills,” specifically, “learners’ planning, monitoring, and evaluating skills.” Conceptual

scaffolding “guides learners about ‘what to consider’ in the case of complex concepts.” Strategic scaffolding “emphasizes alternative learning pathways and tailored instruction to support individual students” (Stavredes & Herder, 2012, p. 2-3). These four elements of scaffolding together provide a strategic way to make available the appropriate support for a diversity of needs to help online learners persist and succeed.

In my case study, Rico received all four types of scaffolding during his online CBE program. Before he began any coursework, Rico received extensive procedural scaffolding, which included (1) a pre-admission readiness questionnaire to determine if CBE was a good fit for him, (2) a detailed information packet explaining the CBE program, (3) an academic skills assessment, specifically in English and math, to determine his college readiness, (4) a video orientation of the learning platform, (5) a long phone conversation (about 45 minutes) with his faculty mentor who explained the expectations and policies of the program as well as provided helpful tips to get Rico started with his coursework. Rico recalled going through a long intake process from when he first applied for the program to when he actually began the first lesson. Most of the procedural scaffolding occurred during this intake process, which proved to be very helpful when Rico started on his coursework because he was able to dive right into the lessons smoothly. Rico also received certain metacognitive scaffolding from his faculty mentor who checked in with Rico on a regular basis and provided learning tips. Considering Rico was already very self-disciplined and motivated, he didn’t need any close-monitoring from his mentor. He was able to monitor his own progress and keep himself on track.

The types of scaffolding Rico needed the most throughout his program was conceptual scaffolding and strategic scaffolding. Even though the program instructors provided just-in-time conceptual scaffolding and strategic scaffolding based on individual student's demand and per student's request, such scaffolding was not sufficiently built into the curriculum and readily available to all students:

If I have any questions about a reading or an assignment in a lesson, I know I can always ask the professor in charge of that lesson; I can also ask my mentor. But sometimes I have a bunch of questions and then I don't want to have to ask all of my questions through emails. I wish there was more guidance within a lesson already; then I won't have as many questions...for example, more guidance on the assigned readings or more guidance on how to write a particular paper...well, sometimes I just feel like they want us to do all of those assignments and readings without really explaining how to do them.

For Rico, one of the biggest challenges was the readings. First of all, the reading load required in the program was very heavy. For each topic under a lesson, there was usually a list of readings students were expected to do; these readings often included textbook chapters, journal articles, and sometimes full books. The following screen shot shows a fairly long list of readings Rico had to do for just one topic in a lesson; there were different reading lists for other topics in the same lesson.

Reading: Theories of Human Nature

Read the assignments to help you understand theories of human nature within religious, political, and philosophical frameworks. The theories you will explore include Christian theory, the "Blank Slate" theory, and Darwinian Theory.

Read the following materials:

Note: This link launches to the cover page of the text. You will need to navigate to the pages listed below:

Chapter 4 from Loptson, P. (2006). *Theories of human nature* (3rd ed., pp. 43-69). Peterborough, Canada: Broadview Press.

Sin and the Distortion of Politics from Min, J. K. (2005). *American University studies VII: Theology and religion*, volume 280: Sin and politics: issues in reformed theology (pp.69-97). New York, NY: P

Stenmark, M. (December 2009). Three theories of human nature. *Zygon: Journal of Religion and Science*, 44(4), 894-920.

Eoyang, E. (2007). Review of The Blank Slate: The Modern Denial of Human Nature. *Comparative Literature Studies*, 44(3), 397-402.

Schlinger, Henry D. (2004). The almost blank slate: Making a case for human nurture. *Skeptic*, 11(2), 34-43.

Kant: Reasons and Causes, History and Religion from Stevenson, L., & Haberman, D. (2004). *Ten theories of human nature* (4th ed., pp. 119-129). New York, NY: Oxford

Sartre: Radical Freedom from Stevenson, L., & Haberman, D. (2004). *Ten theories of human nature* (4th ed., pp. 176-184). New York, NY: Oxford

Note: This link launches to the cover page of the text. You will need to navigate to the pages listed below:

Chapters 3, 8, and 10 from Loptson, P. (2006). *Theories of human nature* (3rd ed., pp. 29-41, 123-138, 167-190). Peterborough, Canada: Broadview Press.

Screen Shot 4.5

In this particular topic, Rico had to read about 160 pages of materials from different sources. He said:

Whenever I see such a long list of readings, I feel overwhelmed. It might be easier if I have to read a bunch of pages out of one book. But these readings are from different places. Some of them can be really long and dense. After I go through the list and read everything, if I need to look for some information to answer a question, I often don't remember where to look; it's hard to remember which specific reading covers that information.

In addition to the heavy reading load, the format of the readings was not friendly for on-screen reading as Rico could not highlight or take notes on them:

The readings in this program are a killer...they are PAINFUL to do...When a reading is very long, for example, 20 to 30 pages, I'm turned off immediately and I get stressed out by it. There are several lessons when we have to read an entire book on top of a bunch of long articles. I mean, these are boring books, not fun books. That is just too much reading. I was never able to actually read through

it...Some articles are the hardest to read because the content is dense and it's not organized clearly, like a textbook. These articles have long sentences, long paragraphs, no dividing into sections, no headings. When I read them, they just all start to jumble together...I like to mark things up when I'm reading. But for the readings in PDF, I have to print them off so I can write or highlight anything on it; for the e-textbooks, they can't be printed off at all; I can't mark anything up on the screen either. It doesn't help me read at all when I can't highlight or mark on the readings.

Rico strongly felt that some guidance with the readings would be very helpful because "these readings are like an ocean of information and I don't know what I'm looking for." He would like to have "some sort of reading guide" to accompany the readings, for example, an outline of the readings or a list of reading comprehension questions, which could give him specific purposes for the readings and help him focus on what he needed to read for. In this case, a reading guide would be considered a strategy for conceptual scaffolding. A format that allows students to interact with the reading, for example, highlight and annotate the reading on screen, would also contribute to conceptual scaffolding. Furthermore, Rico thought it would be helpful to have a small assignment designed to go along with each individual reading; in that case, students would do a reading and then immediately have to do an assignment to show their understanding of that reading. These assignments designed to check students' comprehension of the readings would also be considered a strategy for conceptual scaffolding.

Another challenge Rico frequently ran into was with complex writing assignments.

We have to do a lot of writing in this program. Every lesson has writing assignments. Some are easy, short writing assignments; but some are very complicated, big writings. I feel sometimes the directions [for some of these writing assignments] are so big and vague that I don't know where to start.

For example, in a sociology lesson, students were asked to write a 750 to 1000-word essay to differentiate the theories of four distinguished sociologists covered in the readings. The readings include both textbook chapters and journal articles, with an approximate total of 75 pages. In a follow-up assignment, students were asked to write a 1250- to 1500-word report in which they had to apply the theories of four distinguished sociologists to a technological advancement. The following quotes summarized how Rico felt about such writing assignments:

They are daunting. The topics seem so big. I often feel overwhelmed by them right away and just give up on doing them. Thank goodness these assignments are not required; they're optional. Each of them is only worth one point [which counts as a bonus point towards the final test]. It's not even worth the time and effort to write a 1000-word paper just to earn one point.

In another lesson on leadership, students were asked to analyze, compare, and contrast leadership paradigm and its effect on the protagonists in two foreign movies. Rico showed me the assignment and said:

I don't know what they mean by leadership paradigm. I can't find it in the readings. I want to know what leadership paradigm includes. I watched the two movies. But I don't think I saw a lot of leadership in the movies. Maybe I'm thinking about the wrong kind of leadership. I wish they could tell us more clearly what they want to see in this paper.

Rico felt he needed more "step-by-step" guidance on how he should approach a complex writing assignment and he would like to see more specific directions:

Maybe they can give us a list of questions to answer in our paper. Maybe they can tell us: first you write this, then you talk about that, and you finish with this, or something like that. ...maybe they could break down this big assignment into several small assignments. I can write 500 words in the first assignment, then I write another 500 words in the next assignment, and so on. Then, in the end, all these small assignments can be combined together to form the big paper they are asking us to write. That'll be much easier to do than having to write the big paper right away.

Because complex writing assignments often require students to synthesize multiple readings and incorporate them into their writing, “it feels like making a big jump from the reading to the writing. I feel something is missing in between.” That “something” to help Rico make “the jump” was conceptual and strategic scaffolding—a sequence of smaller learning activities and tasks to bridge the gap between the readings and the writing. The function of such conceptual and strategic scaffolding will be able to help learners sort out key information presented in individual readings, synthesize ideas across multiple readings, and then organize their thoughts for writing. An example of such conceptual and strategic scaffolding was seen in a lesson about film aesthetics. Rico had read about 70 pages of textbook material on how to analyze and write about film. He had also watched a documentary film as required. The following writing assignment asked him to write a 250-word paragraph to practice analyzing a sequence in the documentary film using the film terminology he just learned. Rico was willing to complete this assignment because it was “small and manageable;” it transitioned smoothly from the reading and the film watching to the writing. “I think I would do this kind of writing assignment all the time because they are not overwhelming,” said Rico. Later in the film aesthetics lesson, Rico was presented with larger and longer writing assignments, but they were of the same nature as the small writing assignment—analyzing a film or a sequence of a film using the technical film terminology or comparing two films in their elements of aesthetics. The design of this lesson demonstrates how students are scaffolded through doing small and simple learning tasks to performing large and complex learning tasks.

In summary, Rico's experience indicates that effective scaffolding is very necessary in a self-directed online learning environment. Like children, adult learners need scaffolding to build new knowledge and develop new skills, especially in a new learning context with features that were unfamiliar to the adult learners. According to the results from my case study, conceptual scaffolding and strategic scaffolding appear to be especially useful for an adult learner to master difficult concepts and complete complex learning tasks in an online CBE context, where students are challenged to engage in self-directed and autonomous learning. To ensure students are not left to learn on their own, all elements of scaffolding must be built into the curriculum and embedded in the instructional design.

Summary

In this chapter, I presented the findings of my case study. These findings are based primarily on analysis of interview transcripts, and are supported by review of documents and observations throughout the course of the study. Findings were discussed in six sections that corresponded with the major themes that emerged from the data: adult learning as a self-directed process, adult learning as a flexible process, adult learning as a social process, adult learning as a goal-oriented and results-driven process, adult learning as a change process, and adult learning as a scaffolding process. An integrated approach of discussing theoretical framework and presenting findings from the research was used in this chapter. The next chapter will discuss the findings from my study and give recommendations based on the findings.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS, AND IMPLICATIONS

This chapter reviews, analyzes, and discusses the findings of my study, including recommendations for students who are interested in the CBE approach as well as for educators who are developing and implementing CBE programs. The chapter ends with discussing the implications of CBE for higher education in America.

Discussion of the Findings

A fundamental question framed my case study: how did the CBE approach facilitate or hinder an adult learner's experience to earn his bachelor's degree in an online CBE program? This question was answered by the six themes that were reported in Chapter 4.

First, the CBE approach facilitated an adult learner's experience to earn his bachelor's degree by providing a self-directed and flexible learning format. In the CBE format, the adult learner was given autonomy to take responsibility for his learning. He was able to control his own learning schedule without putting the rest of his life on hold to sit in a classroom or stressing over a tight school schedule that might interfere with the rest of his life. He also worked through his coursework at his own pace. Whenever he mastered one competency, he could move onto the next competency. Whenever he struggled with a difficult competency, he could take the time he needed to learn and practice the competency without being pushed to move forward regardless of his readiness. Learning at a self-directed pace allowed the adult learner to get more coursework done whenever he had extra time and to slow down whenever life became hectic. CBE, with its emphasis on self-direction and flexibility, provided a channel for an

adult learner to achieve his goal of earning a bachelor's degree, which he could not have achieved through the traditional pathway (Theme 1 and 2).

Second, the CBE approach facilitated an adult learner's goal to earn his degree by prioritizing the demonstration of learning outcomes and emphasizing the results of learning. If Rico could demonstrate he was already proficient in the math competencies, then he didn't have to sit through the required math class; if Rico believed he could pass a history competency assessment without doing the practice assignments, he was allowed to skip all the practice and go directly to the assessment. The CBE approach, with its emphasis on the outcomes of learning rather than the process of learning, can provide an efficient pathway for adult learners to get in, through, and out of a degree program, free from the constraints of traditional seat time. CBE gives adult learners an opportunity to draw upon their prior knowledge, skills, experiences and their motivation to accelerate through the learning process and reach their educational goals more quickly (Theme 4).

Furthermore, the CBE approach facilitated an adult learner's journey to earn his bachelor's degree by providing a positive transformative experience (Theme 5). The learning experience in a CBE degree program has produced not only changes in the learner's knowledge and skill levels, but also changes in the learner's learning habits and beliefs. Particularly, the CBE model has strengthened the adult's skills as an autonomous learner, which he could benefit from in future learning experiences. The CBE model has also inspired the adult learner's interest in advocating for alternative formats of higher education. These changes in the adult learner's perspectives, beliefs, and behaviors will be a valuable lesson for his adulthood.

Last but not least, the CBE approach facilitated an adult learner's experience to earn his bachelor's degree by providing a path to higher education that fit the social background of the learner (Theme 3). Specifically, the CBE approach fit the socioeconomic status of the learner and the social roles played by the learner. First, the CBE model made a bachelor's degree affordable for the working class adult who could not have been able to afford getting a bachelor's degree otherwise. Second, the CBE model made it possible for the adult to take on the additional role of a college student without interfering with the other life roles he was already playing. Adult learning does not happen in vacuum, but rather in a complex social context; such social context has created not only demands for adult learners to engage in new learning experiences but also opportunities for adult learners to participate in new formats of learning.

On the other hand, CBE could hinder an adult's learning experience by failing to engage the adult learner in social learning, in which they learn from each other through discussion, collaboration, observation, imitation, and modeling (Theme 3). A major problem with CBE curriculum design is that it provides little room for the dynamics of social interaction and interpersonal relationships. While knowledge and skills make up one half of education, "personal encounter...is the other half of education" (O'Donoghue & Chapman, 2010, p. 96). The adult learner in my study didn't experience the richness and complexity of such "personal encounter." While he didn't miss having to attend classes physically in a classroom, more social interaction and personal contact via online communication channels would have made his CBE journey less of a lonely pursuit.

In addition, the CBE approach, with its emphasis on assessment of learning outcomes, could also hinder an adult's learning experience if it failed to provide the

learner with a well-designed and well-supported learning process. The adult learner in my study expressed his need for more guidance on processing the large amount of learning materials and completing difficult assignments; that guidance he needed would involve scaffolding built into the curriculum (Theme 6). As a strategic way to make available the appropriate support to help learners persist and succeed, scaffolding is critical in a fully-online CBE environment where individual students are taking charge of their learning and instructors are stepping to the side as guides. When scaffolding is lacking from the curriculum, adult learners may not be fully prepared to tackle difficult learning tasks. They might feel frustrated or lost; they might feel that they were left to learn on their own; they might even give up on the learning experience. Although competency assessments are of paramount importance in a CBE program that determine whether a learner is competent or not, they are by no means the only critical component of CBE. The process to get learners ready for passing the competency assessments is also critical, and that process requires effective instructional scaffolding to build students up for the challenges of such competency assessments. In a CBE model where learning is differentiated for individual students, scaffolding is about facilitating an individual learner's mastery of a competency. Without sufficient scaffolding and good instructional design, the CBE model will fail to create an online course flow that supports a self-directed and differentiated learning style.

Recommendations as a Result of My study

The findings of my study point to recommendations for both learners who are interested in pursuing CBE programs and educators who intend to develop new CBE programs as well as to improve existing CBE programs. For learners, the results of my

study indicate that success in a CBE program requires autonomous learning. For educators, the findings of my study indicate that building a good CBE program requires effective instructional design and quality curriculum.

Recommendations for learners. My case study told the story of an adult learner's experience going through a fully-online CBE bachelor's degree program. The results of my study suggest that for a student to be successful in a CBE program, he or she needs to be an autonomous learner.

The constructs of autonomous learning. Autonomous learning is a subset of activities within any self-directed learning endeavor and it is associated with psychological constructs of a learner (Ponton & Rhea, 2006). According to Ponton, Derrick, and Carr (2005), autonomous learning includes "the exhibition of personal initiative, resourcefulness, and persistence in one's learning" (p. 118). "Activities related to resourcefulness, initiative, and persistence form the core of autonomous learning;" an autonomous learner demonstrates resourcefulness, initiative, and persistence in his or her self-directed learning activity (Ponton & Rhea, 2006, p. 43).

The first construct associated with autonomous learning is learner resourcefulness, which includes four factors: "the learner's ability to anticipate future rewards of present learning, prioritize learning over non-learning activities, select learning over non-learning activities, and resolve problems relative to the selected activity" (Ponton & Rhea, 2006, p. 44).

The construct of personal initiative includes five factors: goal-directedness, an active approach to problem solving, action-orientation, persistence in overcoming obstacles, and self-startedness. Goal-directedness refers to "creating and working toward

the accomplishment of personal learning goals." An active approach to problem solving refers to "taking the responsibility" to find solutions to obstacles that "interfere with one's learning." Action-orientation describes "a rapid transition from intention to behavior;" thus a learner displays action-orientation when he or she creates learning goals and acts on the goals quickly. Persistence in overcoming obstacles refers to "the dogged pursuit of learning in spite of barriers" and interferences. Finally, self-startedness refers to learning that starts without the need of others (Ponton & Rhea, 2006, p.44).

The construct of persistence is comprised of three factors: goal-perseverance, self-regulation, and volition. Goal-perseverance refers to the learner's perseverant action towards goal completion. Self-regulation "encompasses personal management strategies that enable persistent behaviors." Volition refers to cognitive motivation after the learner "decides on a course to pursue." "Other forms of cognitive motivation are pre-decisional in that they lead to the creation of an intention; volition motivates behavior after the intention is created" (Ponton & Rhea, 2006, p. 44-45).

An example of autonomous learning. The participant of my study Rico demonstrated multiple factors associated with autonomous learning during his CBE program. In terms of resourcefulness, Rico understood the importance and the future rewards of obtaining his bachelor's degree, which provided him with strong internal motivation to make learning a priority in his life and persist through his CBE program:

I'm doing this (getting a bachelor's degree) for the future of my family. I want to set an example for my kids so that I can tell them college is very important. I'm also doing this for myself. This will be a big accomplishment for me. Whenever I get frustrated or tired of studying, I think about these.

Rico was also resourceful in how he sought to resolve problems related to his learning. As a mature adult learner, Rico demonstrated how he was able to utilize

resources available to him to solve problems and overcome challenges. During my study, Rico repeatedly mentioned the challenge of the reading materials in his coursework, especially readings with dense and unfamiliar content. To help himself better understand the readings, Rico would search for relevant materials on the Internet to read in hope of getting a better understanding of the topics; sometimes, he had to go through many web pages and links before he could find enough information on the topics. "I try to find the same topics of materials on the Internet because they can be explained in plain, simple language rather than long, complicated sentences like in the assigned readings," said Rico. By utilizing the Internet as a supplemental resource, Rico was able to better understand difficult readings in his coursework. When faced with challenging writing assignment, Rico was also resourceful in the way that he used examples from his personal life or from the media to explain difficult concepts and make his point. One such example was in a lesson on morality. Rico had to write about the concept of "categorical imperative," which was presented in a dense reading. First, Rico searched online sources for alternative discussions of "categorical imperative" to help him better understand the concept. Then, Rico used an example from his work situation to explain the concept in his own words, which made good sense and earned him full points on the test. Rico said:

I found whenever I had trouble with a writing assignment, using concrete examples always helped. Sometimes it's hard to come up with a bunch of reasons or logic to make a point; but when you use a concrete example to make a point, I find it much easier. So far, I've used examples from TV shows, from movies, and from my own life in my writing; the professors gave me great feedback on how nicely I used my examples.

In addition, Rico also utilized people in his life as resources to help with his learning. For example, his wife was a good resource and support for him. Rico often asked his wife to brainstorm with him to gather ideas for writing or to proofread his

writing drafts. His wife also provided tremendous mental support to Rico and encouraged him whenever he felt frustrated with the program. "I couldn't have done this without my wife," Rico told me on more than one occasion. In addition, the professors in his CBE program were very helpful as well. Rico felt the online CBE environment made it easier for him to reach out to the professors and ask questions because he didn't have to worry about other students' responses to his questions as he would in a face-to-face classroom, and because he could contact the faculty nearly anytime and they were often very responsive. As an advice to future CBE students, Rico emphasized: "Definitely don't hesitate to contact the professors or your faculty mentor. Make sure you use them because they mean it when they say they're here to help."

In terms of personal initiative, Rico found both long-term and short-term goal setting very useful to keep him on track. He would set long-term goals for each subscription period and he would also set short-term goals for each week. However, it was not easy to always stick to the goals and Rico had to adjust his goals from time to time. But as he grew more experienced with his CBE program, he became better at planning his study and pacing himself, and he "developed a good rhythm" for moving through the coursework. An external factor that strengthened Rico's personal initiative was the financial aid requirement, which stipulated a student had to complete a minimum of 12 credits for each subscription period and do at least one academic activity every week. If Rico didn't meet these requirements, he would risk losing his financial aid eligibility. Rico said:

It's a good thing that financial aid has all these requirements. They give us the bottom line. I can't afford to mess up my financial aid, so I make sure I stay on top of my work.

In terms of persistence, Rico demonstrated all three factors of goal-perseverance, self-regulation, and volition to varying degrees. Rico was perseverant in obtaining his bachelor's degree, and a significant part of that perseverance came from his responsibilities as a father and husband. The other part of Rico's perseverance might have come from the format of CBE. Because CBE allowed him to progress as fast as he could, Rico knew obtaining his degree would not be a long, drawn-out process if he worked hard. "I know it's all up to me how soon I can finish the program. When I know this can go fast, I feel motivated to stick it out." Self-regulation was a struggle for Rico at the beginning of his CBE program. He was used to following due dates from his previous schooling experiences and he claimed to be the type of student who "worked better under pressure"; but he had to adjust to setting and following his own deadlines in the CBE program. Rico enlisted the help of his wife to push him to study and act as his monitor. "I sure didn't like my wife nagging me to study. But her nagging was very necessary," laughed Rico. But once Rico was able establish study as part of his daily and weekly routine, he needed less monitoring or pushing from his wife; he would automatically do his study "when the routine kicks in." Knowing that he could save significant tuition cost by making faster progress also encouraged Rico to be disciplined with studying. As a man who loved bargains, Rico saw moving through his program faster as "a great bargain." As for volition and other forms of cognitive motivation, they grew stronger as Rico completed more and more credits: "Whenever you pass a test and earn more credits, it's very motivating and it makes you want to do that again."

From Rico's experience, we see how the constructs of autonomous learning play critical roles in whether a learner will be successful in a CBE environment. The

constructs of autonomous learning interact with and exert influence on each other. Rico was a strong autonomous learner as he exhibited many of the factors that formed the core of autonomous learning; however, Rico was not born with his autonomous learning skills. The CBE model challenged him to develop these skills in order to be successful in his program.

Because CBE is a purposeful, intentional, and self-directed learning experience, for future students who are considering the option of CBE, it is necessary for them to evaluate their autonomous learning capabilities and to understand it takes resourcefulness, personal initiative, and persistence to succeed in a CBE learning environment.

Recommendations for instructional design. The results of my case study also indicate that effective instructional design is critical to helping students master and demonstrate the desired competencies in a self-directed manner as curriculum is the backbone of any CBE program.

Introduction to Gagne's nine events of instruction. To evaluate the instructional design of the CBE program described in my case study, I applied the framework of Gagne's nine events of instruction, which was one of the key theories and most used instructional design models in online learning. Gagne's model provides a structure for developing effective online learning and a design framework that can apply to a variety of educational and training contexts (Gutierrez, 2015; Instructional design models, 2012).

According to Robert Gagne (1985), there are nine events of instruction that provide a framework for an effective learning process, based on the behaviorist and

cognitive information processing learning theory. These nine events of instruction include:

1. Gaining attention
2. Informing learners of the objective
3. Stimulating recall of prior learning
4. Presenting the content
5. Providing learning guidance
6. Eliciting performance
7. Providing feedback
8. Assessing performance
9. Enhancing retention and transfer

Gagne's model provides a systematic process that helps educators develop strategies and create activities for delivery of learning. Each of the nine events addresses "a form of communication that supports the learning process." When each of the nine events is completed, learners are more likely to be engaged and to retain the information or skills that they are being taught. What are essential to Gagne's nine events of instruction are the conditions of learning, which Gagne have also identified. He divides the conditions of learning into two groups: internal and external. Internal conditions are the already-established capabilities of the learner and the prior knowledge of the learner. External conditions are the stimuli that is presented externally to the learner. Gagne's model allows educators to consider the possible internal and external conditions that have an effect on the learning process and gives educators an outline or prototype to use for planning instruction. The nine events of instruction "should satisfy or provide the

necessary conditions for leaning and serve as the basis for designing instruction and selecting appropriate media” (Conditions of learning, n.d.).

Gagne’s nine events of instruction in a CBE program. Because the focus of Gagne’s model is on the outcomes or behaviors resulting from learning (Instructional design models, 2012), it serves as a relevant framework to analyze and evaluate CBE instructional design because the focus of CBE is also on the outcomes or behaviors resulting from learning. Furthermore, Gagne’s model and CBE share common theoretical foundations in behaviorist and cognitive learning theories as they both view learning outcomes as a combination of knowing and doing. Finally, Gagne’s nine events of instruction provides a model for guiding an incremental knowledge-to-skills process, which allows learners to apply their knowledge beyond the confines of in-class contexts and to a variety of situations they might encounter in contexts such as the workplace or daily life (Pinfan & St.Amant, 2010). Since the CBE approach also emphasizes the learners’ application of knowledge and skills in contexts beyond the classroom setting (an incremental knowledge-to-skills process), Gagne’s model of instructional design is a useful guide for evaluating the instructional design of a CBE program. Adopting Gagne's nine events of instruction as a theoretical framework, I evaluated the CBE instructional design described in this case study, drawing upon Rico's experience with the program. Below are my discussions and recommendations regarding the instructional design of a CBE program:

Event 1 and Event 2: Gaining attention and informing learners of the objective. A

major feature of CBE is to clearly identify objectives or outcomes that describe what students are expected to do at the end of a learning experience. At the beginning of each

learning module in Rico's CBE program, it informs students of the objective for the learning module and describes required performance. For example, in a criminology learning module, the learning objective is stated as "Discuss two effects criminology has had on both the penal and legal systems." In addition to a statement of the learning objective, students are also presented with a short introduction to the learning module accompanied by a relevant image. The statement of learning objective and the introduction give students a general overview of what is covered in the learning module. Rico said he usually read through these introductions because they gave him "an idea of what's coming" in a learning module.

In Rico's CBE program, the statement of learning objective and the introduction were able to give students a quick and brief overview of each learning module, which Rico considered useful. For further improvement, the beginning section of each learning module can be made more stimulating for students. According to Gagne's model, the event of "gaining attention," which is the first step in an instructional process, should stimulate students and evoke their curiosity. Some recommended methods for gaining attention include: posing thought-provoking questions to students, presenting a dilemma or problem, presenting an analogy, posting a short video or audio, etc. (Center for Online Learning at Georgia Southern University, 2015). When the beginning of a new learning event is stimulating, learners are more likely to become excited about the upcoming learning event. For the statement of learning objective, it is important to present it in a way students can easily understand. Instead of using formal language that is familiar to instructors and instructional designers, use a more casual language that is appropriate for students.

Event 3: Stimulating recall of prior learning. A weakness of Rico's CBE program was that it failed to build connections and reinforcement from one learning module to another. Rico described how his program was made up of "a bunch of small pieces" rather than traditional 3-credit courses, and how students could "do one piece after another as quickly as possible until all the pieces are completed." A reason why Rico was unable to retain more of what he learned was due to the modular nature of the curriculum and the lack of connection and reinforcement from one module to another. This is a problem with many CBE approaches. The normal approach in a CBE module often starts with clearly stated learning objectives or outcomes. Then, learning experiences are provided with readings and multimedia materials as well as exercises for practice and immediate feedback. The module concludes with an extensive evaluation and feedback. Modularization is sometimes justified on the grounds that small modules of skills and knowledge are more manageable and flexible for students than traditional curriculum that comprises of full-length 3-credit courses. However, modularization "can lead to a fragmentation and isolation of clusters of skills in a way that students are unable to make connections between them." By organizing knowledge and skills in small modules, we are presenting a discipline or a subject of knowledge in a linear sequence where "students feel they may be moving sequentially to the ultimate mystery" (O'Donoghue & Chapman, 2010, p.94). In Rico's case, he was always doing one learning module at a time, one after another, in a linear manner, until he finished the last learning module in his degree program. But all these modules or pieces of Rico's program did not come together to form a complete picture or solve a puzzle for Rico. As a result of the

modularization approach, the skills and knowledge Rico gained were more fragmented rather than integrated.

According to Gagne’s model, Rico’s CBE program was lacking in bridging prior learning to upcoming learning from one module to another. Although students were given the opportunity to demonstrate their prior knowledge and test out of a learning module through a pre-test, the pre-test targeted only students’ knowledge on the new topic rather than gave students the opportunity to apply what they already learned from previous topics to the new topic. According to O’Donoghue & Chapman (2010), it is important for CBE curriculum design to follow “an ‘integrated code’ where the deep structures, the basic principles of a discipline or a subject of knowledge, are revealed early on and regularly revisited at greater and greater levels of sophistication.” Any subject has its basic concepts and principles. “Whatever the subject happens to be and regardless of its difficulty, a way can be found of cutting it down to size, reducing it to a set of basic concepts which constitute its essential framework.” Once the learner understands this essential framework, he or she can find his or her way around the field more easily and see how bits of information fit together (O’Donoghue & Chapman, 2010, p. 94). The modular design of CBE has serious limitations to providing students with such a “deep structure of knowledge.”

Event 4: Presenting the content. To present the content efficiently and effectively, several strategies are recommended based on Gagne’s model. First, the content needs to be organized and chunked in a meaningful way to avoid cognitive overload. During my study, Rico repeatedly told me how the reading materials overwhelmed him because they were not carefully organized or chunked. Several reading materials were often presented

to the students all at once, in a list of web links, including both journal articles and textbook chapters. Students had to click on the links to access the readings. Students also had to navigate to the right pages to read because some of the web links led to an entire book and students were required to read certain pages from the book. Many of the readings were very lengthy, and they often had different focuses from one reading to another. Rico described how easily these readings became “jumbled” in his head. When he needed to refer back to a reading to answer a test question or do an assignment, it was difficult for him to locate the necessary information in the relevant reading.

As an instructor who had taught college reading for several years, I empathized with Rico’s struggle. After examining several samples of reading Rico shared with me, I felt some of them were even challenging for me to read in terms of the length and the density of the material. When doing instructional design, we can easily cause students cognitive and emotional overload when we simply “throw” a list of unfamiliar texts at the students and expect them to read every single text on the list without further guidance. From a reading instructor’s perspective, if students have to read all of the listed materials, I would recommend sequencing the readings from easy to difficult or from general to specific, presenting only one text at a time to students followed by comprehension checks, and designing assignments that target each individual text first before asking students to synthesize information from multiple texts. When a text is long, it is also helpful to break it into sections and guide students to read one section at a time to avoid overload. In addition, the readings should be presented in a format that is friendly for on-screen reading since there is no physical textbook or handouts involved in the program.

Allowing students to interact with the electronic reading materials, such as highlighting or annotating, is an effective way to improve students' reading comprehension.

Second, Bloom's Taxonomy can be used to sequence the content by chunking them into levels of difficulty. For example, assignments or exercises that require mostly remembering information will be presented first to the learners followed by assignments or exercises that require higher level of cognitive processes--understanding, applying, analyzing, evaluating, and creating (Krathwohl, 2002). As discussed in Chapter 4, many writing assignments in Rico's CBE program were challenging because they often required students to apply higher levels of cognitive processes without involving students in lower level of cognitive processes first. For instance, after a learning module presented students with multiple readings, the writing assignments immediately asked students to analyze these readings, synthesize information across these readings, and generate their own opinion or ideas based on the readings. These writing assignments were complex learning tasks that required multiple higher-level cognitive processes to complete. Rico felt that a large gap existed between the readings and the writings, and that gap could be filled with well-sequenced exercises or assignments according to the difficulty levels identified in Bloom's Taxonomy. Students need to first engage in exercises that require lower-level cognitive processes to practice new knowledge and skills, and gradually apply new knowledge and skills to more complex exercises that require higher-level cognitive processes. As students move through each difficulty level of learning content and tasks, they build their competency and will be able to demonstrate their mastery of competency by the end of the sequence.

Third, to address different learning preferences, content needs to be presented using a variety of media and the same content may need to be presented in multiple versions, such as video, PowerPoint presentation, podcast, reading, etc. In Rico's CBE program, the presentation of content included both texts and multimedia. Rico said he always preferred the multimedia materials to the texts, except that some of the videos were very old and less engaging compared to the more recent videos. He also liked the fact that the videos were often accompanied by a transcript so that he could be watching the video and reading the transcript at the same time. In certain learning modules, a textbook chapter was followed by a multimedia presentation of the content in the chapter; Rico could go over the same material twice in two different formats, which he found helpful.

Event 5: Providing learning guidance. According to the Gagne's model of instructional design, instructors need to advise students of strategies to aid them in learning content and using resources available. The instructional event of "providing learning guidance" is the scaffolding process when "the instructor provides guidelines, tools, and strategies to support learning, but does not give answers" (Center for Online Learning at Georgia Southern University, 2015). These scaffolds can be removed after the student learns the task or content. In traditional face-to-face classes, instructors are able to provide learning guidance or scaffolds to students verbally and physically. In the online environment, some of the learning guidance or scaffolds can be built into the online learning platform ahead of time while some needs to be provided to learners as needed through online communication tools. In Rico's CBE program, learning guidance was provided partially through already-built-in guidelines for coursework and partially

through subject matter experts and faculty mentors per student's request. As discussed in Chapter 4, Rico could benefit from more scaffolds that were built into the online learning platform, for instances, reading guides, outlines, concept maps, small learning tasks leading to complex learning tasks, examples or non-examples of writing assignments, etc. From an instructor's perspective, I'd like to see each learning module built to give students the experience of "climbing up a ladder", in which students move from lower levels of practices to higher levels of practices and eventually to the summative competency assessment. Each level of practice has clear directions, well-organized resources, and specific expectations so that students know exactly what they need to do, which will reduce the need for just-in-time guidance from the instructors on an individual basis.

The just-in-time learning guidance provided by the subject matter experts and faculty mentor was good, according to Rico. Whenever Rico needed help with the content, he simply emailed a subject matter expert or his faculty mentor and then he would get the assistance he needed. These faculty members were very "responsive" and "quick" in returning students' emails. They always let students know that they were there to assist.

Event 6: Eliciting performance. Eliciting performance is to allow students to practice new knowledge and skills before they are assessed for a grade. Because this is the developmental or practice phase of a topic to be learned, the student performance elicited should carry little or no weight. This was exactly what happened in Rico's CBE program. For each topic, multiple performances were elicited from the student, including essay writing, discussion postings, and other projects. However, these student

performances were meant for practice only and they didn't count toward a student's final competency grade. In fact, these performances were completely optional. Completion of these performances would better prepare students for the final assessment, however, they were not required. Rico commented that he really liked this feature of his CBE program because he had total control over what practices to try and what practices to skip. When Rico felt very confident about a competency, he might skip all of the practices for that competency and go directly to the final assessment. However, when a competency was new to Rico, the practices were useful for him to become familiar with the content associated with that competency before attempting the final assessment.

Event 7: Providing feedback. After student performance is elicited, instructors need to provide feedback on the performance. In fact, there is no point in asking learners to practice if instructors are not going to give them feedback on their performance. Providing immediate feedback on student performance can facilitate learning. There are different types of feedback: confirmatory feedback that informs students they did what they were supposed to do; corrective or remedial feedback that informs students the inaccuracy of their performance and directs them in the right direction without providing the correct answer; analytical and informative feedback that provides students with suggestions, recommendations, and further information for them to correct their performance (Norther Illinois University, n.d.). No matter what kind of feedback the instructor provides, it needs to be specific so that students know exactly what they did well and what they needed to improve. After the feedback is provided, students should be given second or third chance to try again until they have demonstrated the expected performance.

In Rico's CBE program, subject matter faculty provided written feedback on every assignment or assessment students submitted. The faculty's feedbacks did not seem to follow a particular rubric. Rather, the feedbacks were open-ended, including what the student did well and what needed improvement. When a writing assignment was graded, Rico would receive a grade together with a comment from the faculty. If points were deducted, the comment would explain the reason. For instance, Rico had received feedback on several occasions regarding thesis statement in his essays. The subject matter faculty explained in the written feedback that points were deducted because the thesis statement was not clearly presented in Rico's paper. The papers Rico submitted were not usually marked up with comments or corrections throughout, as they often were in his previous college classes. Rico expressed that he actually preferred the relatively general feedback to specific comments or markings throughout a paper. After students received the feedback, they were allowed to submit another attempt at the assignment or test until the faculty deemed the student's performance acceptable.

Event 8: Assess learner performance. In the step of "assessing learner performance," the evaluation or assessment should resemble the practice section, but this time learners will not receive hints or assistance along the way. In a CBE program, this step is often a final summative assessment. By now, students should have had practices and feedback to the degree that they are ready for the summative assessment, which will evaluate whether the previously stated objectives have been mastered. When students successfully pass the summative assessment, they should be allowed to progress to the next component of their CBE program.

According to Sturgis (2014), in CBE, the grade students achieve for their performance should be highly dependent on summative, evaluative assessments, which are “the assessments of learning.” Formative assessments, which are “the assessments for learning,” should be treated as practice that is tracked rather than graded, and should be used for “checking learning along the way.” Both summative and formative assessments should be delivered “just in time” as soon as a student is ready.

Rico’s CBE program has followed the principles of competency-based assessment and grading as stated by Sturgis. First, every learning module begins with a pre-test for checking students’ prior knowledge and skills. If students successfully pass the pretest, they can then skip the module and move onto the next module. Every module ends with a post-test which determines whether a student has mastered the required objectives. A student’s grade in a learning module is highly dependent on the post-test. Students are allowed multiple attempts on the post-test, which includes a variety of versions. Second, the learning modules contain a series of formative assessments, in the format of discussion postings, assignments, and exercises. These formative assessments carry minimal weight towards a student’s grade. Students receive either 100 points for an acceptable performance or zero point for performance that needs improvement. The primary purposes of these formative assessments are for students to receive feedback and to prepare for the post-test. Students are also allowed multiple attempts on each of the formative assessments until they demonstrate satisfactory performance. Last, both formative assessment and summative assessment can be taken whenever a student is ready. There is no due date or prescheduled date for any of the assessments. What Rico liked most about assessments in his CBE program was that students were always allowed

multiple attempts on an assessment and that final assessments were not “one-time shots.” Failing an assessment is no longer an option for students in CBE; instead, they have opportunities to keep trying and receive feedback until they succeed.

As an essential building block of CBE, competency assessments are used to determine students’ mastery of competencies and award credits, degrees, or other certifications. The quality of these competency assessments is highly important to a CBE program because they determine the value and integrity of a CBE credential. So, how can a competency assessment achieve high quality? Below are some recommendations:

First, a competency assessment must “include a strong performance component.” In CBE, it is critical to assess not only students’ knowledge in a particular discipline, but also students’ ability to apply their knowledge “in an employment setting or for further study at a higher level” (Ebersole & Goodyear, 2016, p. 1-2). A student’s performance on a competency assessment must provide appropriate evidence to support the inferences about what the student knows and can do based on the assessment score. Furthermore, there need to be discretely identified levels of performance for competency, whether it is two levels of performance—pass or fail or further differentiation of performances (McClarty & Gaertner, 2015).

Second, a competency assessment should provide students with a meaningful learning experience. By a meaningful learning experience, I refer to that the assessment contributes to student learning by encouraging students to apply and extend their knowledge. In other words, the assessments need to be as close as possible to real life experiences. By a meaningful learning experience, I also refer to that where possible, the

assessment provides flexibility in how students demonstrate their learning through the use of various formats, such as research paper, presentation, video, portfolio, etc.

Finally, “high-quality competency assessments” should be “linked to meaningful labor market outcomes,” and “align with industry standards and employers’ needs” (McClarty & Gaertner, 2015, p. 3; Ebersole & Goodyear, 2016, p. 3). In other words, it is critical for competency assessments to contribute to students’ workplace success. There has been a wide disparity in the perception of employers and higher education institutions regarding graduate’s preparedness for the workplace. As a result, the credibility of higher education has been questioned by the employers, which may have sprung the revolution of CBE in higher education.

In Rico’s CBE program, the final competency assessment for each learning module has its strengths and weaknesses based on the three recommendations of high-quality competency assessment mentioned above:

One strength is that the competency assessments in Rico’s program meet the standards of complex performance-based assessments. These assessments require students to demonstrate the knowledge they have learned and high level cognitive skills, such as synthesizing and evaluating information from multiple resources and applying the course concepts to the real world. This is especially true with the essay question at the beginning of each final assessment. One example of these essay questions Rico shared with me was on the topic of moral conflicts. The question asked students to analyze the existence of moral conflicts in relationships and how different factors might affect the development of moral conflicts. Students were also expected to use two examples to support their arguments. To successfully address this question, students needed to have a

good understanding of what moral conflicts were and how they were developed; students also needed to extend the concept of moral conflicts beyond the lesson materials and examine examples of moral conflicts in real life. A good answer to this question would involve summarizing the lesson materials on moral conflicts, analyzing the various causes of moral conflicts, and applying the concept of moral conflicts to examples from student's life. Furthermore, a good answer would need to be organized in a logical way and expressed in fluent writing. This essay question was definitely a complex performance-based assessment that could provide appropriate evidence to support the inferences about a student's mastery of desired competencies. When I asked Rico what he thought of this question, he felt this question was more relevant to his daily life than other essay questions he had done before; therefore, he was engaged in writing the essay. He was able to find one example from a popular TV show and another example from his personal experience to support his argument. Rico reflected:

Being able to relate the topic to my own life and using my own examples was probably the best part about writing this essay. I like this kind of essay questions. It was kind of fun to write it and I was very engaged.

In this case, the essay question about moral conflict also provided students a meaningful learning experience, which was another strength of the competency assessments in Rico's CBE program.

In contrast, there were other essay questions that Rico found less engaging or meaningful. Rico mentioned an essay question that asked him to formulate a hypothesis about a new country in South Asia and explain how he would test his hypothesis. Rico had a very hard time responding to that essay question not because he didn't understand hypothesis or how to test hypothesis (which was a main competency for that learning

module), but because he had limited knowledge of new countries in South Asia; he wasn't even sure which these new countries were. This essay topic was very distant from Rico's daily life or personal experience, he had "minimum interest in learning about South Asia," and he felt writing the essay was more of "a burden" than an interesting assignment. Rico told me this was one of the few essay questions that he had to reach out to the subject matter professor for help because he didn't know where to start. In spite of the challenges this particular essay question posed to Rico, it was still a complex performance-based assessment that required students to demonstrate what they learned about formulating and testing hypothesis in a given context.

An additional strength is that the final competency assessments in Rico's CBE program honor students' diverse responses as long as students demonstrate mastery of the content in their responses. Most of the questions on the final assessment were open-ended and many of them encouraged creative thinking from the students. In other words, there was no one correct answer to these questions. As long as "you could make a good argument about your ideas and show that you know what you are talking about, you'll be fine," said Rico, "in fact, the professors love it when you are creative in your writing." What Rico commented on was the freedom the program gave students in their writings as long as students could demonstrate they achieved the learning objective. Although students didn't have the opportunity to demonstrate their learning in various formats, these assessments did provide some flexibility in how students' performances were evaluated. Using the essay question about a new country in South Asia for example again, Rico ended up choosing a focus that was not exactly what the professor had in mind. But the professor gave Rico full points for the essay because Rico was able to

formulate an appropriate hypothesis and give a detailed explanation of how he would test the hypothesis, which was the expectation of that essay question.

Based on McClarty & Gaertner (2015) and Ebersole & Goodyear (2016)'s recommendations on quality competency assessments, a major weakness with the final competency assessments in Rico's CBE program has to do with the labor market value of these assessments. In my study, Rico didn't see a clear connection between the competency assessments in his CBE program and the workforce, which may be attributed to the nature of Rico's chosen program—liberal arts. As Rico stated:

The stuff I learned in this program doesn't directly translate into specific jobs; this degree probably won't get me a better-paying job. I knew that when I chose the program. I think that's just the nature of a liberal arts degree. But the topics in this program do help you understand our society and the world better.

Event 9: Enhancing retention and transfer. This final step in Gagne's model of instructional design helps the learners internalize the new information. Some strategies for enhancing retention and transfer include providing additional practice, applying the information to new situations, reviewing and reflecting on what has been learned, etc.(Gagne, Briggs, & Wager, 1992). Examining the instructional design of Rico's CBE program, this step was inadequate. Once a learning module was completed, it was checked off the student's to-do list and left behind. The student moved onto the next learning module to focus on new content, often forgetting what was learned in the previous module. The lack of reinforcement and transfer in the instructional design helped explain why Rico retained only limited amount of information at the end of his program. However, some key skills were repeatedly tested throughout Rico's coursework, such as writing skills and critical thinking skills. Because writing and critical thinking skills had been constantly used and evaluated throughout the entire program,

Rico noticed a significant improvement on his mastery of those skills. As a recommendation for developing an effective CBE program, key competencies need to be reinforced throughout the program to ensure students' mastery of those competencies.

A possible way to enhance retention and transfer in Rico's CBE program is to try an alternative format of competency assessment. Instead of the current test format that comprises a series of essay question and short-answer questions that focus on different topics, the program can consider the format of a comprehensive project that integrates all the topics under a learning module. These projects will challenge students to identify relationships between different topics, synthesize knowledge from multiple topics to solve an issue, and thus give students a more holistic understanding of the subjects. When a comprehensive project requires students to apply knowledge from different areas and topics, students' retention and transfer of the knowledge is likely to improve.

An additional event: Creating opportunities for social interaction. One of the themes that emerged from my study suggested adults desired social interaction in the learning process. Since Gagne's model of instructional design does not specify an event that focuses on social interaction, I'm proposing an additional event of creating opportunities for social interaction here as a recommendation for developing effective CBE programs. In my study, Rico pointed out the lack of interaction with other students as a major disadvantage of his CBE program. He would have loved to connect with other students in his same program, exchange study tips, discuss coursework, as well as share individual successes and obstacles via the program's online learning platform. Such peer interaction in an online environment can be a powerful support for students in a CBE program where learning is individualized and in-person collaboration is limited. In the

meanwhile, instructors should also attempt to create more opportunities for communicating with students in addition to email exchanges. For example, instructors may host regular online synchronous meetings and invite students to attend. During such meetings, instructors may give mini-lectures on a difficult concept, facilitate discussions, or answer students' questions. Whether it is student-student interaction or faculty-student interaction, it is important for learners in a CBE context to have channels to communicate with others while plodding through their individual learning paths.

Recommendations for changes. One question my study intends to answer is: What did Rico learn from his CBE program? The findings of my study illustrate that Rico had two major achievements: first, Rico asserted that his reading, writing, and reasoning skills definitely improved as a result of the program because he was constantly challenged to read, write, and reason in all the lessons. Second, Rico said he learned about many different topics in his program, ranging from philosophy, sociology, history, business to religion, politics, art, and literature; the variety of topics opened his eyes "to see the society from different perspectives" and broadened his "understanding of the world." Rico's two major achievements are in line with the purpose of a liberal arts education; that is, a liberal arts education develops "nimble minds, comfort with different cultures and ideas," and skills in communicating with others (Tiefenthaler, 2013, para.3).

However, although Rico said he learned a lot, he had difficulty enumerating specific knowledge or competencies he acquired from the program. He didn't remember much of the topics covered in his program and he had forgotten most of the lessons he completed by the end of his program. Why was that? Rico successfully achieved the end goal of his learning--to earn his bachelor's degree--in a very efficient manner, but he

didn't develop a deep understanding of the learning from his CBE program or internalize the content of his degree into “true knowing” of his own (Weimer, 2012). A few factors contributed to Rico's experience: the modularization approach to curriculum design, the structure of assessments, the theoretical underpinnings of competency-based education, and the interactivity in online self-paced learning.

Modularization approach. Rico's program uses the modularization approach to package its CBE curriculum. The modular approach to content organization and presentation has been widely implemented as part of the competency-based training and learning model (Cornford, 1997). According to Cornford (1997),

modularization of courses involves the packaging of course content, either theory or practical, into shorter, logically self-contained units which together cover the content which would be covered by a conventional, longer course (p. 238).

In Rico's CBE program, each conventional 3-credit course has been re-packaged into multiple "shorter, logically self-contained" lessons that are worth varying credit amount. Students progress through these lessons rather than conventional courses, earning credits along the way. This modularization approach definitely has its advantages: "one of the greatest advantages is the flexibility" created by the modularization of courses (Cornford, 1997, p. 239). Shorter, self-contained learning modules allow individual students to enroll for as many or as few as they can handle. This is especially helpful when adult learners have less time for undertaking conventional courses. Second, with modular lessons, students can demonstrate the materials they have mastered in a shorter periods of time, allowing a sense of progress. Finally, when failures occur in modular lessons, students "will not be required to waste time covering materials

they have already passed, as happens with more traditional courses." Instead they can just concentrate on those modules in which they have not been able to demonstrate competence (Cornford, 1997, p. 239).

However, "a major inherent weakness of modularization as a method of content organization is it tends to fragment knowledge" (Cornford, 1997, p. 237). In Rico's CBE program, although the lessons are designed to be interdisciplinary, there is limited connection from one lesson to another, and there is no need to review past lessons in order to complete new lessons. As a result, Rico was not challenged to integrate different units of information into a coherent whole understanding that he would be able to retain on a long-term basis.

The modularization approach is associated with behaviorist theory, which stipulates that "students' behaviors can be controlled through an instructional stimulus producing an anticipated, quantifiable response whose measurement was compared against predetermined standards" (Schilling & Koeting, 2010. p. 166). One assumption underneath the modularization approach is that "effective learning proceeds via self-contained chunks of information." However, "much of the research into human learning from cognitive and skill learning perspectives indicates" that learning does not often follow a strictly linear, rational process or proceed quickly. Rather, "successful learning is dependent upon the integration of units of information into coherent wholes to form schemas, particularly if effective problem solving is a desired outcome" (Cornford, 1997, p. 243). In Rico's case, he failed to develop "schemas or mental models" that could integrate all the lessons he completed into "a comprehensible whole," which represents deeper-level of understanding.

It is important to recognize that the problem of knowledge fragmentation is not restricted to modular courses; it is also a problem with many conventional courses. To overcome this problem and make modular courses as effective as possible, there are several specific recommendations that need to be observed in designing and constructing modular curriculum; Rico's CBE program can benefit from making the following improvements:

1. Course design must build in adequate practice and repetition to reduce forgetting.
2. Course design must "plan to integrate module knowledge with the workplace context" or students' life contexts.
3. Program "must have modules specifically designed to integrate theory and develop problem-solving skills."
4. Course design should follow the underlying concept of Bruner's spiral curriculum which involves the practice and repetition of basic skills with gradually increased complexity (Cornford, 1997, p. 249-250).
5. Program must clearly identify what are the "enduring understandings" students must develop as a result of studying in the program and what "essential questions" students will be able to answer. Enduring understandings "provide a conceptual foundation for" studying the different content areas and "frame the big ideas that give meaning and lasting importance to discrete curriculum elements" such as topics, facts, and skills. Essential questions address the core ideas within a discipline and promote students' ongoing inquiries of a subject (McTighe & Wiggins, 2005).

Assessments structure. The second factor that affects Rico's experience was the structure of assessments in his program. Assessment is central in competency-based education. In competency-based, modular courses, the clear focus is upon performance to pass the module assessment. This is, again, behaviorist conceptualization that one assessment task at the end of a module can determine a learner's competence in that module, with "no revisiting of the module at a later stage or later parallel assessment if the module is passed" (Cornford, 1997, p. 246). In Rico's CBE program, the post-test at the end of each lesson is the only summative assessment to judge a learner's competency and upon passing the post-test, learners are finished with that lesson. In fact, Rico will no longer have access to the lessons he already completed if he needed to revisit a lesson at a later stage. In Rico's words, "once a lesson is done, it's checked off the list forever."

Valid and reliable assessments should involve assessing consistency of performance over time, which cannot be judged from just one assessment. To ensure validity and reliability of assessments, Rico's CBE program should plan for multiple assessments of skills and content throughout a lesson. For example, some of the optional assignments in a lesson, especially the more complex assignments, can potentially serve as assessments of competency rather than serve as practices. Furthermore, if teaching problem-solving and skills led to best practice is the ultimate goal of the program, it may need to incorporate a final summative assessment to cover the attainment of all objectives in individual lessons and test for integrated skills and problem solving. According to Cornford (1997), "the tradition of rigorous testing of learning at the completion of a course before certification is gained" is practiced in many European countries, especially

Germany; it helps "ensure not only integration of knowledge and maintenance of high standards, but substantial pride in the gaining of those credentials" (p. 248).

Besides the limits with the summative assessments, there are also limits with the formative assessments in Rico's CBE program. In each lesson, formative assessments take the forms of optional exercises and assignments. Because they are optional and carry nearly no weight in grading, Rico often ignored or skipped them, which didn't help him practice the information or skills presented in the lesson. Another limit with the exercises and assignments within a lesson is that they don't always closely align with the post-test at the end of the lesson. Rico didn't feel these exercises or assignments always prepared him for the post-test and therefore, he was discouraged from doing the practices. Had the practice assignments been closely aligned with the post-test in each lesson, Rico would have made the efforts to do all these practices before attempting the post-test, as he did at the very beginning of his program before he realized he didn't always need the practice before taking the post-test. According to Cornford (1997), to make modular courses as effective as possible, "serious consideration must be given to ways of ensuring that adequate time is planned for practice and feedback before summative assessment takes place;" students need to be assisted "via resubmission, feedback and coaching before the period of final assessment" (p. 246 & 249). In Rico's program, if he chooses to skip all the optional assignments, he will not receive any assistance through resubmission, feedback or coaching. Furthermore, formative assessments need to be closely aligned with the learning objectives and the summative assessments so that they truly pave the way for students to pass the summative assessment.

Theoretical underpinnings of competency-based education. The third factor that attributes to Rico's experience pertains the theoretical underpinnings of competency-based education. The CBE model, in essence, reflects the functionalist theory of education that sees the role of education as conveying basic knowledge and skills to the next generation and maintaining social order. Spade (1977) defines CBE as:

a data-based, adaptive, performance-oriented set of integrated processes that facilitate, measure, record, and certify within the context of flexible time parameters the demonstration of known, explicitly stated, and agreed upon learning outcomes that reflect successful functioning in life-roles (p. 10).

A CBE program will begin with a set of pre-determined and explicitly stated competencies. These competencies are deemed essential for students to successfully function in their life-roles and "to become productive, effective citizens in society." CBE's focus on essential knowledge and skills for productive and effective citizens in society reflects the theory of essentialism. This theory "proposed teaching skills systematically and sequentially, while insisting on high standards of achievement" and measuring students' achievement against pre-determined standards. Further, a CBE program will also strive to help students achieve expected competencies through an efficient and standardized learning process by eliminating unnecessary or repetitive materials and removing seat-time restraints. The assumption behind a streamlined education process is that "a more directly related curriculum could be created to better serve the social roles students would occupy. " Such an assumption reflects the social efficiency ideology, which sought to build "an efficient and effective educational system" that combined the ideas of social control with the principles of scientific management,

such as standardization, to prepare "students to positively contribute to an industrialized society in an efficient manner" and to "create an orderly and stable society" (Schilling & Koetting, 2010, p. 167). Both the theory of essentialism and the social efficiency ideology fall within the framework of functionalism.

The fact that Rico didn't develop a deep understanding of his learning is partially due to the functional curriculum his CBE program delivered. The lessons in Rico's CBE program focus primarily on conveying basic knowledge and skills, in particular, basic knowledge in humanities and basic skills of reading, writing, and reasoning. The assessments in his program measure primarily students' comprehension of the information conveyed in the lessons, and also student's skills in reading, writing, and analyzing. It was no surprise when Rico commented that his "reading, writing, and reasoning skills have definitely improved" because those were the main skills the program attempted to foster in students; it also came as no surprise when Rico said he was exposed to a variety of topics that opened his eyes to view the society from different perspectives because the lessons in his program presented a large body of knowledge and information from various subject areas to the student. Although Rico stated that his CBE program challenged him to think very hard, it is still largely limited to teaching Rico "what to think" rather than "how to think" (Boris & Hall, 2005).

The fact that Rico didn't develop a deep understanding of his learning is also partially due to the streamlined and efficient educational process he went through. Rico's experience was streamlined because the lessons in his degree program were all pre-determined required content; there were no electives that students could choose based on their personal interests. Rico's experience was streamlined also because he was allowed

to skip any additional work as long as he could demonstrate competency on a test. Rico's experience was efficient because he completed his course work as quickly as he was able to and he spent as little money as possible on paying for his degree. When an educational process is reduced to a streamlined, efficient, and industrial-like process, the psychological, effective, and social domains of the learners could be overlooked or compromised. When reflecting on what he learned from his CBE program, Rico didn't seem to experience significant growth in the psychological, effective, and social domains except that his self-confidence was increased by his success in the program.

As a recommendation for change, I believe CBE needs to balance between efficiency and intellectual development for students. It is beneficial for students to move in, through, and out of their degree programs efficiently to reduce time and cost investment. However, a rich and enlightening learning experience is even more beneficial for students. In Rico's case, simply passing through a series of tests may not be the richest and most enlightening learning experience for him. CBE should strive to achieve both efficiency and intellectual development through high-quality program design.

Interactivity in online self-paced learning. Last but not least, the nature of interactivity in Rico's online CBE program affects his learning achievement. "A critical contextual factor that has been suggested to affect online student learning and satisfaction relates to interactivity" (Croxtton, 2014, p. 315). From a social cognitive perspective, knowledge is constructed while learners are engaged in human interaction in public, social contexts (Bandura, 2001). The tenets of social cognitive theory purport that "learning and knowledge are shaped by the kinds of interactions a student has with others and the context within which these interactions occur." In a fully-online degree program,

lack of social interaction should not be considered as an expected tradeoff of an online learning experience. A well designed online course can "provide an active-learning environment in which students are highly engaged in the learning process through interactions with peers, instructors, and content" (Croxtton, 2014, p. 315). When students have insufficient interaction experiences in online courses, learning may be compromised.

In Rico's experience, he had a lot of interaction with both his faculty mentor and different subject matter faculty; however, there was a lack of student-student interaction and student-content interaction. Throughout his entire program, Rico never had any interaction with another student even though he desired to connect with his peers and share experiences; Rico never had to do any activity that required working with other students. Overall, Rico's CBE experience was a relatively isolated self-paced journey. From the social cognitive perspective, learning is not an individual process; interactivity is vital to learning and the level of interactivity has an impact on the quality of online instruction. Isolation can be reduced and motivation can be increased by building a sense of community among the online learners. To create an online learning environment that flourishes, it is vital to encourage communication among students to build a sense of connection and camaraderie, as well as to provide opportunities for students to collaborate with one another on learning tasks, even when each student is working along a self-directed path. It is true that collaboration and teamwork is difficult to facilitate when students are working at their own pace; but it is still doable. CBE programs will have to be creative in designing learning tasks that involve cooperation and collaboration among students.

Student-content interaction results from students examining/studying the course content and from students participating in learning activities (Croxtton, 2014). One limit in Rico's CBE program is that the content, including assignments, activities, and tests, lacks dynamics. "A lot of the lessons are just boring. I don't find them enjoyable to do, so I just try to get over with them as quickly as possible," said Rico. Examining the content of Rico's program, it is obvious that the lessons rely heavily on static, text-based materials that aren't likely to motivate or engage students. Whether it is presenting new content or assessing student learning, the primary delivery format in Rico's program is text. Students learn the content mostly from reading it. Students then take the information received, process it, and produce a work product – either a discussion post or a paper. For example, in many lessons, the content is delivered through heavy readings in PDF files and e-textbook chapters, which Rico found "overwhelming" and "dull." After the readings, students are then expected to produce pieces of writing to demonstrate they have learned the content. This learning process is action-based, not interaction-based; an action-based learning process is not engaging because action is simply doing something with the materials, for example, reading the assigned course materials and writing about them; however, interaction provides an opportunity to work with the information, for example, students asking critical thinking questions regarding the course materials and responding to classmates' answers to these questions.

To create dynamic course content, the program should use a wide range of multimedia tools to produce stimulating materials and cater to different learning needs. In addition, student-content interaction can also be improved by moving away from recorded lectures, readings, assignments, and tests toward more interactive and active

learning tasks such as virtual teams, online games, and application activities that require students to apply the concepts to case studies, current events, or problem solving.

Examining Rico's CBE program, we can see that the lessons present an enormous amount of information. However, information is not learning. Student engagement occurs when "students make a psychological investment in learning," and when "they take pride not simply in earning the formal indicators of success (grades), but in understanding the material and incorporating or internalizing it in their lives" (as cited in Dietz-Uhler & Hurn, 2013, p. 62). When students are actively engaged in the material, they tend to process it more deeply, which leads to successful retention of the material. The content of Rico's CBE program didn't create an interactive and active learning environment that was truly engaging to Rico.

In summary, research data suggest that "online courses with high levels of interactivity lead to higher levels of student motivation and improved learning outcomes...over less interactive learning environments" (Croxtton, 2014, p. 316). In a CBE environment where students are self-pacing through their learning, it might seem as though the only meaningful interaction available to them is with the course content itself. However, that's not necessarily a given. Student-student and student-instructor interaction is still possible and should not be overlooked. The beauty of self-paced learning is that students drive the learning. When students are presented with options, they are able to choose the type and level of interaction that works best for them (Schoolkeep, 2015). The self-paced approach is not necessarily a failure to provide interaction; rather, it "affords learners an increased measure of flexibility in terms of the pace of engagement

in the various course activities and in communications with others" (Rhode, 2009, para. 4).

The Implications of CBE for Higher Education

The challenges facing higher education in the United States can be summarized in four words: employability, accountability, affordability, and accessibility. Employability is to ensure “learners have the competencies, knowledge, and skills employers are looking for.” Accountability is to “make the value of what they are learning clear to learners” and hold learners to high expectations of achievement. Affordability is to lower the cost of higher education for learners. Accessibility is to “reach a wider variety of learners and support a wider variety of learning styles” (Blackboard, 2016).

What today’s learners demand of higher education can also be summarized in the same four words: employability, accountability, affordability, and accessibility. Most learners choose to pursue higher education in order to find a gainful employment or advance in the workplace (employability); learners desire to learn what is meaningful to their career and daily life, and to master valuable skills (accountability); learners need to be able to afford a quality higher education without getting into deep debt (affordability); and last but not least, a diverse population of learners demand alternative paths to a college education as the traditional path fails to meet their needs (accessibility).

If competency-based education (CBE) is considered a promising innovation for America's higher education, how is it going to address these challenges facing higher education and meet the demands of today's learners? My case study provides insights into the implications of CBE for higher education in terms of accessibility and affordability, accountability, as well as employability. As an overview, the following chart highlights Rico's CBE experience and compares it with some concerns that have been brought up

regarding CBE. Through the comparison, I hope to illustrate how a real student felt about his CBE experience and how intellectuals are concerned about possible negative implications of CBE.

	Rico's Experience	Public Concerns about CBE
Accessibility and Affordability	<p>"Without CBE, I wouldn't have gotten my bachelor's degree today."</p> <p>"CBE gave me a much easier access to a bachelor's degree."</p> <p>"My CBE program was very affordable."</p>	<p>Does CBE threaten to further stratify American higher education by attracting more disadvantaged students? (Slaton, 2013 & Ward, 2016)</p> <p>Does CBE essentially promote "a division between those who need a thorough, content-centered liberal education and those who only need a light, fast, cheap, and vocation-friendly version?" (Ward, 2016)</p>
Accountability	<p>"I probably would be okay with getting Cs in some classes [if this was a traditional bachelor's degree program]. But you can't do that in CBE. I have to get at least 86% on every single lesson. Getting an 86% is a lot harder than just passing. Every time I take a post-test, I try to be as perfect as possible with my answers because I can't lose more than 14 points out of the 100 points."</p> <p>"If I want to get an A, I have to do extra work and that work has to be nearly perfect...the learning is definitely very rigorous. You can't expect to just get by in any of the lessons."</p> <p>"To answer those questions on the post-test, I definitely have to do a lot of critical thinking, and creative</p>	<p>Can CBE programs offer students the same kind of intellectual development as the traditional programs?</p> <p>Do CBE programs leave students to learn on their own without providing "regular and substantive interaction" with faculty? (Fain, 2016)</p>

	thinking as well. Those questions really challenge me to think hard.”	
Employability	<p>“It depends on, to a large extent, the employers: how do the employers understand and value CBE. I don’t think a lot of employers know about CBE yet.”</p> <p>“The reputation of the school is also important. I picked my CBE program because it is from a reputable school.”</p>	<p>Do CBE programs focus too much on workforce preparation? (Morris, 2015)</p> <p>What is the purpose of higher education? Is it just preparing one for the workforce?</p>

Chart 5.1 A Comparison of Rico's CBE Experience and Public Concerns about CBE

Accessibility and affordability. CBE appeal to institutions and students for a variety of reasons and those reasons widely include employability, accountability, affordability, and accessibility. From a student’s perspective, which was the focus of my study, CBE has strong advantages in improving the accessibility and affordability of higher education. Throughout the study, Rico told me several times that a bachelor’s degree would not have been realistic at this point of his life without the CBE option; CBE made a bachelor’s degree accessible to him both in terms of money and time. As I was wrapping up my study with Rico, Rico was also approaching the completion of his program. After 18 months of hard work (three six-month subscriptions), Rico had finished all the required coursework for his bachelor’s degree (a portion of the course requirement was met by transfer credits from his associate’s degree program). Rico said:

If I’ve gone to a traditional bachelor’s program, I probably could only take a couple of classes every semester, between my job and my family; that would take me maybe four or five years to graduate. With CBE, I did it in 18 months. I’m very happy with that. The cost is another big plus. If I’d gone to a traditional program, I would have to take out student loans to help pay for it, even with the financial aid [I’m eligible for]. I can’t add that kind of burden to my family, so I probably won’t even think about getting a bachelor’s degree anytime soon. The

subscription model of tuition definitely saved me a lot of money. I want to get as much as I can with each subscription, you know, get more bang for my buck. That was a big motivation for me.

Because the CBE approach was flexible, personalized, and self-paced, it was ideally suited for an adult learner like Rico who had to juggle competing priorities while trying to fit school into life's demands. "At a time of record student debt and stubborn college completion gaps" (Girardi & Crew, 2016, p.5), the CBE model offered Rico an alternative path to earn his bachelor's degree faster and at a lower cost.

Accountability. The CBE program described in my study delivered a curriculum that was rigorous, demanding, and held students to higher expectations. Rico explained how his CBE program held him to much higher standards of learning, and how the higher expectations challenged him to be more serious about his learning:

I probably would be okay with getting Cs in some classes [if this was a traditional bachelor's degree program]. But you can't do that in CBE. I have to get at least 86% in everything in my program. Getting an 86% is a lot harder than just passing. Every time I take a post-test, I try to be as perfect as possible with my answers because I can't lose more than 14 points out of the 100 points.

Rico also compared the grading standards in his CBE program to his previous college class experience; he acknowledged that in CBE, he was not allowed to fail in one unit of a course yet still expect to pass the course by earning an average score of passing among several units, which could happen in a non-CBE course. For example, when Rico took a required computer literacy course at his local community college, he earned perfect scores on the Microsoft Word, Excel, and PowerPoint units of the course because he was already very proficient with those skills prior to the course. Rico became very bored with the course and quit doing the rest of the units because he already earned an average grade high enough to pass the course. Rico said:

the course grade was calculated by averaging the scores we got on all the units. I didn't care to do the Access unit because I was already passing with the grades I got. You see, that will not happen in CBE because Word, Excel, PowerPoint, and Access are all going to be competencies I need to demonstrate. I can't just skip Access. I'll have to learn it and do well on it.

Rico's experience in the computer literacy class demonstrates a potential flaw with the grading standards in non-CBE courses, which is averaging. Averaging is not acceptable in CBE because students have to demonstrate mastery on every single competency required for a credential and averaging the scores earned on several different competencies is not a true reflection of students' performance. Furthermore, in traditional courses, we sometimes factor students' attendance into their final grade, which again doesn't reflect student's true academic performance. CBE offers a way to remedy these potential flaws in traditional college classes and strives to paint a more accurate picture of students' skills and abilities. By holding every learner to higher standards, and by expecting every learner to achieve mastery on all required competencies rather than allowing the learner to scrape by, CBE has the potential to improve the accountability of higher education.

However, in spite of its potential, we can't draw the conclusion that the CBE format offers a better quality of learning than the traditional format. The participant of my case study Rico felt no significant difference between the results of learning he gained from his CBE program and the results of learning from a traditional college program he attended previously. To Rico, his CBE experience exposed him to a wide variety of subjects and a vast amount of information, which was intellectually enriching and satisfying. However, the amount of information he was able to retain at the end of his program was limited. Rico felt this problem was also true when he attended a traditional

college program: he took a series of classes from one semester to another; over time, the list of classes he passed was long, but the amount of information he retained in the end was limited. "I wish I could remember everything I learned, but I know that's impossible. Our brain doesn't work that way...I don't consider quality of learning as being able to remember everything," commented Rico. The quality of learning, in Rico's perspective, boiled down to the issue of personal learning preferences. Rico personally preferred the CBE approach because it fit his personal learning preferences: "For me, learning in CBE is better because it's on my own terms."

Employability. From Rico's perspective, whether CBE improves employability of students is dependent upon the employer to a large extent. If an employer understands and values CBE, then that employer is more likely to think favorably of the candidates who have CBE credentials. In Rico's own case, he believed his bachelor's degree would be able to open more doors for him in the workplace; but he was not sure how employers would see the value of his CBE bachelor's degree, especially when CBE was still very new and not widely known yet. When it came to employability, Rico also commented on how the reputation of a school could impact the perceived value of a degree earned from that school. A major reason why Rico chose his CBE program was the name of the school. As Rico explained, although it was neither an Ivy League school nor the largest school in the state, his school was still "a real, legit school," which meant it was a well-established public institution. Rico knew about Western Governors University and College for America, which also offered CBE degrees; but Rico didn't choose either of them because he "had never heard about them before" and he worried about their reputation. When we talked about the future of CBE in higher education, Rico shared his

interesting perspective, which again was related to the name and reputation of the schools offering CBE:

Students are not flocking to CBE right now because CBE is still so new. I think for CBE to become big, it would take a big-name school to take the lead and totally transform itself with CBE, maybe a large school like the University of Texas, then others will follow. It's like with smart phones. Smart phones have existed for a while before it became so popular today. It was Apple and Apple phones that made all smart phones cool and hip. That one big-name school would be the "Apple" to make CBE popular. You know, our generation and the new generation, especially the new millennials, are very brand-driven. The name of the school, the brand—they are important.

With a strong focus on real-world learning, the CBE approach should theoretically lead to greater employment, and thus benefit the student, the institution, and the economy. However, there has not been conclusive evidence to show that CBE programs do improve the employability of their students. The one thing we do know is that employers need to be informed about the CBE approach and that institutions should involve employers as much as possible in the planning and implementation of a CBE program to bridge the gap between higher education and the workplace.

Summary of implications. CBE has broad implications for higher education in terms of accessibility, affordability, accountability, and employability. CBE models have opened up possibilities for long-needed innovations of higher education, including transitioning higher education institutions from an industrial society "to an information society," "restructuring the economics of higher education," and increasing access for underserved populations. As "a pedagogic and assessment model to enhance the rigor, personalization and nature of the student experience," the CBE model may also solve the issue of "achievement accountability with which institutions now struggle (Seymour, Everhart, & Yoshino, 2015, p. 9). Furthermore, CBE models could lead to more dialogue

between education and business, and open up opportunities to strengthen collaboration between institutions and the workplace. As CBE programs tend to be closely tied to workforce demands and professional credentials, employers need to be involved as "key stakeholders both in the formulation of competencies needed to achieve a competency-based degree and in the degree's marketability." "Employer participation in the creation and implementation of CBE pathways "is an important component in CBE program efficacy" (Seymour, Everhart, & Yoshino, 2015, p. 13).

However, in spite of its positive implications, CBE also has negative implications for higher education in terms of access and equity. The rapid growth of CBE programs currently serves only "a narrow slice of the college-going population." The majority of the existing CBE programs are designed for students who are already well prepared for college coursework. Few are intended for students who lack college-ready skills and need remediation coursework (Girardi & Crew, 2016, p. 5). The participant of my study, Rico, was tested directly into college-level classes and never had to take any remediation coursework when he decided to go back to school. Rico also had a few years of experience attending a community college before transferring to his CBE program and he was familiar with the culture of college. In Rico's case, he had the academic skills necessary for succeeding in his CBE program, especially reading, writing, and thinking skills. However, a significant number of students enroll in community colleges whose tested skills are below college level in at least one area: reading, writing, or math. According to Girardi & Crew (2016), "roughly 2.4 million community college students each year—about 60 percent of the incoming population—are required to take at least one remedial course in English or math" before starting college-level, credit-bearing

classes (p. 8). Further, “roughly 80 percent of this population is working” and “need to juggle work, school, and family obligations” (p. 11). These underprepared learners are rarely able to access CBE approaches; and when they do have access to CBE programs, they are more likely to struggle compared to college-ready learners.

As an instructor who has been teaching remedial reading and writing courses for five years at a community college, I understand the skill gaps and academic needs of these underprepared students. As I was conducting my study, I could imagine how difficult it would be for my remedial students to handle the rigorous reading and writing requirements in the described CBE program; many of my students with low basic academic skills were not likely to persist and succeed in such an intense CBE program. Despite its great potential to increase access to higher education, CBE will have to address the needs of a broader range of learners, including learners who lack college-level literacy and math skills, in order to play a significant role in “the national movement to increase educational access, equity, and credential attainment” (Girardi & Crew, 2016, p. 5).

Conclusions

Today, higher education is facing increasing pressure to develop alternatives to traditional post-secondary credential pathways, and "help students achieve lifelong learning and career goals" (Seymour, Everhart, & Yoshino, 2015, p. 5). According to the National Student Clearinghouse Research Center, 38 percent of all postsecondary students in a fall term are adult learners, 25 years of age or older. That percentage is expected to rise to 42% by 2020. Adult learners, who need to work to afford higher education and "are actively working toward job and career goals," are becoming the “new

normal” in postsecondary institutions (National Student Clearinghouse, 2012). This changing demographic of college students has serious implications for our higher education system. The new question facing higher education today is no longer how to fit student’s life into education, but rather how to fit education around student’s life.

There is little doubt that CBE makes a valuable complement to the traditional higher education model by offering a more flexible, personalized, and self-paced learning path. CBE also has the potential to enhance existing models of higher education to address access, quality, and productivity challenges. However, CBE is certainly not a panacea that will save higher education and no one has claimed that it is. What CBE can bring to higher education is a catalyst for change—change that will make higher education in America stronger, more vibrant, and more globally competitive. “While CBE is not the sole answer, not the right model for all programs, not for all students, and not for all institutions, it is providing an opportunity for a national conversation about innovation and change” and it “gives us hope that we can, in fact, change” the flow of the “national educational river” (Richardson, 2016, p. 60-61).

Interview Protocols

Introductory Interview/First Interview

1. What made you want to return to college?
2. What made you choose this CBE program for your studies?
3. Tell me about your previous educational experiences.
4. How is your learning experience in this CBE program similar to your previous learning? How is it different?
5. Tell me about your work experiences.
6. How do your work experiences relate to your learning experience in the CBE program?
7. Where are you at with the program right now?
8. What about this program is helpful to your learning?
9. What about this program is not helpful or even acts as a barrier to your learning?
10. What kind of things are you learning from this program? How valuable are they to you?
11. What responsibilities do you have in life? How do they influence your learning and progress in college?
12. Is there anything else about your learning experience in this program that you would like to share with me?

Subsequent Interviews

1. How are your lessons going?
2. Since our last conversation, what is new with your program or yourself?
3. What lesson(s) are you working on? Show and tell me about it/them.
4. Show and/or tell me about something you enjoyed doing in a lesson.
5. Show and/or tell me about something you did well on.
6. Show and/or tell me about something you had difficulty with.
7. Show and/or tell me about something you would change about a lesson or the program in general.
8. Show and/or tell me about something you learned since our last conversation that is really important to you.
9. How do you feel about or what do you think of your program so far?
10. Is there anything else you would like to share with me today?
11. What does competency-based education mean to you?
12. What do you think of the higher education system in America?
13. How do you think CBE fits in or doesn't fit in with the higher education system in America?

References

- Achieve & Center for Assessment. (2015). Assessment to support competency-based pathways. Retrieved from <http://www.achieve.org/files/AssessmenttoSupportCBP.pdf>
- Anderson, C. (2013, June 10). Competency-based education is not new. Retrieved from <http://www.skilledup.com/insights/competency-based-education-is-not-new>
- Baker, R. B. (2015). The student experience: How competency-based education providers serve students. Retrieved from American Enterprise Institute website: <http://www.aei.org/wp-content/uploads/2015/06/The-student-experience.pdf>
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1-26. doi:10.1146/annurev.psych.52.1.1
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-599. Retrieved from <http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf>
- Blank, W. (1982). The competency-based approach to education and training. *A Collection of Readings Related to Competency-Based Training*, 38-59. Retrieved from <http://files.eric.ed.gov/fulltext/ED384695.pdf>
- Boris, G. B., & Hall, T. (2005). Critical thinking and online learning: A practical inquiry perspective in higher education. Paper presented at 20th Annual Conference on Distance Learning and Teaching. Retrieved from http://www.uwex.edu/disted/conference/resource_library/proceedings/04_1288.pdf

- Box, J., & Leblanc, P. (2014, January 29). Competency-based education opens new doors [Congress Blog]. Retrieved from <http://thehill.com/blogs/congress-blog/education/196685-competency-based-education-opens-new-doors>
- Brahm, G. (2015, October 12). Competency-based education: A disruptive force whose time has come [The Evollution]. Retrieved from <http://evollution.com/opinions/competency-based-education-disruptive-force-time/>
- Bradley, M., Seidman, R., & Painchaud, S. (2012). Preface. In *saving higher education: The integrated, competency-based three-year bachelor's degree program* (pp. ix-xv).
- Bramante, F., & Colby, R. (2012). *Off the clock: Moving education from time to competency*. Thousand Oaks: Corwin.
- Brower, A. (2014). Flexible option: A direct-assessment competency-based education model. *Educause Review Online*. Retrieved from <http://www.educause.edu/ero/article/flexible-option-direct-assessment-competency-based-education-model>
- Brower, A. (2015, December 11). Navigating the CBE frontier: At the educational crossroads. *The EvoLLLution*. Retrieved from http://evollution.com/attracting-students/customer_service/navigating-the-cbe-frontier-at-the-educational-crossroads/
- Brower, A., & Schejbal, D. (2016, September 14). Navigating the CBE frontier: Creative and alternative student support for creative and alternative models of education. Retrieved from <http://evollution.com/programming/applied-and-experiential->

learning/navigating-the-cbe-frontier-creative-and-alternative-student-support-for-creative-and-alternative-models-of-education/

- Brown, M. (1994). An introduction to the discourse on competency-based training (CBT) in Deakin University Course Development Centre (Ed.), *A collection of readings related to competency-based training* (pp. 1-17). Victoria, Australia: Victorian Education Foundation, Deakin University. Retrieved from <http://files.eric.ed.gov/fulltext/ED384695.pdf>
- CAEL. (2015). Competency-based bachelor of business administration at Brandman University (CBE case study 4). Retrieved from CAEL website: http://www.cael.org/pdfs/cbe_casestudy_brandman_university
- CAEL. (2014). Customized, outcome-based, relevant evaluation (CORE) at Lipscomb University. Retrieved from Council for Adult and Experiential Learning (CAEL) website: http://www.cael.org/cael_lipscomb_case_study
- Carnevale, A., Smith, N., & Strohl, J. (2013). Recovery: Job growth and education requirements through 2020. Retrieved from Georgetown University Center on Education and the Workforce website: https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.FR_.Web_.pdf
- Casselman, B. (2013). Number of the week: “Non-Traditional” students are majority on college campuses. *The Wall Street Journal*. Retrieved from <http://blogs.wsj.com/economics/2013/07/06/number-of-the-week-non-traditional-students-are-majority-on-college-campuses/>

- Center for Online Learning at Georgia Southern University. (2015, September 25).
Gagne's 9 events of instruction. Retrieved from
<http://academics.georgiasouthern.edu/col/strategies/gagne/>
- Cercone, K. (2008). Characteristics of adult learners with implications for online learning design. *AACE Journal*, 16(2), 137-159. Retrieved from:
<http://www.distance.uvic.ca/pdfs/instructors/Characteristics-of-Adult-Learners.pdf>
- Chao, E., DeRocco, E., & Flynn, M. (2007). Adult learners in higher education: Barriers to success and strategies to improve results (2007-03). Retrieved from
Employment and Training Administration website:
<http://files.eric.ed.gov/fulltext/ED497801.pdf>
- Chen, G. (2014). Competency-based education: Better for your academic success? *Community College Review*. Retrieved from
<http://www.communitycollegereview.com/articles/604>
- A complete guide to competency-based education [Blog post]. (n.d.). Retrieved from
<http://www.affordabledegreesonline.org/blog/competency-based-education-why-moocs-and-independent-learning-are-tomorrows-course-credits/>
- CompetencyWorks. (n.d.). What is competency-based learning?. Retrieved June 14, 2015, from
<http://competencyworks.pbworks.com/w/page/66734498/Welcome%20to%20the%20CompetencyWorks%20Wiki>
- Conditions of learning. (n.d.). Retrieved from
<http://www.instructionaldesign.org/theories/conditions-learning.html>

- Cornford, I. R. (1997). Ensuring effective learning from modular courses: A cognitive psychology-skill learning perspective. *Journal of Vocational Education and Training*, 49(2), 237-251. Retrieved from <http://www.tandfonline.com/doi/pdf/10.1080/13636829700200014>
- Convenience sampling. (n.d.). Retrieved from <http://research-methodology.net/sampling/convenience-sampling/>
- Croxton, R. A. (2014). The role of interactivity in student satisfaction and persistence in online learning. *MERLOT Journal of Online Learning and Teaching*, 10(2), 314-324. Retrieved from http://jolt.merlot.org/vol10no2/croxton_0614.pdf
- D2L Corporation. (2015). Learners become masters: Answering five key questions about competency-based education. Retrieved from http://content.brightspace.com/wp-content/uploads/Brightspace_CBE_ebook.pdf
- Denzin, N. K., & Lincoln, Y. S. (2003). *The landscape of qualitative research: Theories and issues* (2nd ed.). Thousand Oaks, CA: Sage.
- Dietz-Uhler, B., & Hurn, J. (2013). Strategies for engagement in online courses: Engaging with the content, instructor, and other students. *Journal of Teaching and Learning with Technology*, 2(1), 62-65. Retrieved from <http://jotlt.indiana.edu/article/download/3294/3588>
- Ebersole, J., & Goodyear, T. (2016). Assessment: What we've learned and why it matters. In *Competency-based education & assessment: The Excelsior experience* (pp. 1-4). Albany, NY: Hudson Whitman/Excelsior College Press.

- Ellucian. (2016). *CBE: Meeting students where they are*. Retrieved from Ellucian website: <https://www.ellucian.com/eBooks/CBE--Meeting-students-where-they-are/>
- Fain, P. (November 25, 2015). Measuring competency. *INSIDE HIGHER ED*. Retrieved from <https://www.insidehighered.com/news/2015/11/25/early-glimpse-student-achievement-college-america-competency-based-degree-provider?>
- Fain, P. (2016). The faculty role online, scrutinized. *INSIDE HIGHER ED*. Retrieved from <https://www.insidehighered.com/news/2016/01/15/education-departments-inspector-generals-high-stakes-audit-western-governors-u>
- Federal Student Aid. (2015). Competency-based education experiment reference guide. Retrieved from <https://experimentalsites.ed.gov/exp/guidance.html>
- Fleming, B. (2015, February 17). Mapping the competency-based education universe. Retrieved from <http://www.eduventures.com/2015/02/mapping-the-competency-based-education-universe/>
- Ford, K. (2014). Competency-based education: History, opportunities, and challenges. Retrieved from <https://www.umuc.edu/innovatelearning/upload/cbe-lit-review-ford.pdf>
- Franklin, C., & Lytle, R. (2015). Employer perspectives on competency-based education. Retrieved from American Enterprise Institute website: <https://www.aei.org/wp-content/uploads/2015/04/Employer-Perspectives-on-Competency-Based-Education.pdf>
- Gagné, R. (1985). *The conditions of learning and theory of instruction* (4th ed.). New York: Holt, Rinehart, and Winston.

- Gagne, R. M., Briggs, L.J., & Wager, W.W. (1992). *Principles of instructional design* (4th ed.). Forth Worth, TX: Harcourt Brace Jovanovich College Publishers.
- Gagnon, Y. (2010). *The Case Study as Research Method: A Practical Handbook*. Québec [Que.]: Presses de l'Université du Québec.
- Gillham, B. (2000). *Case Study Research Methods*. London: Continuum.
- Hatch, J. A., (2002). *Doing qualitative research in education settings*. Albany, NY: State University of New York Press.
- Grady, H. (2006). Instructional scaffolding for online courses. Retrieved from <https://www.rose-hulman.edu/Users/faculty/williams/OldFiles/Public/PDF%20Files/21.pdf>
- Girardi, A., & Crew, R. (2016). Next-generation CBE: Designing competency-based education for underprepared college learners. Retrieved from Jobs for the Future website: http://www.jff.org/sites/default/files/publications/materials/CBE-paper%20070716%5B1%5D_0.pdf
- Gutierrez, K. (2015, August 25). A quick overview of four instructional design models [Web log post]. Retrieved from <http://info.shiftelearning.com/blog/top-instructional-design-models-explained>
- Helix Education. (n.d.). How ready are you for competency-based education? Key questions to ask from models and academic strategies to policies and regulations. Retrieved from <http://www.helixeducation.com/article/how-ready-are-you-for-competency-based-education/>

- Hill, R. (2015, June 19). The new breed of competency-based education degree programs: A trend or fad? (Part 1). Retrieved from <http://www.evollution.com/opinions/breed-competency-based-education-degree-programs-trend-fad-part-1/>
- Hoffman, M., & Jones, P. (2016). Principles of assessment: A Primer. In *Competency-based education & assessment: The Excelsior experience* (pp. 5-27). Albany, NY: Hudson Whitman/Excelsior College Press.
- Instructional design models. (2012). Retrieved from http://www.instructionaldesigncentral.com/htm/IDC_instructionaldesignmodels.htm#gagne
- Jacobus, F. (2007). A frame for the design and implementation of competency-based teacher education programs at the University of Namibia (Doctoral dissertation, Stellenbosch University, Stellenbosch, South Africa). Retrieved from <http://scholar.sun.ac.za/handle/10019.1/1425>
- Johnson, D. (2012). Why companies want competency-based education? *The evollution: Illuminating the Life Long Learning Movement*. Retrieved from http://www.evollution.com/program_planning/why-companies-want-competency-based-education/
- Johnstone, S., & Soares, L. (2014). Principles for developing competency-based education programs. *Change: The Magazine of Higher Learning*. Retrieved from http://www.changemag.org/Archives/Back%20Issues/2014/March-April%202014/Principles_full.html

- Kelchen, R. (2015). The landscape of competency-based education: Enrollments, demographics, and affordability. Retrieved from American Enterprise Institute website: <https://www.aei.org/wp-content/uploads/2015/01/Landscape-of-CBE.pdf>
- Kelly, A. P., & Columbus, R. (2016). Innovate and Evaluate: Expanding the Research Base for Competency-Based Education. Retrieved from American Enterprise Institute website: <http://www.aei.org/wp-content/uploads/2016/06/Innovate-and-Evaluate.pdf>
- Kinser, K. (2007). Innovation in higher education: A case study of the Western Governors University. *New Directions for Higher Education*, 15-25.
doi:10.1002/he.243
- Klein-Collins, R. (2012). Competency-based degree programs in the U.S. Retrieved from http://www.cael.org/pdfs/2012_competencybasedprograms
- Klein-Collins, R. (2013). Sharpening our focus on learning: The rise of competency-based approaches to degree completion. Retrieved from National Institute for Learning Outcomes Assessment website: <http://www.learningoutcomeassessment.org/documents/OccasionalPaper20.pdf>
- Komenetz, A. (2014, April 22). Study: 2 In 5 Americans earning degrees after high school. *NPR News*. Retrieved from <http://www.npr.org/sections/thetwo-way/2014/04/22/304577740/study-2-in-5-americans-earning-degrees-after-high-school>

- Krathwohl, D. R. (2002). A revision of Bloom's Taxonomy: An Overview. *Theory into Practice*, 41(4), 213-254. Retrieved from http://www.unco.edu/cetl/sir/stating_outcome/documents/Krathwohl.pdf
- Kuhne, G. (n.d.). 10 characteristics of adults as learners. Retrieved from <https://www.google.com/#q=10+characteristics+of+adults+as+learners>
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.
- Laitinen, A. (2012). Cracking the credit hour. Retrieved from New America Foundation and Education Sector website: http://higheredwatch.newamerica.net/sites/newamerica.net/files/policydocs/Cracking_the_Credit_Hour_Sept5_0.pdf
- Le, C., Wolfe, R., & Steinberg, A. (2014). The past and the promise: Today's competency education movement. Retrieved from Jobs for the Future website: <http://www.jff.org/sites/default/files/publications/materials/The-Past-The-Promise-091514.pdf>
- Lewis, M., Eden, R., Garber, C., Rudnick, M., Santibanez, L., & Tsai, T. (2014). Equity in competency education: Realizing the potential, overcoming the obstacles. Retrieved from Jobs for the Future website: <http://www.jff.org/sites/default/files/publications/materials/Equity-in-Competency-Education-103014.pdf>
- Luzon, M. J. (n.d.). Providing scaffolding and feedback in online learning environment. Retrieved from http://atilf.fr/IMG/pdf/melanges/8_LUZON.pdf

- Malamed, C. (2009). Characteristics of adult learners. Retrieved from <http://thelearningcoach.com/learning/characteristics-of-adult-learners/>
- McClarty, K. L., & Gaertner, M. N. (2005). Measuring mastery: Best practices for assessment in competency-based education. Retrieved from American Enterprise Institute website: <https://www.aei.org/wp-content/uploads/2015/04/Measuring-Mastery.pdf>
- McTighe, J., & Wiggins, G. (2005). Crafting enduring understandings and essential questions. Retrieved from <http://olc.region10.org/21/wp-content/uploads/2013/07/Essential-Question-and-Enduring-Understanding-Tutorial.pdf>
- Mendenhall, R. (2012, September 5). What is competency-based education? *Huff Post*. Retrieved from http://www.huffingtonpost.com/dr-robert-mendenhall/competency-based-learning-_b_1855374.html?
- Merriam, S. B. (2002). *Qualitative research in practice: Examples for discussion and analysis*. San Francisco, CA: Jossey-Bass.
- Merriam, S.B. (2001). *Qualitative research and case study applications in education*. San Francisco: CA: Jossey-Bass.
- Merriam, S. B. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. *New Directions for Adult and Continuing Education*, (89), 3-13. Retrieved from http://umsl.edu/~wilmarthp/modla-links-2011/Merriam_pillars%20of%20anrdagogy.pdf
- The Midwest Aids Training and Education Center. (2009, April). Retrieved from https://aidsetc.org/sites/default/files/resources_files/matec-7issues.doc

- Morris, H. (2015, December 9). The myths of competency-based education: Questions of equity and quality [Next Gen Learning Blog]. Retrieved from <http://nextgenlearning.org/blog/myths-competency-based-education-questions-equity-and-quality>
- Naranjo, N. (2009, April 24). Historical foundations of the competency based education model [Blog post]. Retrieved from <https://cbeandsocialworkeducation.wordpress.com/>
- Naranjo, N. (2012, December 10). Criticism of competency-based education model [Blog post]. Retrieved from <https://cbeandsocialworkeducation.wordpress.com/2012/12/10/criticisms-of-the-competency-based-education-model/>
- National Center for Technology Innovation. (n.d.). Case study. Retrieved from http://www.nationaltechcenter.org/index.php/products/at-research-matters/case-study/#_ftn1
- National Student Clearinghouse. (2012). More than one-third of college students are over 25. Retrieved from http://www.studentclearinghouse.org/about/media_center/press_releases/files/release_2012-04-19.pdf
- Neem, J. (2013). Experience matters: Why competency-based education will not replace seat time. *Liberal Education*, 99(4). Retrieved from <http://www.aacu.org/liberaleducation/2013/fall/neem>
- A new measure for collegiate learning: What presidents think about the promises and pitfalls of competency-based education. (2015). *The Chronicle of Higher*

Education. Retrieved from <http://www.pearsoned.com/higher-education/topics-in-higher-education/online-and-blended-learning/innovative-learning-models/competency-based-education-cbe-tools-resources/>

Northern Illinois University. (n.d.). Gagne's nine events of instruction. Retrieved from http://www.niu.edu/facdev/_pdf/guide/learning/gagnes_nine_events_instruction.pdf

O'Donoghue, T., & Chapma, E. (2010). Problems and prospects in competencies-based education: A curriculum studies perspective. *Education Research and Perspectives*, 37(1), 85-104.

O'Shaughnessy, L. (2013, June 13). Who is earning college degrees and who isn't? *CBS News*. Retrieved from <http://www.cbsnews.com/news/who-is-earning-college-degrees-and-who-isnt/>

Patrick, S., Kennedy, K., & Powell, A. (2013). Mean what you say: Defining and integrating personalized, blended and competency education. Retrieved from <http://www.inacol.org/cms/wp-content/uploads/2013/10/iNACOL-Mean-What-You-Say-October-2013.pdf>

Patton, M.Q. (2002). *Qualitative research and evaluation methods* (3rd ed.) Thousand Oaks, CA: Sage Publications, Inc.

Phillips V. (2013, October 28). 3 reasons you should avoid competency-based learning. Retrieved from <http://www.geteducated.com/elearning-education-blog/3-reasons-why-you-should-avoid-competency-based-learning/>

- Pinfan, Z., & St.Amant, K. (2010). An Application of Robert Gagné's Nine Events of Instruction to the Teaching of Website Localization. *Journal of Technical Writing & Communication*, 40(3), 337-362. doi:10.2190/TW.40.3.f
- Ponton, M. K., Derrick, M. G., & Carr, P. B. (2005). The relationship between resourcefulness and persistence in adult autonomous learning. *ADULT EDUCATION QUARTERLY*, 55(2), 116-128. doi:10.1177/0741713604271848
- Ponton, M. K., & Rhea, N. E. (2006). Autonomous learning from a social cognitive perspective. *New Horizons in Adult Education and Human Resource Development*, 20(2), 38-49. Retrieved from <http://education.fiu.edu/newhorizons>
- Porter, S., & Reilly, K. (2014). Competency-based education as a potential strategy to increase learning and lower cost. Retrieved from http://hcmstrategists.com/maximizingresources/images/CBE_Paper.pdf
- Porter, S. (2014, March). Competency-based education and federal student aid. Retrieved from <http://www.thehatchergroup.com/wp-content/uploads/Competency-Based-Education-and-Federal-Student-Aid.pdf>
- Priest, N. (2014, October 27). Social learning & CBE--Competency education is a team sport [Blog post]. Retrieved from
- Priest, N., Rudenstine, A., & Weisstein, E. (2012). Making mastery work: A close-up view of competency education. Retrieved from Nellie Mae Education Foundation website: <http://competencyworks.org/wp-content/uploads/2012/11/Making-Mastery-Work-NMEF-2012-Inline.pdf>

- Rhode, J. (2009, February). Interaction equivalency in self-paced online learning environments: An exploration of learner preferences. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/603/1178>
- Richardson, J. (2016). The artistic current of competency-based education. *Competency-based Education*, (1), 60-61. doi:10.1002/cbe2.1002
- Rivers, C. (2016, August 4). Competency-based education: The importance of metrics and data collection. Retrieved from http://evollution.com/programming/program_planning/competency-based-education-the-importance-of-metrics-and-data-collection/
- Robison, J. (2012). The benefits of competency-based education for adults. Retrieved from http://www.evollution.com/program_planning/the-benefits-of-competency-based-education-for-adults/
- Rossmann, G., & Rallis, S. (2012). *Learning in the field: An introduction to qualitative research* (3rd ed.). Los Angeles, CA: SAGE Publications Inc.
- Russel, S. S. (2006). An overview of adult learning processes. Retrieved from http://www.medscape.com/viewarticle/547417_2
- Seymour, D., Everhart, D., & Yoshino, K. (2015). The currency of higher education: Credits and competencies. Retrieved from American Council on Education and Blackboard website: <http://www.acenet.edu/news-room/Pages/The-Currency-of-Higher-Education-Credits-and-Competencies.aspx>
- Share, J. (2013). College for America: A new approach for a new workforce that is accessible, affordable, and relevant. *CAEL Forum & News Competency-*

- Based Education*, 20-24. Retrieved from
http://www.cael.org/pdfs/cael_competency_based_education_2013
- Schilling, J. F., & Koetting, J. R. (2010). Underpinings of competency-based education. *Athletic Training Education Journal*, 5(4), 135-169. Retrieved from
<http://nataej.org/5.4/0504-165169.pdf>
- Schoolkeep. (2015, September 8). Putting isolation in its place - Interactivity in self-Paced e-learning [Blog post]. Retrieved from
<https://resources.schoolkeep.com/blog/putting-isolation-in-its-place-interactivity-in-self-paced-e-learning>
- Simons, H. (2009). *Case study research in practice*. Los Angeles: SAGE Publications.
- Slaton, A. (2013). Democratic limits of "customized. *INSIDE HIGHER ED*. Retrieved from
<https://www.insidehighered.com/views/2013/08/08/competency-based-education-puts-efficiency-learning-essay>
- Song, L., & Hill, J. (2007). A conceptual model for understanding self-directed learning in online environments. *Journal of Interactive Online Learning*, 6(1), 27-42. Retrieved from <http://www.ncolr.org/jiol/issues/pdf/6.1.3.pdf>
- Spady, W. G. (1977). Competency based education: A bandwagon in search of a definition. *Educational Researcher*, 6(1), 9-14. Retrieved from
<http://www.jstor.org/stable/1175451>
- Spradley, J. (1979). Asking descriptive questions. In *The Ethnographic Interview* (1st ed.). Retrieved from <http://jan.ucc.nau.edu/~pms/cj355/readings/spradley.pdf>

- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.
- Stavredes, T., & Herder, T. (2012). Strategies and techniques to help online students persist. Retrieved from http://www.uwex.edu/disted/conference/resource_library/proceedings/63850_2012.pdf
- Stavredes, T. (2012). Instructional scaffolding to support online learners. Retrieved from Wiley Learning Institute website: https://www.nl.edu/media/nlu/downloadable/provost/otlofficeteachinglearning/wiley/online/42712/1349246340-stavredes_scaffolding_final.pdf
- Sturgis, C., Patrick, S., & Pittenger, L. (2011). It's not a matter of time: Highlights from the 2011 competency-based learning summit. Retrieved from CompetencyWorks website: http://www.competencyworks.org/wp-content/uploads/2012/04/iNACOL_Its_Not_A_Matter_of_Time_full_report.pdf
- Sturgis, C. (2014). Progress and proficiency: Redesigning grading for competency education. Retrieved from CompetencyWorks website: <http://www.competencyworks.org/wp-content/uploads/2014/01/CW-Progress-and-Proficiency-January-2014.pdf>
- Tiefenthaler, J. (2013, April 10). The value of a liberal-arts education. Retrieved from <http://hechingerreport.org/the-value-of-a-liberal-arts-education/>
- Training principles of adult learning. (n.d.). Retrieved from https://cdns3.trainingindustry.com/media/2068131/principlesofadultlearning_full.pdf

- U.S. Department of Education. (n.d.). Competency-based learning or personalized learning. Retrieved from <http://www.ed.gov/oii-news/competency-based-learning-or-personalized-learning>
- Ward, S. C. (2016). Competency-based education threatens to further stratify higher education. *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/views/2016/02/01/competency-based-education-threatens-further-stratify-higher-education-essay>
- Weimer, M. (2012, November 19). Deep learning vs. surface learning: Getting students to understand the difference [Blog post]. Retrieved from <http://www.facultyfocus.com/articles/teaching-professor-blog/deep-learning-vs-surface-learning-getting-students-to-understand-the-difference/>
- Weise, M., & Christensen, C. (2014). Hire education: Mastery, modularization, and the workforce revolution. Retrieved from Clayton Christensen Institute for Disruptive Innovation website: <http://www.christenseninstitute.org/wp-content/uploads/2014/07/Hire-Education.pdf>
- Weise, M. (2014). The real revolution in online education isn't MOOCs. *Harvard Business Review*. Retrieved from <https://hbr.org/2014/10/the-real-revolution-in-online-education-isnt-moocs/>
- Westminster College. (n.d.). The program. Retrieved October 13, 2015, from <https://www.westminstercollege.edu/pbl/?parent=10848&detail=10883>
- Western Governors University. (2015). Tuition and fees. Retrieved October 13, 2015, from http://www.wgu.edu/tuition_financial_aid/tuition

Worthen, M., & Pace, L. (2014). A K-12 federal policy framework for competency education: Building capacity for systems change. Retrieved from CompetencyWorks website: http://www.competencyworks.org/wp-content/uploads/2014/01/CompetencyWorks_A_K-12_Federal_Policy_Framework_for_Competency_Education_February_2014.pdf

Wynsberghe, V., & Khan, S. (2007). Redefining case study. *International Journal of Qualitative Methods*, 6(2), 80-94. Retrieved from <https://ejournals.library.ualberta.ca/index.php/IJQM/article/viewFile/542/2495>

Yin, R. K. (2003). *Case study research: Design and methods* (3rd Ed.). Thousand Oaks, CA: Sage Publications.